



**LESSMANN**<sup>®</sup>  
THE GERMAN BRUSH COMPANY

**2024**

en

**CATALOGUE**

 **QUALITY MADE IN GERMANY**

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Dear customers,

Following an eventful 2023, in which we celebrated our 75th anniversary, we are looking forward to what 2024 will bring.

A groundbreaking decision for our company came into effect on January 1 of this year: **Ms. Cornelia Kitzsteiner was appointed as Managing Director** and is now responsible for Sales and Marketing. Ms. Kitzsteiner has been with the company for over 30 years and was most recently made an authorised signatory and head of our sales department. This decision will provide our customers, business partners and staff with stability and continuity in the future.

There are some important trade fairs coming up in 2024, where we look forward to meeting many of our customers and interested parties in person. Visit us at our exhibition stands at the **International Hardware Fair in Cologne** (March 3 – 6, 2024), at the **Tube trade fair in Düsseldorf** (April 15 – 19, 2024) or **AMB in Stuttgart** (September 10 – 14, 2024)!

We are constantly working to expand our range and further develop our products. This year, we have introduced further new products that we would like to present to you. In this catalogue, you will find our range of flexible honing brushes (page 116), internal brushes with round wires as a mounting shaft (page 115) or a solid hand brush with plastic bristles and scraper, which is ideal for cleaning lawn mowers (page 107).

Please contact us, we will be happy to provide you with further information on any of these and other products!



You are also welcome to watch our **new image film** at [www.youtube.com/watch?v=K-XFdGuhv78](https://www.youtube.com/watch?v=K-XFdGuhv78)



*Jürgen Lessmann*  
Jürgen Lessmann

*Dieter Lessmann*  
Dieter Lessmann

*C. Kitzsteiner*  
Cornelia Kitzsteiner



## Five Good reasons to choose Lessmann



### QUALITY

We focus on products of the highest quality and place great emphasis on our service and consulting to make it easier for you to work.

### FAIRNESS

We see our customers and suppliers as true partners. This fairness is the great strength of our family-run company.

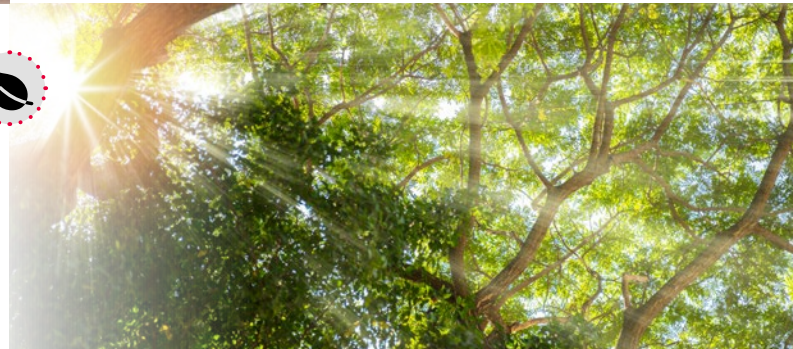


### RELIABILITY

You can rely on us for consistent quality and adherence to delivery dates. For us, reliability also means producing both mass-produced items and custom-made products at competitive prices.

### SUSTAINABILITY

Sustainable entrepreneurial action with responsibility for society, the environment and future generations is an important principle for us.



### INDEPENDENCE

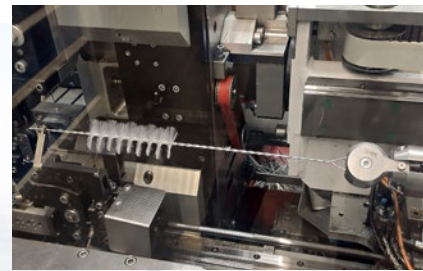
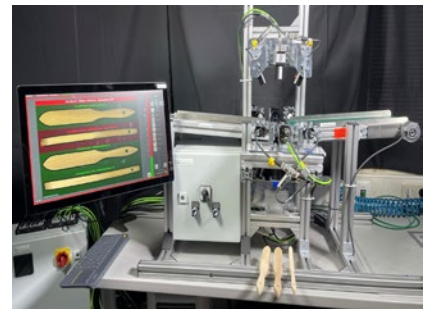
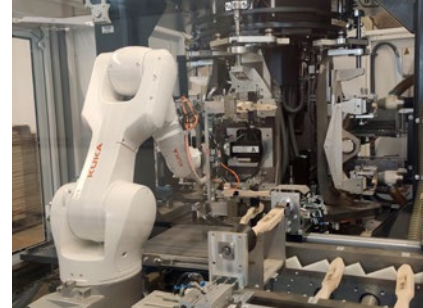
We strive for independence on the procurement and sales side. Together with the distribution of know-how across all levels, this gives you the security of having a strong partner with us long term.



## Future-oriented investment

After the enlargement of our production hall by 4,200 sqm in 2014 and of our high rack storage area by 1,300 sqm in 2016, we have completed construction of the new administration building in 2021, providing our employees with modern offices equipped to a high technical standard – with more space, more light and a better indoor climate. In addition, we constantly modernized and enhanced our production lines with new machines.

These steps are a visible sign of our stable growth. Besides the new building shows our intention to assure our position as leading technological and qualitative company and to strengthen it by opening new markets! Furthermore we have more space and capacities for producing more industrial special solutions – of course in our usual best quality and accuracy!





## Made in Germany

Quality made in Germany. For LESSMANN that does not only mean, that all our products are manufactured in Bavaria, but also the huge part of all raw materials as filament, wood, metal or plastics are purchased from renowned suppliers in Germany.

We manufacture almost all products in a broad standard program on our own. That's why already the quality of the raw materials has a significant role. Intensive test of the materials and inspections during production, build up two important values of the reliable LESSMANN-quality.

The headquarters in Germany requesting us to be the pioneer when using modern technology and automation. Thus our customers can receive the best quality at competitive prices.



As an Authorised Economic Operator (AEO) with the combined authorization „customs simplification (AEOC) & security and safety (AEOS)” we can offer you much faster and easier customs clearance for export.

## Fit for the Globe

First-class quality products, expertise and a high flexibility – our innovative technical brushes are “Fit for the Globe”.

Depending on the country we work with our own employees, regional importers or authorised retailers. Our export department has the accurate know-how, to consult and satisfy the demand of our customers globally.

In 2016 we launched a foreign branch in the USA. The „Lessmann Inc.” guarantees optimal service and logistics and our approved first-class products on the US-American market.



## Perfect Presentation

The brand LESSMANN signifies quality and gives clearly structured information.

Further technical advice as well as operating instructions are available.

**Please have a look at our home page in the internet!**

On [www.lessmann.com](http://www.lessmann.com) you will find our latest catalogue as well as leaflets to download.

**Self-service Tool Bar Displays**

Take advantage of our experience and use this idea that will lead to successful and increased sales.



## Systematic Sustainability

Ecological responsibility means operational environmental protection as well as a contribution to climate protection for Lessmann. Therefore, our goal was to have the company certified according to ISO 14001:2015 (environmental management) to clearly define and track reduction targets for emissions and raw material consumption. Lessmann has been certified according to this standard since May 2022 and thus records consumption to make future reduction targets measurable. We have also recently become part of the „Bavarian Environment + Climate Pact“. By participating, we are obligated to take environmental protection measures that go far beyond the legal requirements.

Since 2003, we have been using several photovoltaic systems to generate electricity on all our company's roof surfaces. Through constant extensions, we have now reached a total output of 588 kWp. With an annual consumption of approx. 1,200 kWh, we now generate almost 50 % of our electricity ourselves. We are even better with the heating: This is fueled to 100 % from leftovers of the production of our wooden handles.




**Promoting sustainable forest management**


**PEFC**<sup>™</sup>  
PEFC/04-31-0389

[www.pefc.de](http://www.pefc.de)

### PEFC Certification System

PEFC is a transparent and independent certification system to ensure sustainable forest management. An inspection is carried out by independent experts and ensures compliance with the standards.

Lessmann uses PEFC certified wood that comes from a regional forest and is managed sustainably or complies with PEFC standards, e.g. in hand brushes.



Print product with financial **climate contribution**

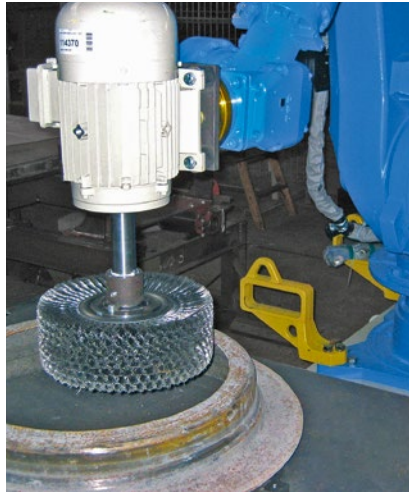
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To compensate for the CO<sub>2</sub> generated in the printing of this catalog, we made an offset payment for clean drinking water in Eritrea through the ClimatePartner program.

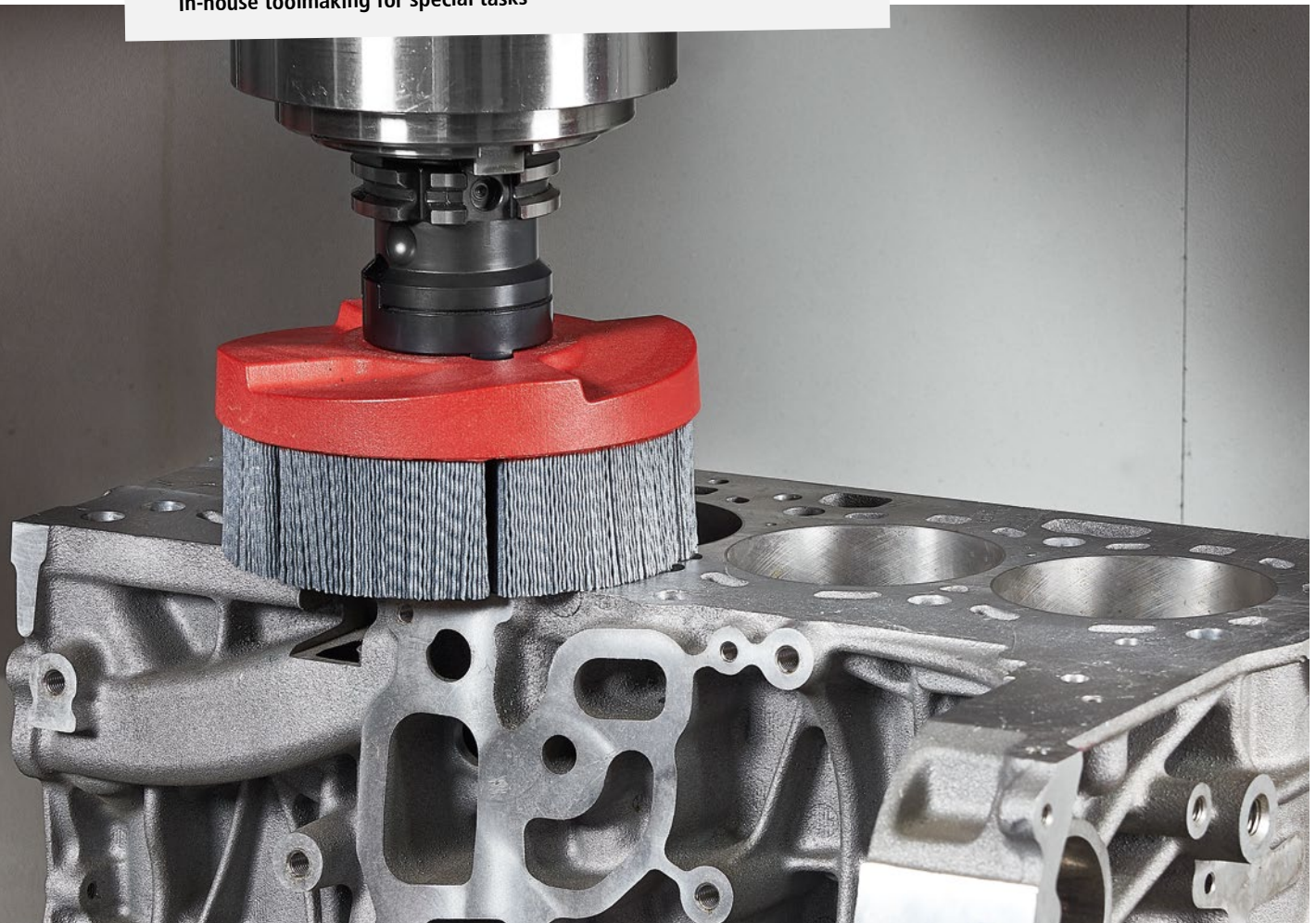


## Individual Solutions for special applications

Whether in the automotive industry, pipe and pipeline construction or tire and rubber manufacturing – individual brushes with special filling materials or unusual dimensions are required everywhere for special production steps. Our application consulting and product development support all projects from consulting to production. This results in special models, created to meet specific needs: exactly designed for the customer's application, precisely constructed and manufactured in the best, reliable Lessmann quality. Because we welcome new challenges and demonstrate our willingness and ability to make innovative improvements with individual solutions.



- Development of individual solutions on-site by application consultants
- Special models can be produced in small or large batches
- In-house toolmaking for special tasks





# "Simply the Best" by testing



## Quality is our feature!

Accredited with  
DIN EN ISO 9001:2015



Our own production of nearly all components of our standard programme and our own development of special articles enables us to have an excellent knowledge in both manufacturing quality and safety testing.

### Creating Innovation, Exceeding Safety Standards, Keeping Top Quality

With this motivation we make complex development and product tests as an essential part of our work.

#### Material Tests

These are the first steps of our quality management: All deliveries of raw material are tested according to and above specification details. All wires are tested for their tensile strength and for their reverse bending strength by a fatigue measuring process. Beside the quality of the material it is important that its attributes are as suitable as possible for their intended use.

#### Imbalance Test

An imbalance of machine driven brushes is not pleasant and is dangerous for the health of persons working at the machine. Although it is not necessary under the DIN or the EN Norms, we produce our brushes according to our own standards for minimum imbalance. By doing so our customers take advantage of smooth running fatigue reducing brushes. Our employees in production ensure that these high quality aspects are maintained.

#### Safety Tests

According to European safety norms all brushes have to with-stand 1.5 times of the mentioned maximum RPM. Naturally when developing a brush, we test every brush type for this safety aspect. Only if all tests are satisfactory, can the article be produced. During production many samples are taken of the brushes in order to check the required safety speed. Should a model or a raw material be changed we begin the tests again. For this very reason every customer can rely on a high quality and safe tool.

#### Lifetime and Power

For the measurement of the lifetime and power of technical brushes there are neither norms nor standard procedures. After long developing processes and many tests we have found testing methods that simulate testing in real working conditions. On self built machines we are able to test the abrasion and thus the lifetime and power of machine driven brushes. Beside the quality aspect these tests are helpful in optimising materials used, as well as component parts and the construction of brushes. Even if in comparison tests with competitor brushes such testing has shown and proved the high quality of our products:

**We keep on testing to guarantee customer satisfaction.**



# Recommendations for safe brush use

## LESSMANN Quality is Safe

We guarantee the best quality and long lifetime for our products.

Our brushes are manufactured according to the existing standard EN 1083-2 and ANSI 165.1. All the relevant machine driven brushes are checked for occupational safety using a centrifugal force test.

## Safety Information

All machine driven brushes require as with other rotary tools, that the required safety precautions are kept:

## Safety for Your Body

All operators and other personnel in areas where rotary brushes are being used must wear safety goggles or face shields and protective clothing.

A correct mounting is imperative.

## Peripheral Speed

The max. RPM indicated in the catalogue are safety figures by which the brushes can be used without danger. Please do not exceed these figures under any circumstances! In most cases a lower RPM is sufficient to gain an optimal result.

## Correct Pressure

The schedule on page 11 shows the necessary motor drive power for different brush diameters. The brushes need only a light pressure while brushing because only the wire points are effective (please look at the schedule). A higher pressure does not improve the brushing effect. In fact the brush lifetime is reduced and greater power is needed.

## Working with Shank Brushes

When working with shank brushes please note that the shank has to be inserted fully into the tool.

This is especially necessary when working with high RPM, for example on straight grinders and pneumatic tools.

## Mechanical Application of interior brushes

Only use the brush with the indicated maximal peripheral speed (RPM max.). The max. RPM only is allowed when the brush is clamped min. for 10 mm into the tool. When the brush is inserted into the suitable work piece, higher RPMs are possible. **Only use the brush right rotating.**

## For your own safety:

### Wear personal protective equipment

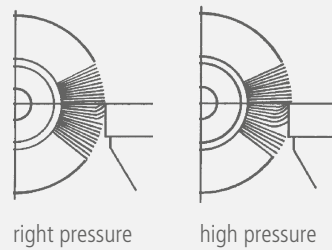


## Brush Check

The brushes should be checked for damage before using.

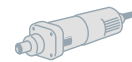


## Correct pressure

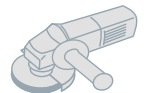


## Machine usage:

These symbols in the chapters show on which machines the brushes usually are used.



Straight grinder



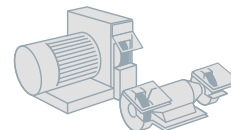
Angle grinder



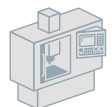
Drilling machine



Grass trimmer



Stationary equipment

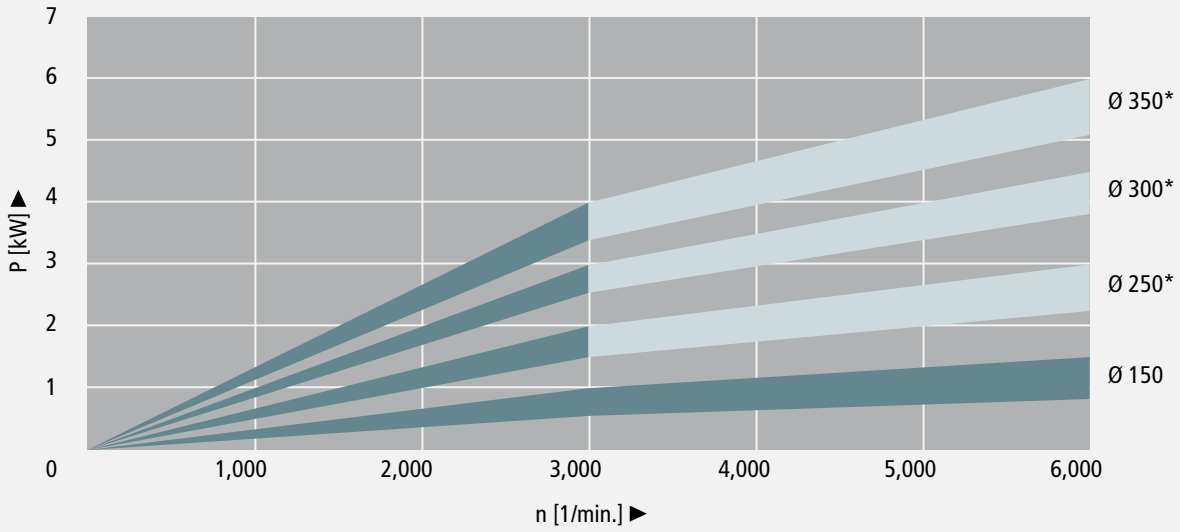


CNC & Robots, machining centres





**Power requirements for Wheel Brushes**



The performance figures mentioned above are only guidelines. \*Power requirements for a brush width of 30 mm

**Recommended use of brushes on angle grinders – the right combination**

Brush diameter	60	65	75	80	90	100	115	125	150	178	200
Cup Brush, Crimped Wire	WS 1		WS 2	WS 3		WS 3		WS 5	WS 5		
Knot Cup Brush without Bridle		WS 1	WS 2	WS 2	WS 2	WS 3/4		WS 5			
Knot Cup Brush with Bridle				WS 3/4		WS 3/4		WS 5			
Bevel Brush, crimped wire						WS 1					
Knot Bevel Brush						WS 1	WS 1				
Knot Wheel Brush						WS 1	WS 1	WS 2	WS 3	WS 4	WS 5

**Common idle speed of angle grinders (WS)**

- Ø 115 11,000 RPM = WS 1
- Ø 125 11,000 RPM = WS 2
- Ø 150 9,000 RPM = WS 3
- Ø 180 8,500 RPM = WS 4
- Ø 230 6,500 RPM = WS 5



**Warning:** Before each operation please compare the idle speed of the angle grinder with the max. peripheral speed of the brush!

**Minimum bore size for wheel brushes according to EN 1083**

Diameter of the brush in mm	Minimum diameter of bore in mm
50	4.6
75	6.5
100	10
150	13
200	16
250	20
300	20
350	32



# Producing Quality – brushing the correct way

## Optimise Brush Results

The brush diameter and filling length are most important for the perfect brushing result. It is therefore very easy to eliminate almost all bad brushing results:

### Brushing effect too weak:

- Increase the peripheral speed by increasing the brush diameter or the operating speed, but never exceed the maximum RPM rating.
- Use a brush with shorter trim length.
- Use a brush with larger wire diameter.

### Brushing effect too powerful:

- Reduce the peripheral speed by reducing the brush diameter or the operating speed.
- Use a brush with longer trim length.
- Use a brush with smaller wire diameter.

### Brush transfers burr:

- Use a brush with shorter trim length.
- Examine brush and work piece position.
- Use a brush with wider face.
- Use a brush with thicker wire diameter.

**Note: you are welcome to contact our technical contact persons.**



Information for brushing on stainless steel materials at [www.lessmann.com/downloads](http://www.lessmann.com/downloads)



Our processed stainless steel wires are not completely magnet-free. They may contain oil residues due to the manufacturing process. If this is not permitted in the application, please order the brushes in an oil-free/degreased version.

**Recommended Peripheral Speed for Brushing Application**

Application	Peripheral Speed in m/s							
	15	20	25	30	35	40	45	50
<b>With Filaments</b>								
Removing Burrs			25–35					
Cleaning Welds					35–45			
Removing Scale					35–45			
Polishing				30–40				
Working on Plastic	15–20							
<b>With Abrasive Filaments</b>								
Dry conditions	16–18							
Wet conditions			25–30					

**Conversion mm in Inches and I.S.W.G.**

Brush diameter	
Millimeter	Inches
25	1"
50	2"
75	3"
100	4"
125	5"
150	6"
180	7"
200	8"
250	10"
300	12"
350	14"

Wire diameter		
Millimeter	Inches	I.S.W.G
0.08	0.0031	44
0.10	0.0039	42
0.12	0.0047	40
0.15	0.0059	38
0.20	0.0079	36
0.25	0.0098	33
0.30	0.0118	31
0.35	0.0138	29
0.40	0.0157	27
0.50	0.0197	25
0.80	0.0315	21

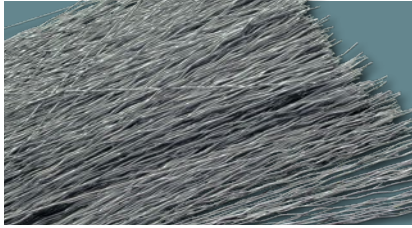
**Peripheral Speed v in m/sec. (please follow the max. rotary speed of the brush!)**

n [1/min.] (RPM)	Brush diameter d in mm/inches							
	50 2"	80 3"	100 4"	125 5"	150 6"	200 8"	250 10"	300 12"
1,000		4.2	5.2	6.5	7.9	10.5	13.1	15.7
1,500	3.9	6.3	7.9	9.8	11.8	15.7	19.6	23.6
2,000	5.2	8.4	10.5	13.1	15.7	20.9	26.2	31.4
2,500	6.5	10.5	13.1	16.4	19.6	26.2	32.7	39.3
3,000	7.9	12.6	15.7	19.6	23.6	31.4	39.3	47.1
3,500	9.2	14.7	18.3	22.9	27.5	36.7	45.8	55.0
4,000	10.5	16.8	20.9	26.2	31.4	41.9	52.4	62.8
5,000	13.1	20.9	26.2	32.7	39.3	52.4	65.4	78.5
6,000	15.7	25.1	31.4	39.3	47.1	62.8	78.5	
8,000	20.9	33.5	41.9	52.4	62.8	83.8		
10,000	26.2	41.9	52.4	65.4	78.5			
12,500	32.7	52.4	65.4	81.8				
15,000	39.3	62.8	78.5					
20,000	52.4	83.8						
25,000	65.4							

Peripheral Speed  $v = \frac{\text{Brush diameter (d)} \times \pi \times \text{Peripheral Speed (n)}}{1,000 \times 60}$

For working in wet condition we recommend PA 6.12 as base. Please state on your order! Since the upcoming heat on wet applications is conducted, the peripheral speed can be set much higher than on dry applications.

# Brush filling materials and their characteristics



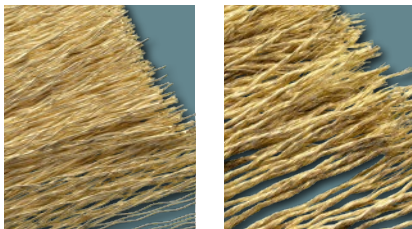
## STA Steel Wire straight / crimped

is developed in co-operation with wire producers, so that it meets our special requirements. This wire is alloyed with manganese in order to increase its toughness. Result is higher tensile strength and longer lifetime of LESSMANN-Brushes.



## STH Steel Wire High Tensile straight / crimped

is most often used in Knotted Brushes, Deburring Brushes and Pipeline Brushes. Furthermore we offer this high tensile wire in our complete assortment. Above all it features through its tensile strength and high fatigue rates, what results in lifetime even for extreme brushing applications.



## STM Brass Coated Steel Wire

For long lifetime plus high tensile strength and cutting performance. Best results in brushing and deburring applications.

## STL Cord Wire

Brass coated steel wire corded. Longest lifetime for heavy duty brush applications, e.g. deburring.



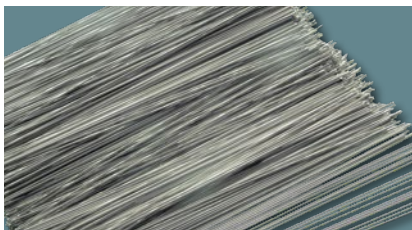
## ROF / RO4 / ROL / RO8 Stainless Steel Wire

**ROF** must be used when working on stainless steel. Material number (WNR.) **1.4301 (AISI 304)**. This wire is resistant against corrosion and certain acids and bleaches.

**RO4** Premium-quality stainless steel wire. WNR. **1.4401 (AISI 316)**

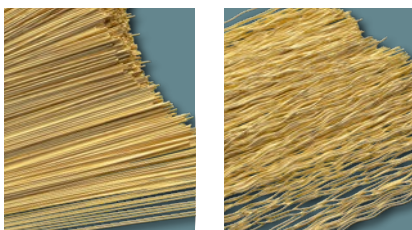
**RO8** High heat resistant stainless steel wire. WNR. **1.4860.**

**ROL** Stainless Steel Wire with cord construction WNR. **1.4301/1.4310**



## ROH Stainless Steel Wire High Tensile

This wire is characterized by a high tensile strength (2100–2500N/mm) and a long lifetime even in extreme applications. WNR. **1.4310 (AISI 301)**



## MES Brass Wire (CuZn)

is softer than steel wire. Among other applications brass wire is suitable for working with mild bleaches. It's mainly used for processing of nonferrous metals.



Information for brushing on stainless steel materials at [www.lessmann.com/downloads](http://www.lessmann.com/downloads)

Our processed stainless steel wires are not completely magnet-free.

They may contain oil residues due to the manufacturing process. If this is not permitted in the application, please order the brushes in an oil-free/de-greased version.



### Straight / Crimped / Knotted:

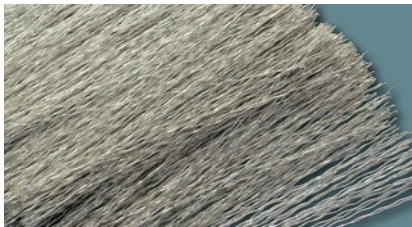
Metal wires for brushes can be processed in brushes straight, crimped or knotted. Wire knots are always made with straight wires. Compared to a straight wire with the same diameter the wire knots are much stronger than the single wire. Crimped wires brace each other and therefore achieve a better stability in the brushes.

# Brush filling materials and the characteristics



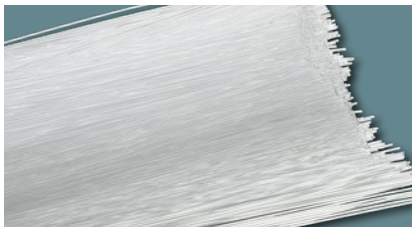
## **BRO** Bronze Wire (CuSn)

is used for surface processing of wood and metal. It's also used when low-sparking brushes are needed.



## **NSI** Nickel Silver (CuNiZn)

is used for polishing work pieces e.g. parts of nickel silver or brass, as it is softer than steel wire.



## **PP, PA, PE, PBT** Synthetic Filaments

are resistant to abrasion and flexible. Despite minor resistance against heat these filaments are perfect for cleaning, grinding or surface processing of metal, plastic or wood.

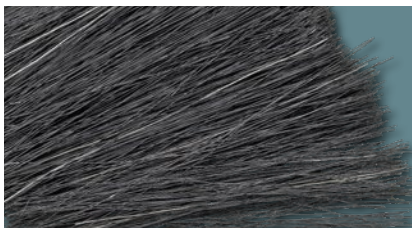
Available are:

- Polypropylen (PP, white by default)
- Polyamid (PA, transparent by default) – PA 6, PA 6.6, PA 6.12
- Polyethylen (PE)
- Polyester (PBT); only for cleaning
- Polyvinylchloride (PVC)



## **FIB** Fibre

consists of heat resistant plant fibre, is slightly abrasive and therefore can be used for smooth grinding, above all for working on wooden surfaces. Moreover fibre is used for general cleaning and polishing work.



## **ROS** Horse Hair

is an animal hair, which above all is deployed in terms of light cleaning and dusting work. Horse hair is resistant against diluted acids and bleaches. It's not chargeable for static electricity.



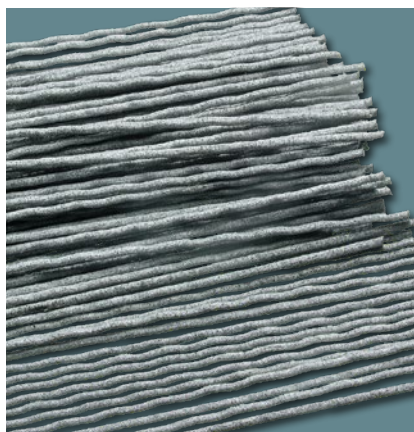
## **Encapsulated Brushes**

Encapsulated brushes are ideal for an aggressive work on working pieces and for a very exact working in edges and angles.

By embedding steel wire, stainless steel wire, brass coated wire or brass wire in tough plastic, the filling width always remains the same and early break of the wires can be prevented. It's the perfect tool for long lasting and safe working. The advantages when working with encapsulated brushes are longer lifetime and harder brush effect.

Furthermore the risk of injury declines when using encapsulated brushes.

However, it might be possible that the brush will leave marks on the work piece.



### Abrasive Filaments

consist of polyamide bristles containing abrasive grits. This modern material is ideal for deburring work, fine surface finishing of plastic and metal parts as well as grinding, cleaning, polishing, and structuring of surfaces. With their flexible surface, brushes with abrasive filament align to the different shape of working pieces. Abrasive bristles also have grinding effects on the side, which makes them even more flexible to application possibilities. You can choose between grit (from K60 to K1000) composed of aluminium oxide (AO) and silicon carbide (SIC). Also diamond filament is available.

Normally 2 polyamide-types are used:

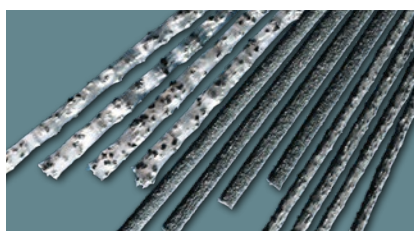
#### Polyamide PA 6:

- good bend recovery
- good abrasion resistance
- absorption of water to max. 10%

**Polyamide PA 6.12** (ideal when working in wet surrounding):

- flexible and excellent bend recovery
- high abrasion resistance
- absorption of water to max. 3%

You can differ the bristles between round or flat bristles. Usually round bristles are used, because they are more flexible than flat bristles and very good for processing work pieces with strong shapes. Round bristles with a smaller diameter, less than 150 mm, are very efficient if you are not able to use flat material. However, flat bristles possess a high abrasive grit, represent a long durability and a high removal rate by a larger contact surface.



3 grits in silicon carbid



For **working in wet condition** we recommend **PA 6.12** as base. Please state on your order!

Since the upcoming heat on wet applications is conducted, the peripheral speed can be set much higher than on dry applications.

Grits to choose from:

#### Abrasive filaments SIC (filament K60 to K1000):

- intensive results when deburring
- for surficial improvement/-processing
- mainly for process stainless steel and aluminium limited
- microhardness: 25.000 N/mm<sup>2</sup>

**Common measurements:** K 80/1,1, K 80/1,2, K 80/1,4, K 120/0,6, K 120/1,1, K 180/0,9, K 180/1,0, K 320/0,60, K 500/0,5

#### Abrasive filaments AO (filament K60 to K1000):

- less sharp-edged compared to SIC
- to the finish of soft metal
- to polishing and smoothing
- to process aluminium when smoothing or polishing
- microhardness: 21.000 N/mm<sup>2</sup>

**Common measurements:** K 80/1,2, K 120/1,1, K 180/0,9, K 180/1,0, K 240/0,75, K 240/0,90, K 320/0,60, K 500/0,25, K 500/0,50, K 600/0,3 – others on request.

#### Diamonds filaments(filament K60 to K1000):

- for aggressive applications
- used for materials with high material strength
- self-renewing through independent sharpening
- microhardness: 42.000 N/mm<sup>2</sup>

#### Ceramic grit:

- very good grinding and polishing properties
- maximum lifetime and aggressiveness
- working with hard metal tools
- microhardness: 42.000 N/mm<sup>2</sup>



All information on **chemical properties** can be found at [www.lessmann.com/downloads](http://www.lessmann.com/downloads) in the area of Brush Know-How.

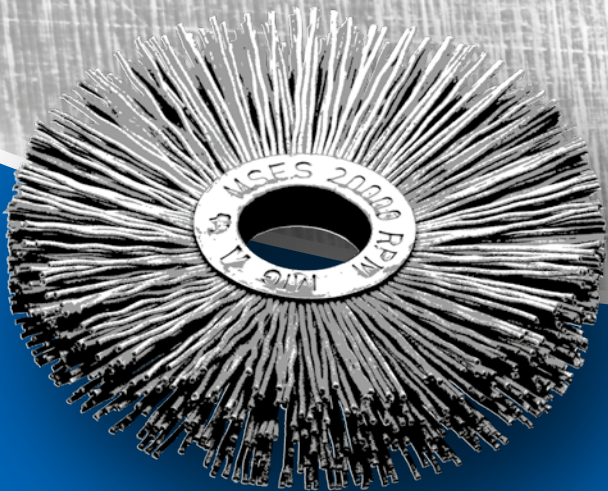
### Physical Characteristics

	STA	STH	ROF	ROH	RO4	RO8	STM / STL	MES
WNr.			1.4301	1.4310	1.4401	1.4860		CuZn36 / CuZn37
AISI			304	301	316			
Tensile Strength in N/mm <sup>2</sup> *	1,800–2,100	2,300–2,500	1,800–2,100	2,100–2,500	1,600–1,800	1,600–1,800	2,300–2,600	900–1,200
Specific Gravity in g/cm <sup>3</sup>	7.85	7.85	7.85	7.85	7.85	7.90	7.85	8.50
Temperature Consistency in °C	+ 300 °C	+ 300 °C	+ 450 °C	+ 450 °C	+ 500 °C	+ 600 °C	+ 300 °C	+ 180 °C

\*The specified Tensile Strength is applicable for a wire strength 0.3–0.4 mm

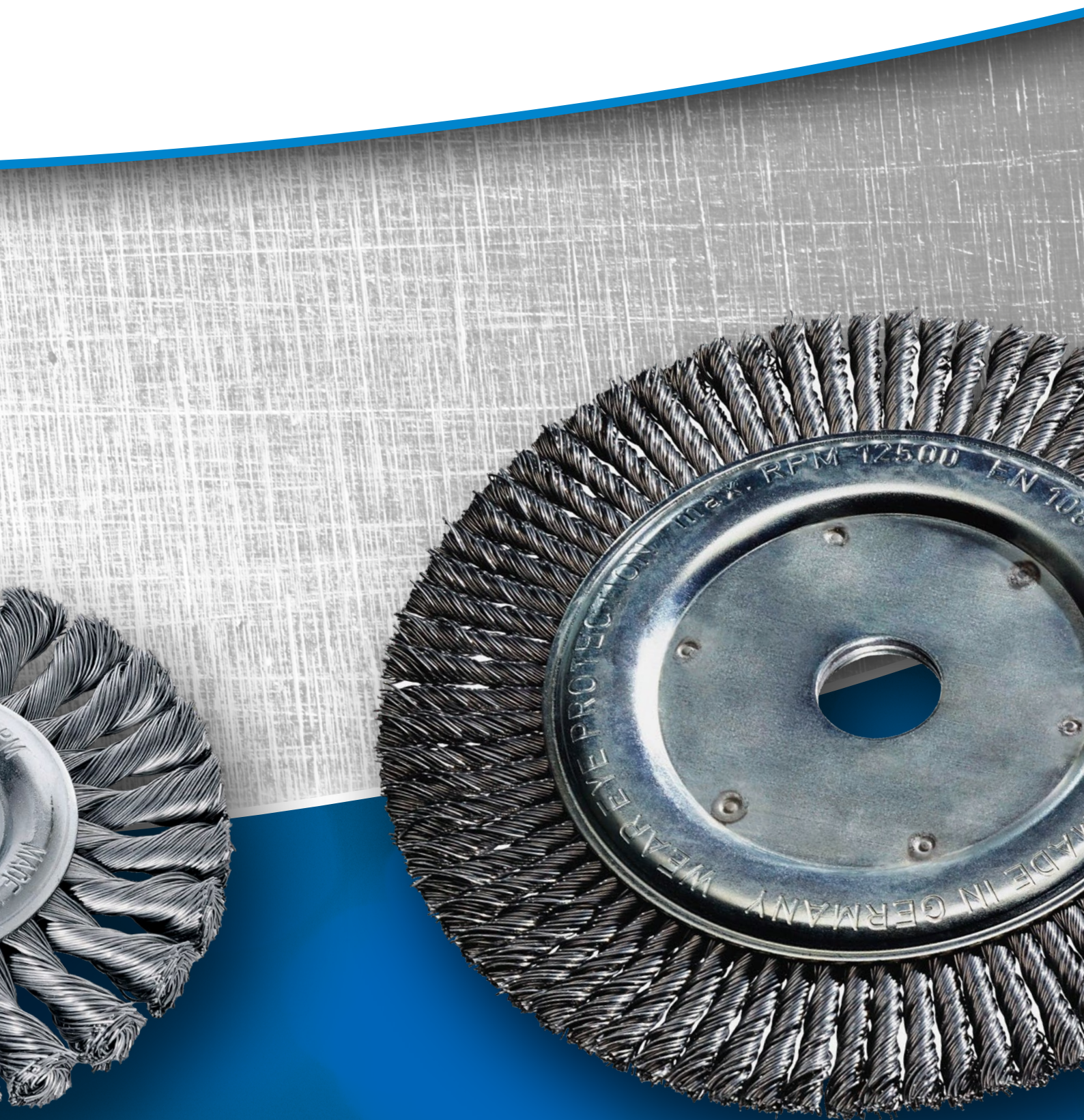
# LESSMANN®

THE GERMAN BRUSH COMPANY





# WHEEL BRUSHES 01



# Knot Wheel Brushes



## Knot Wheel Brushes

Knot wheel brushes for grinders, angle grinders and stationary machines used in the preparation and reworking of bolt fillet and butt welds. They remove scale, rust, paint, slag, rubber residue and can be used for deburring.

## Knot Wheel Brushes with multiple Rows

Ready mounted brushes with multiple rows have a dense filling compared to single segment brushes, which are assembled together. In your order please state the width of the brush, bore size and type and thickness of wire.

The listed knot wheel brushes are for the use in stationary machines.

## Stainless Steel Brushes

LESSMANN-brushes with stainless steel have green side plates. We use wire with material number 1.4310. Material number 1.4401 can be used on request. Information on working on stainless steel you find at [www.lessmann.com](http://www.lessmann.com)

All knots on our standard twisted wire wheel brushes are left hand twisted in order to minimize the undoing of the knots should the brush be used incorrectly. On request we can supply right hand twist brushes.

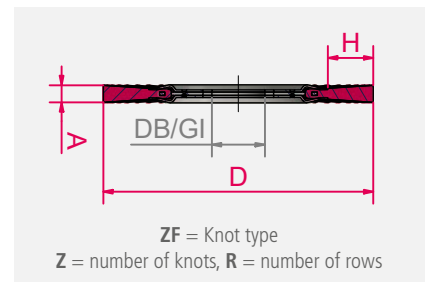
In addition to brushes with left or right knotted, we also offer left-right knotted brushes.

Left-right knotted wheel brushes usually are more aggressive, hence they are often used for heavy brushing operations. Besides the knots open less, therefore there are ideal for the treatment of edges.

## User Tip:

We recommend to turn the brush during use in order to maintain sharpened wire ends.

On request other bores and wire diameter are available.



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

- STM** = brass coated steel, straight
- STH** = steel wire, high tensile, straight
- ROH** = stainless steel wire, high tensile, straight



## X-LOCK Mount

Our wheel brushes with X-LOCK-mount can be found on page 68.



You can find our **tutorials** here:  
[www.lessmann.com/index.php/en/content/view/full/711](http://www.lessmann.com/index.php/en/content/view/full/711)



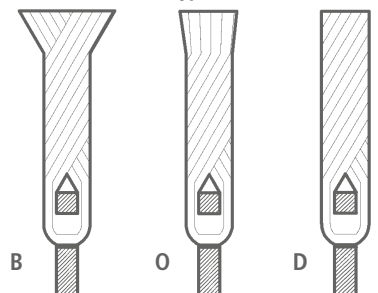
You can find our **Enquiry Forms** in the respective category under:  
[www.lessmann.com/index.php/en/content/view/full/61](http://www.lessmann.com/index.php/en/content/view/full/61) or in the catalog from page 179



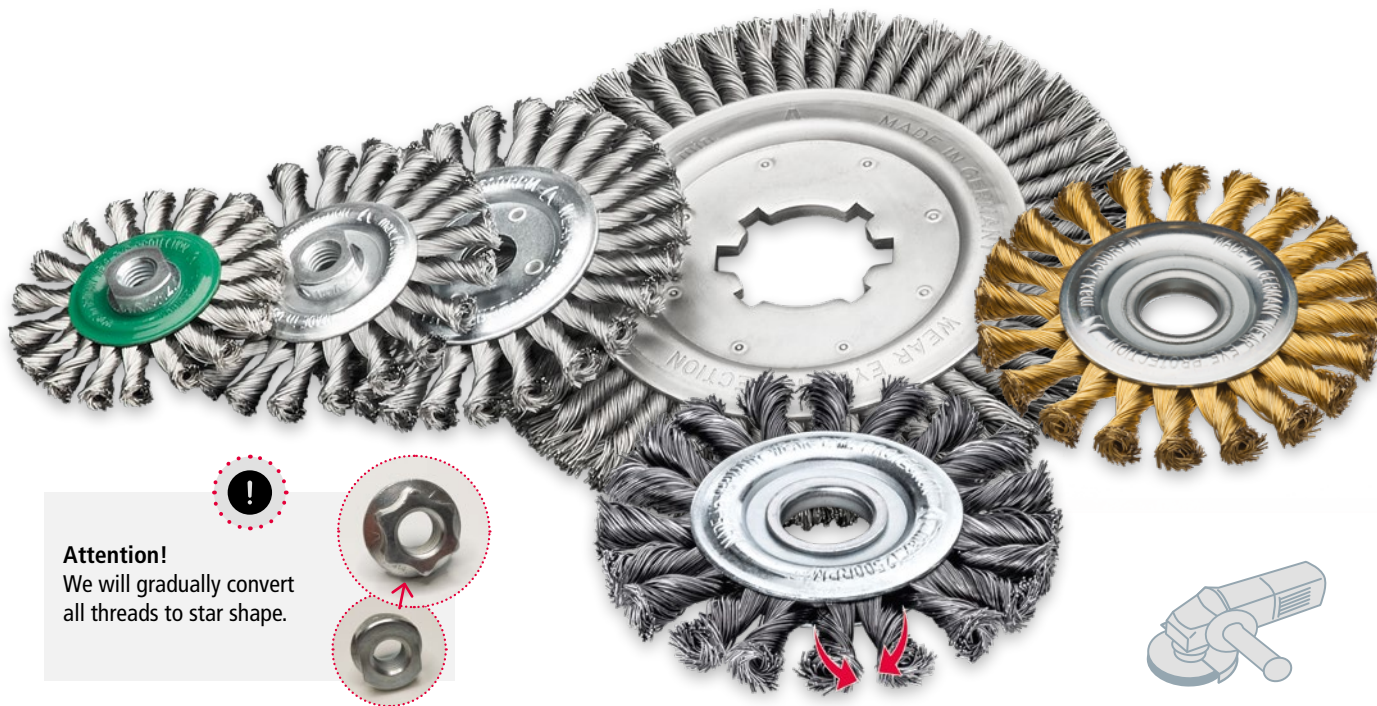
**Chunky packaging**  
Many articles you receive as standard in handy covering boxes with 10 pcs.



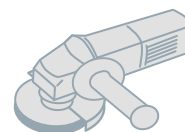
## Knot types ZF



- B**: Rose Bud
- O**: Open Knot (wire ends are cut)
- D**: Fully knotted (wire ends are cut completely)



**Attention!**  
We will gradually convert all threads to star shape.



IIIIII  
EAN

**Knot Wheel Brushes, Steel Wire, Brass Wire**

D mm   inch	A mm   inch	DB/GI mm   inch	H	Z	ZF	R	RPM max.	Pack.	STH 0.35   0.014"	STH 0.50   0.020"	STH 0.80   0.031"	STM 0,50   0.020"	left-right knotted STH 0.50   0.020"
									Art.-No.	Art.-No.	Art.-No.	Art.-No.	Art.-No.
75   3	10   3/8	13   1/2	15	18	B	1	25,000	1	470.111*	470.211*			
100   4	12   1/2	M 14 x 2,0	22	18	B	1	12,500	1	471.117*	471.217*			
115   4 1/2	14   1/2	22.2   7/8	24	20	B	1	12,500	1	472.111*	472.211*		472.211.SM*	472.211.WZ*
115   4 1/2	14   1/2	M 14 x 2,0	24	20	B	1	12,500	1	472.117*	472.217*			
125   5	14   1/2	22.2   7/8	29	20	B	1	12,500	1	473.111*	473.211*		473.211.SM*	473.211.WZ*
125   5	14   1/2	M 14 x 2,0	29	20	B	1	12,500	1	473.117*	473.217*			473.217.WZ*
125   5	14   1/2	22.2   7/8	29	24	B	1	12,500	1		473.211.24			
150   6	14   1/2	22.2   7/8	32	26	B	1	12,500	1	474.111*	474.211*	474.311		
150   6	14   1/2	M 14 x 2,0	32	26	B	1	12,500	1	474.117*	474.217*	474.317		
178   7	14   1/2	22.2   7/8	38	32	B	1	12,500	1	475.111*	475.211*	475.311		
178   7	14   1/2	M 14 x 2,0	38	32	B	1	12,500	1		475.217*	475.317		
200   8	14   1/2	22.2   7/8	41	36	B	1	9,000	1	476.111	476.211	476.311		
200   8	14   1/2	50.8   2	41	36	B	1	9,000	1		476.210.51	available on demand		
230   9 1/16	14   1/2	22.2   7/8	56	40	B	1	9,000	1		475.211			
250   10	15   5/8	50.8   2**	42	52	O	1	5,000	1		477.210.75	477.310.75		
300   12	15   5/8	50.8   2**	56	58	O	1	5,000	1		478.210.75	478.310.75		

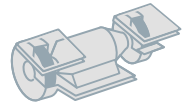
IIIIII  
EAN

**Knot Wheel Brushes, Stainless Steel Wire**

D mm   inch	A mm   inch	d mm   inch	H	Z	ZF	R	RPM max.	Pack.	ROH 0.35   0.014"	ROH 0.50   0.020"	left-right knotted ROH 0.50   0.020"
									Art.-No.	Art.-No.	Art.-No.
100   4	12   1/2	M 14 x 2,0	22	18	B	1	12,500	1		471.817*	
115   4 1/2	14   1/2	22.2   7/8	24	20	B	1	12,500	1	472.711*	472.811*	472.811.WZ*
115   4 1/2	14   1/2	M 14 x 2,0	24	20	B	1	12,500	1	472.717*	472.817*	
125   5	14   1/2	22.2   7/8	29	20	B	1	12,500	1	473.711*	473.811*	473.811.WZ*
125   5	14   1/2	M 14 x 2,0	29	20	B	1	12,500	1		473.817*	
150   6	14   1/2	22.2   7/8	32	26	B	1	12,500	1		474.811*	
150   6	14   1/2	M 14 x 2,0	32	26	B	1	12,500	1		474.817	
178   7	14   1/2	22.2   7/8	38	32	B	1	12,500	1		475.811*	
178   7	14   1/2	M 14 x 2,0	38	32	B	1	12,500	1		475.817	

Thread 5/8" – 11 UNC on request | \* packed 10 pieces per carton | \*\* with turtle bore

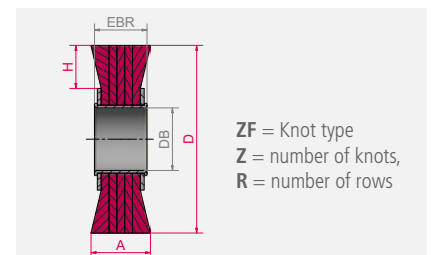
# Knot Wheel Brushes, multiple rows



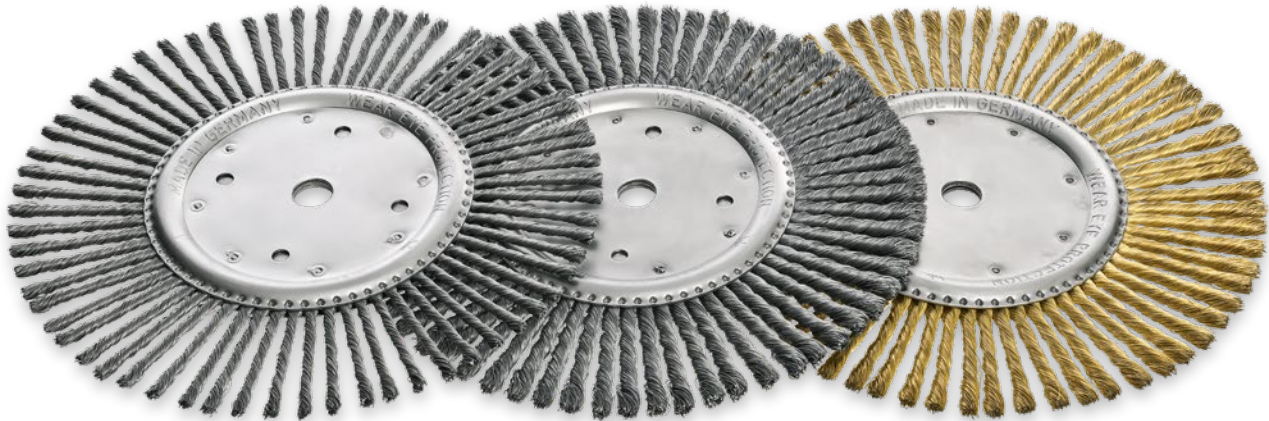
IIIII  
EAN

## Knot Wheel Brushes, multiple rows

D	A	EBR	DB <sub>Stand.</sub>	DB <sub>min</sub>	H	ZF	Z x R	RPM	Pack.	STH 0.35	STH 0.50	ROH 0.35	ROH 0.50
mm   inch			mm   inch					max.		0.014"	0.020"	0.014"	0.020"
100   4	22-24	12	20   3/4	10	21	B	20 x 2	12,500	1	471.12K	471.22K	471.72K	471.82K
100   4	30-32	18	20   3/4	10	21	B	20 x 3	12,500	1	471.13K	471.23K	471.73K	471.83K
100   4	34-36	25	20   3/4	10	21	B	20 x 4	12,500	1	471.14K	471.24K	471.74K	471.84K
115   4 1/2	22-24	18	30   1 1/4	10	23.5	B	22 x 2	12,500	1	472.12K	472.22K	472.72K	472.82K
115   4 1/2	30-32	25	30   1 1/4	10	23.5	B	22 x 3	12,500	1	472.13K	472.23K	472.73K	472.83K
115   4 1/2	34-36	30	30   1 1/4	10	23.5	B	22 x 4	12,500	1	472.14K	472.24K	472.74K	472.84K
125   5	22-24	18	30   1 1/4	13	28.5	B	24 x 2	12,500	1	473.12K	473.22K	473.72K	473.82K
125   5	30-32	25	30   1 1/4	13	28.5	B	24 x 3	12,500	1	473.13K	473.23K	473.73K	473.83K
125   5	34-36	30	30   1 1/4	13	28.5	B	24 x 4	12,500	1	473.14K	473.24K	473.74K	473.84K
150   6	22-24	18	30   1 1/4	13	31.5	O	28 x 2	12,500	1	474.12K	474.22K	474.72K	474.82K
150   6	30-32	25	30   1 1/4	13	31.5	O	28 x 3	12,500	1	474.13K	474.23K	474.73K	474.83K
150   6	36-38	30	30   1 1/4	13	31.5	O	28 x 4	12,500	1	474.14K	474.24K	474.74K	474.84K
178   7	22-24	18	50   2	16	37.5	O	34 x 2	12,500	1	475.12K	475.22K	475.72K	475.82K
178   7	30-32	25	50   2	16	37.5	O	34 x 3	12,500	1	475.13K	475.23K	475.73K	475.83K
178   7	36-38	30	50   2	16	37.5	O	34 x 4	12,500	1	475.14K	475.24K	475.74K	475.84K
200   8	22-24	18	50   2	16	41	O	38 x 2	9,000	1	476.12K	476.22K	476.72K	476.82K
200   8	30-32	25	50   2	16	41	O	38 x 3	9,000	1	476.13K	476.23K	476.73K	476.83K
200   8	36-38	30	50   2	16	41	O	38 x 4	9,000	1	476.14K	476.24K	476.74K	476.84K
250   10	26-30	18	100   4	20	42	O	52 x 2	5,000	1	477.12K	477.22K	477.72K	477.82K
250   10	38-40	26	100   4	20	42	O	52 x 3	5,000	1	477.13K	477.23K	477.73K	477.83K
250   10	50-54	34	100   4	20	42	O	52 x 4	5,000	1	477.14K	477.24K	477.74K	477.84K
300   12	26-30	18	100   4	30	56	O	58 x 2	5,000	1	478.12K	478.22K	478.72K	478.82K
300   12	38-40	26	100   4	30	56	O	58 x 3	5,000	1	478.13K	478.23K	478.73K	478.83K
300   12	50-54	34	100   4	30	56	O	58 x 4	5,000	1	478.14K	478.24K	478.74K	478.84K

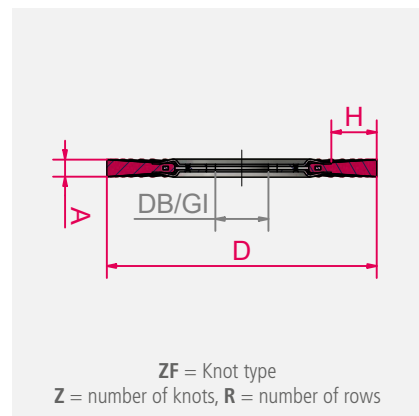


# Joint Cleaning Brushes



Joint Cleaning Brushes

D	A	DB/GI	H	Z	ZF	R	RPM	Pack.	STA 0.50   0.020"	STA 0.80   0.031"	STM 0.50   0.020"
mm   inch	mm   inch	mm   inch					max.		Art.-No.	Art.-No.	Art.-No.
300   12	6   1/4	20   3/4	67	64	D	1	5,000	5	<b>478.200.06</b>	478.300.06	478.500.06
300   12	8   5/16	20   3/4	67	64	D	1	5,000	5	<b>478.200.08</b>	<b>478.300.08</b>	478.500.08
300   12	10   3/8	20   3/4	67	64	D	1	5,000	5	<b>478.200.10</b>	<b>478.300.10</b>	478.500.10
300   12	6   1/4	25.4   1	67	64	D	1	5,000	5	478.225.06	478.325.06	478.520.06
300   12	8   5/16	25.4   1	67	64	D	1	5,000	5	478.225.08	478.325.08	478.520.08
300   12	10   3/8	25.4   1	67	64	D	1	5,000	5	478.225.10	478.325.10	



## Joint Cleaning Brushes

Joint cleaning brushes are used for the production of expansion joints in the construction of new linings as well as in restoration and reparation. The application of this knot wheel brush is usually alike with all pavements.

Brushes with brass coated steel wire STM are very stable, hence they are often used for cleaning concrete joints.

Item Nos. in bold are available ex stock.

Consider our minimum order value for *italic printed* article numbers (see page 184).

**STA** = steel wire, straight

**STH** = steel wire, high tensile, straight

**STM** = brass coated steel, straight

**ROH** = stainless steel wire, high tensile, straight

# Pipeline Brushes / Stringer Bead Brushes

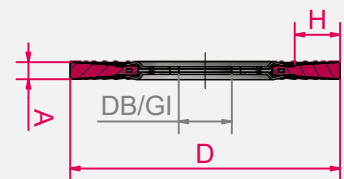


**Pipeline-Brushes / Stringer Bead Brushes**  
LESSMANN-Pipelinebrushes are specially developed for professional use on U- and V-welds in the pipeline industry.

The remarkable features of the high quality LESSMANN Pipeline Brushes are the long lifetime and the quietness of running. They are especially narrow and therefore they are the perfect tool for cleaning all welds at tube connections.

**Pipeline Brushes / Stringer Bead Brushes, left-right knotted**

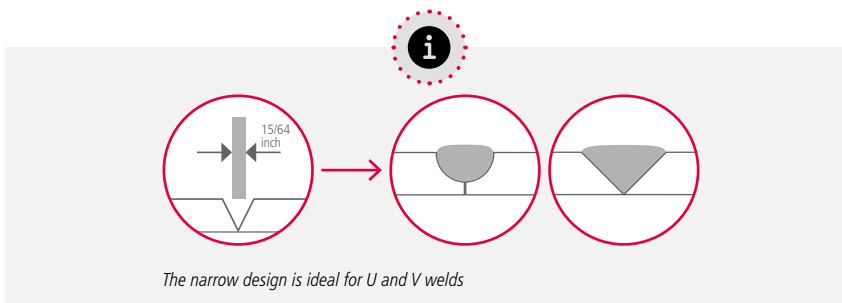
Left-right knotted pipeline brushes usually are more aggressive, hence they are often used for heavy brushing operations. Besides the knots open less, therefore there are ideal for the treatment of edges.



ZF = Knot type  
Z = number of knots

**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

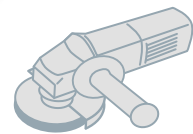
**STH** = steel wire, high tensile, straight



**X-LOCK Mount**  
Our wheel brushes with X-LOCK-mount can be found on page 68.

**Attention!**  
We will gradually convert all threads to star shape.

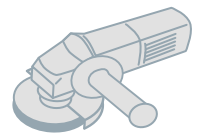
Six wrench flats instead of only two give you more flexibility when working.



Pipeline-Brushes / Stringer Bead Brushes, Steel Wire							Bo. 22.2   7/8"	M 14 x 2.0	5/8" - 11 UNC
D	A	H	Z	ZF	RPM	Pack.*	STH 0.50   0.020"	STH 0.50   0.020"	STH 0.50   0.020"
mm   inch	mm   inch				max.		Art.-No.	Art.-No.	Art.-No.
100   4	6   1/4	19	28	D	20,000	10	available on demand	<b>471.207.28</b>	471.208.28
115   4 1/2	6   1/4	22	32	D	15,000	1	<b>472.201.EZ</b>		
115   4 1/2	6   1/4	22	32	D	15,000	5/10	<b>472.201.32</b>	472.207.32	472.208.32
115   4 1/2	6   1/4	22	39	D	15,000	10	<b>472.201.39</b>	available on demand	available on demand
125   5	6   1/4	26	40	D	15,000	1	<b>473.201.EZ</b>		
125   5	6   1/4	26	40	D	15,000	5/10	<b>473.201.40</b>	<b>473.207.40</b>	473.208.40
150   6	6   1/4	30	48	D	12,500	5/10	<b>474.201.48</b>	474.207.48	474.208.48
178   7	6   1/4	36	48	D	12,500	1	<b>475.201.EZ</b>		
178   7	6   1/4	36	48	D	12,500	5/10	<b>475.201.48</b>	475.207.48	475.208.48
178   7	6   1/4	30	56	D	12,500	5/10	<b>475.201.56</b>	475.207.56	available on demand
178   7	6   1/4	30	76	D	12,500	5/10	<b>475.201.76</b>	475.207.76	475.208.76
230   9 1/16	6   1/4	56	76	D	12,500	1	475.201.76		

\* Brushes with thread = packed 5 pieces per carton, brushes with bore = packed 10 pieces per carton

# Pipeline Brushes / Stringer Bead Brushes



Pipeline-Brushes / Stringer Bead Brushes, Stainless Steel							Bo. 22.2   7/8"	M 14 x 2.0	5/8" - 11 UNC
D	A	H	Z	ZF	RPM	Pack.*	ROH 0.50   0.020"	ROH 0.50   0.020"	ROH 0.50   0.020"
mm   inch	mm   inch				max.		Art.-No.	Art.-No.	Art.-No.
100   4	6   1/4	19	28	D	20,000	10	available on demand	471.807.28	471.808.28
115   4 1/2	6   1/4	22	32	D	15,000	1	<b>472.801.EZ</b>		
115   4 1/2	6   1/4	22	32	D	15,000	5/10*	<b>472.801.32</b>	472.807.32	472.808.32
115   4 1/2	6   1/4	22	39	D	15,000	10	<b>472.801.39</b>	available on demand	available on demand
125   5	6   1/4	26	40	D	15,000	1	<b>473.801.EZ</b>		
125   5	6   1/4	26	40	D	15,000	5/10*	<b>473.801.40</b>	<b>473.807.40</b>	473.808.40
150   6	6   1/4	30	48	D	12,500	5/10*	<b>474.801.48</b>	474.807.48	474.808.48
178   7	6   1/4	36	48	D	12,500	5/10*	<b>475.801.48</b>	475.807.48	475.808.48
178   7	6   1/4	30	56	D	12,500	5/10*	475.801.56	475.807.56	475.808.56
178   7	6   1/4	30	76	D	12,500	5/10*	475.801.76	475.807.76	475.808.76

\* Brushes with thread = packed 5 pieces per carton, brushes with bore = packed 10 pieces per carton

## Stainless Steel Brushes

LESSMANN Pipeline Brushes with stainless steel wire have green side plates. We use wire with material number 1.4310. Material number 1.4401 can be used on request.

Information on working on stainless steel you find at [www.lessmann.com](http://www.lessmann.com)



**X-LOCK Mount**  
Our wheel brushes with X-LOCK-mount can be found on page 68.



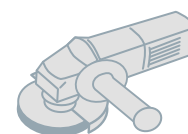




1

2

3



**1 Pipeline-Brushes / Stringer Bead Brushes, rose bud**

D	A	DB	H	Z	ZF	RPM	Pack.	STH 0.50   0.020"
mm   inch	mm   inch	mm   inch				max.		Art.-No.
178   7	6   1/4	22.2   7/8	28	76	B	12,500	10	<b>475.2B1.76</b>

**2 Pipeline-Brushes / Stringer Bead Brushes, left-right knotted**

D	A	DB	H	Z	ZF	RPM	Pack.	STH 0.50   0.020"
mm   inch	mm   inch	mm   inch				max.		Art.-No.
178   7	6   1/4	22.2   7/8	28	76	D	12,500	10	475.2W1.76

**3 Pipeline-Brushes / Stringer Bead Brushes, encapsulated**

D	A	DB	H	RPM	Pack.	STM 0.35   0.014"
mm   inch	mm   inch	mm   inch		max.		Art.-No.
150   6	6   1/4	22.2   7/8	29	9,000	1	<b>300.771.KG</b>
178   7	6   1/4	22.2   7/8	43	9,000	1	<b>351.771.KG</b>

**Pipeline Brushes / Stringer Bead Brushes with rose bud**

Knotted brushes with rose bud have a longer life time. They are used for a professional treatment of weld seams in the tube and pipeline construction.

**Pipeline Brushes / Stringer Bead Brushes, left-right knotted**

Left-right knotted pipeline brushes usually are more aggressive, hence they are often used for heavy brushing operations. Besides the knots open less, therefore they are ideal for the treatment of edges.

**Pipeline Brushes / Stringer Bead Brushes, encapsulated**

With encapsulated pipeline brushes a very exact and precise working is possible. By embed-

ding in tough plastic the filling width always remains the same and early break of the wires can be prevented. A working width of 6 mm still allows to reach U- and V- weld seams.

**Hardness Grading**

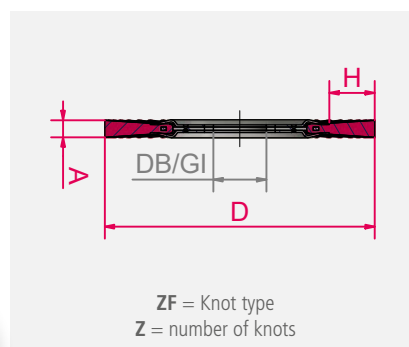
From now on, the encapsulated brushes from Lessmann can be delivered in three different Shore hardness scale measurements:

- Black – Hard
- Red – Standard
- White – Soft



Please note:

The more aggressive the application, the harder the plastic material should be. Another advantage of the harder plastic material is the dimensional stability.



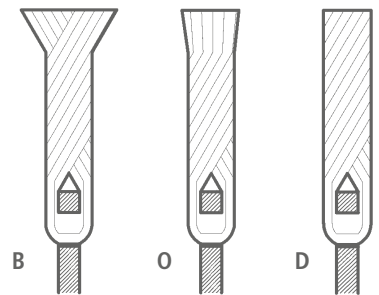
**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

- STH** = steel wire, high tensile, straight
- STM** = brass coated steel, crimped
- ROH** = stainless steel wire, high tensile, straight

# Cutback Brushes



Knot types ZF



- B: Rose Bud
- O: Open Knot (wire ends are cut)
- D: Fully knotted (wire ends are cut completely)

**Cutback Brushes**  
for the removal of pipe coatings.

The removal of pipe-ends with brushes is a common process in the pipe industry.

To prevent corrosion, steel pipes are usually covered in epoxy resin and several layers of polyethylene (PE) or polypropylene (PP). To ensure a strong and safe welded joint during the installation of the pipes, the coating has to be removed completely on the ends of the pipes. For this process, usually several rings of knotted wire brushes are mounted together to get one large block of wheel brushes.

The LESSMANN Cutback Brushes are proven to have a long lifetime and are used by many international companies producing pipe for the oil and gas industry.

LESSMANN Cutback rings are **supplied already mounted to one another**. This ensures a perfect balancing, an even surface and a tighter fitting.

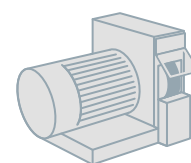
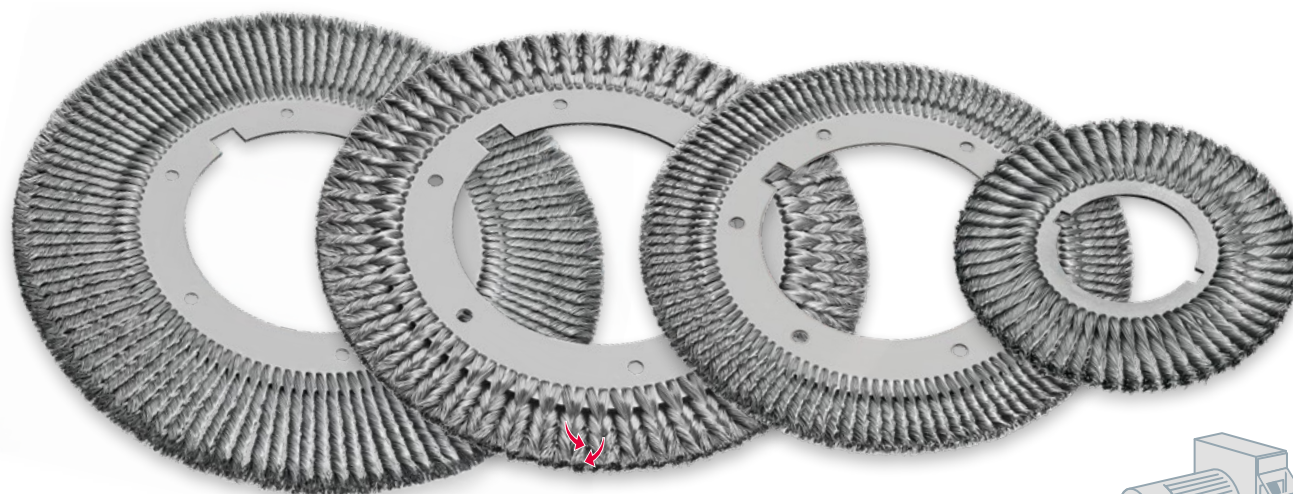
All Cutback Brushes can be purchased with left-right knotting (WZ), too.



### **Cutback Brushes, left-right knotted**

Left-right knotted cutback brushes usually are more aggressive, hence they are often used for heavy brushing operations.

The knots of this type of brush open less, therefore there are ideal for the treatment of edges.

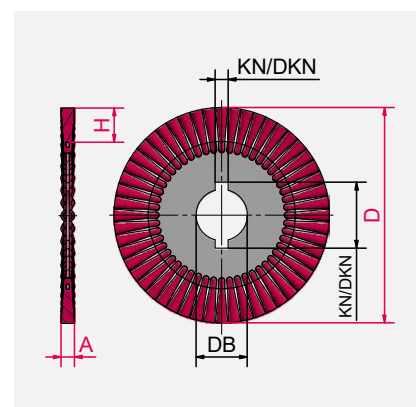


Cutback Brushes										STH	ROH
D	A	H	DB	KN/DKN	Z	ZF					
mm   inch	mm   inch	mm   inch	mm   inch	mm   inch							
250   10	13   33/64	45   1 49/64	102   4 1/64	115.8 x 13	56	0				0.63	0.50 / 0.80
300   12	13   33/64	60   2 23/64	102   4 1/64	115.8 x 13	64	0				0.80	0.50 / 0.80
390   15 23/64	13   33/64	45   1 49/64	200.6   7 57/64	233 x 24	114	0	right-left knotted (WZ)			0.63 / 0.80	0.80
465   18 5/16	13   33/64	82.5   3 1/4	200.6   7 57/64	233 x 24	114	0				0.58 / 0.80	0.80

The table above gives you an insight into the range of brushes LESSMANN can produce. Due to modern technologies in production we can respond to individual requests and wishes of our customers (diameter, working width, bore).



If requested, scribe markings are possible.



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

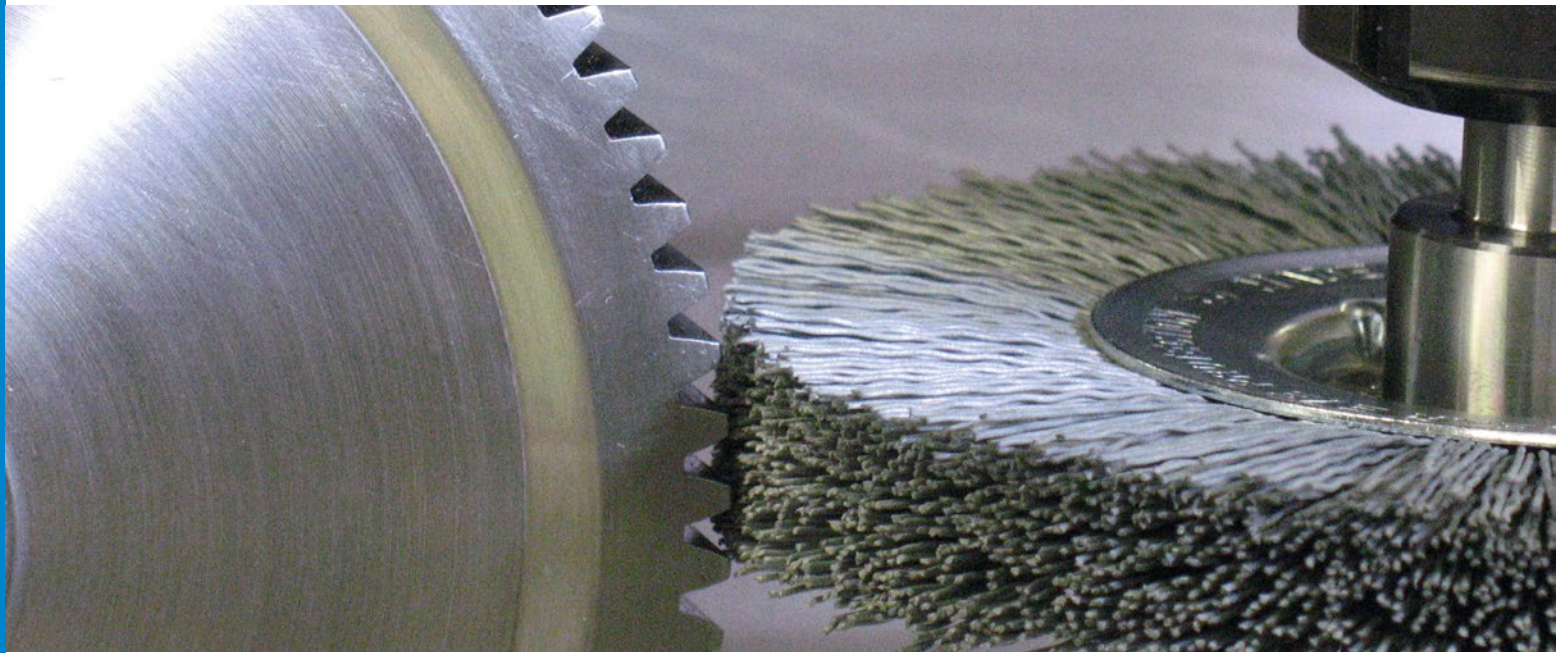
**STH** = steel wire, high tensile, straight

**ROH** = stainless steel wire, high tensile, straight



You can find our **Enquiry Forms** in the respective category under: [www.lessmann.com/index.php/en/content/view/full/61](http://www.lessmann.com/index.php/en/content/view/full/61) or in the catalog from page 179

# Single Segment Brushes



## Single Segment Brushes

These brushes are mainly used for deburring purposes in stationary machines or processing centres.

The construction of these brushes allows it to assemble them to roller brushes of any desired width. Many different filling materials like steel, stainless steel or abrasive nylon with various grit are at your disposal.

## Outstanding Processing

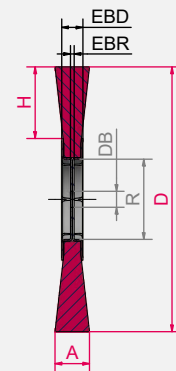
The flexible bristles align to the different shapes of working pieces.

An important advantage of the single segment brushes compared to other grinding tools, such as pads or grinding discs, is their gentle treatment.

Furthermore the brushes do not become encrusted. They are suitable for deburring work and fine polishing of stainless steel, light metal or plastic material. Besides the executions listed on this page other diameters and grit sizes are available.



Laser imprint of brushes



A can be up to 4 mm larger than EBD

**EBR = 3.0 mm** if  $R > 60$

**EBR = 2.4 mm** if  $R \leq 60$

For further information on abrasive filaments please see pages 13 et seq.

**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

**SIC** = silicon carbide bristles

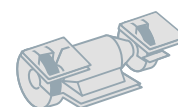
**KK** = ceramic grit



1

2

3



## 1 Single Segment Wheel Brushes, Silicon Carbide Bristles

D	R	EBD	H	DB <sub>Stand.</sub>	DB <sub>min./max.</sub>	RPM	Pack.	SIC 80/1.2	SIC 120/1.1	SIC 120/0.6	SIC 180/1.0	SIC 320/0.6
mm   inch				mm   inch		max.		Art.-No.	Art.-No.	Art.-No.	Art.-No.	Art.-No.
80   3 1/4	26	12	17	12   1/2	12-16	12,000	5		310.831	<b>310.841</b>	<b>310.851</b>	<b>310.871</b>
100   2	30	12	21	12   1/2	12-20	8,000	5	<b>320.821</b>	320.831	<b>320.841</b>	<b>320.851</b>	<b>320.871</b>
125   5	30	12	33	12   1/2	12-20	8,000	5	330.821		<b>330.841</b>	<b>330.851</b>	330.871
150   6	50	14	32	12   1/2	12-30	6,000	5	<b>340.821</b>	<b>340.831</b>	<b>340.841</b>	<b>340.851</b>	<b>340.871</b>
178   7	50	14	46	12   1/2	12-30	6,000	5	350.821	<b>350.831</b>	<b>350.841</b>	350.851	350.871
178   7	60	16	41	12   1/2	12-40	6,000	5			351.841	351.851	351.871
200   8	60	16	52	12   1/2	12-40	6,000	5	361.821	361.831	361.841	361.851	361.871
200   8	80	16	43	16   5/8	16-60	6,000	5		362.831	362.841	<b>362.851</b>	362.871
200   8	100	16	32	16   5/8	16-80	6,000	5		<b>360.831</b>	<b>360.841</b>	<b>360.851</b>	<b>360.871</b>
250   10	100	16	57	16   5/8	16-80	6,000	5		<b>370.831</b>	370.841	<b>370.851</b>	<b>370.871</b>
250   10	120	16	45	20   3/4	20-100	3,600	5			371.841	371.851	371.871
250   10	150	19	30	25.4   1	25.4-130	3,600	5		372.831	372.841	<b>372.851</b>	372.871
300   12	120	16	70	20   3/4	20-100	3,600	5			380.841	380.851	380.871
300   12	150	19	35	25.4   1	25.4-130	3,600	5		381.831	381.841	381.851	381.871

## 2 Single Segment Wheel Brushes, Silicon Carbide Bristles, 2 rows

D	R	EBD	H	DB <sub>Stand.</sub>	DB <sub>min./max.</sub>	RPM	Pack.	SIC 120/0.6	SIC 180/1.0	SIC 320/0.6
mm   inch				mm   inch		max.		Art.-No.	Art.-No.	Art.-No.
200   8	80	27	43	16   5/8	16-60	6,000	5	available on demand	362.852	available on demand
250   10	100	27	58	16   5/8	16-80	6,000	5	available on demand	370.852	available on demand

## 3 Single Segment Wheel Brushes, Ceramic Grit

D	R	EBD	H	DB <sub>Stand.</sub>	DB <sub>min./max.</sub>	RPM	Pack.	KK 120/1.1	KK 180/1.0	KK 320/0.6
mm   inch				mm   inch		max.		Art.-Nr.	Art.-Nr.	Art.-Nr.
100   2	30	12	21	12   1/2	12-20	8,000	5	<b>320.C31</b>	320.C51	320.C71
150   6	50	14	32	12   1/2	12-30	6,000	5	<b>340.C31</b>	340.C51	<b>340.C71</b>
200   8	100	16	32	16   5/8	16-80	6,000	5	<b>360.C31</b>	360.C51	360.C71
250   10	100	16	57	16   5/8	16-80	6,000	5	<b>370.C31</b>	370.C51	370.C71

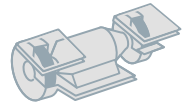
Bore must be indicated in the order. Standard bore delivery ex stock, short termed. Other bores are available with extra charge: 1-10 pcs. EUR 6 / 11-25 pcs. EUR 4

# Single Segment Brushes



1

2



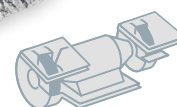
## Single Segment Wheel Brushes, Steel Wire, Cord Wire

D mm   inch	R	EBD	H	DB <sub>Stand.</sub> mm   inch	DB <sub>min./max.</sub> mm   inch	RPM max.	Pack.	1		2
								STA 0.20   0.008" Art.-No.	STA 0.30   0.012" Art.-No.	STL 0.35   0.014" Art.-No.
80   3 1/4	26	12	17	12   1/2	12-16	12,000	5	310.141	<b>310.161</b>	available on demand
100   4	30	12	21	12   1/2	12-20	8,000	5	<b>320.141</b>	<b>320.161</b>	320.707
125   5	30	12	33	12   1/2	12-20	8,000	5	330.141	<b>330.161</b>	available on demand
125   5	40	12	29	12   1/2	12-25	8,000	5	available on demand	331.161	available on demand
150   6	50	14	32	12   1/2	12-30	6,000	5	<b>340.141</b>	<b>340.161</b>	340.707
178   7	50	14	46	12   1/2	12-30	6,000	5	350.141	<b>350.161</b>	available on demand
178   7	60	16	41	12   1/2	12-40	6,000	5	351.141	351.161	351.707
200   8	60	16	52	12   1/2	12-40	6,000	5	361.141	361.161	available on demand
200   8	80	16	43	16   5/8	16-60	6,000	5	362.141	362.161	362.707
200   8	100	16	32	16   5/8	16-80	6,000	5	<b>360.141</b>	<b>360.161</b>	360.707
250   10	100	16	57	16   5/8	16-80	6,000	5	370.141	<b>370.161</b>	available on demand
250   10	120	16	45	20   3/4	20-100	3,600	5	371.141	371.161	available on demand
300   12	120	16	70	20   3/4	20-100	3,600	5	380.141	380.161	available on demand
300   12	150	19	55	25.4   1	25.4-130	3,600	5		381.161	

## Single Segment Wheel Brushes, Steel Wire, 2 rows

D mm   inch	R	EBD	H	DB <sub>Stand.</sub> mm   inch	DB <sub>min./max.</sub> mm   inch	RPM max.	Pack.	STH 0.35   0.014" Art.-No.
200   8	80	20	43	16   5/8	16-60	4,500	5	362.272
250   10	100	20	58	16   5/8	16-80	6,000	5	370.272

Bore must be indicated in the order. Standard bore delivery ex stock, short termed. Other bores are available with extra charge: 1-10 pcs. EUR 6 / 11-25 pcs. EUR 4



Single Segment Wheel Brushes, Stainless Steel Wire

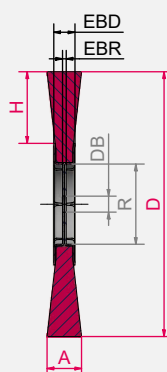
D mm   inch	R	EBD	H	DB <sub>stand.</sub> mm   inch	DB <sub>min./max.</sub>	RPM max.	Pack.	ROF 0.20   0.008"		ROF 0.30   0.012"	
								Art.-No.	Art.-No.	Art.-No.	Art.-No.
80   3 1/4	26	12	17	12   1/2	12-16	12,000	5	310.341	310.361	310.361	310.361
100   2	30	12	21	12   1/2	12-20	8,000	5	<b>320.341</b>	<b>320.361</b>	<b>320.361</b>	<b>320.361</b>
125   5	30	12	33	12   1/2	12-20	8,000	5	<b>330.341</b>	<b>330.361</b>	<b>330.361</b>	<b>330.361</b>
125   5	40	12	29	12   1/2	12-25	8,000	5	331.341	331.361	331.361	331.361
150   6	50	14	32	12   1/2	12-30	6,000	5	<b>340.341</b>	<b>340.361</b>	<b>340.361</b>	<b>340.361</b>
178   7	50	14	46	12   1/2	12-30	6,000	5	350.341	350.361	350.361	350.361
178   7	60	16	41	12   1/2	12-40	6,000	5	351.341	351.361	351.361	351.361
200   8	60	16	52	12   1/2	12-40	6,000	5	361.341	361.361	361.361	361.361
200   8	80	16	43	16   5/8	16-60	6,000	5	362.341	362.361	362.361	362.361
200   8	100	16	32	16   5/8	16-80	6,000	5	360.341	360.361	<b>360.361</b>	<b>360.361</b>
250   10	100	16	57	16   5/8	16-80	6,000	5	370.341	370.361	370.361	370.361
250   10	120	16	45	20   3/4	20-100	6,000	5	371.341	371.361	371.361	371.361
300   12	120	16	70	20   3/4	20-100	3,600	5	380.341	380.361	380.361	380.361
300   12	150	19	55	25.4   1	25.4-130	3,600	5	381.341	381.361	381.361	381.361

Bore must be indicated in the order. Standard bore delivery ex stock, short termed. Other bores are available with extra charge: 1-10 pcs. EUR 6 / 11-25 pcs. EUR 4

Stainless Steel Brushes

LESSMANN-brushes with stainless steel wire have a laser imprint.

Information on working on stainless steel you find at [www.lessmann.com](http://www.lessmann.com)



A can be up to 4 mm larger than EBD

EBR = 3.0 mm if R > 60  
EBR = 2.4 mm if R ≤ 60

For further information on abrasive filaments please see page 13 et seq.

**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

- STA = steel wire, crimped
- STH = steel wire, high tensile, crimped
- STL = cord wire, crimped
- ROF = stainless steel wire, crimped

# Wheel Brushes



## Wheel Brushes

Wheel brushes filled with crimped wire are used for the purpose of obtaining different surface finishing:

- the removal of rust, paint and dirt
- for roughening, deburring, stripping or polishing.

## Big or Small?

A decisive factor for choosing the most suitable brush is the wire and tube diameter. Brushes with a larger tube diameter (measure R) are filled with more wire, are more aggressive and have a longer life.

In our catalogue are the usual tube diameters – other diameters can also be supplied. More technical instruction such as peripheral speed etc. see pages 9 et seq.

The bore must be indicated in the order. Without any instruction delivery will be with standard bore "d Stand".

## Other filling materials, filling diameters and special executions

Take advantage of the LESSMANN range of products, of the experience in developing and producing brushes! We are able to produce special executions on demand.

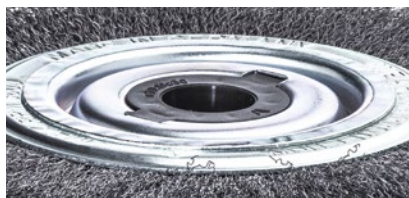
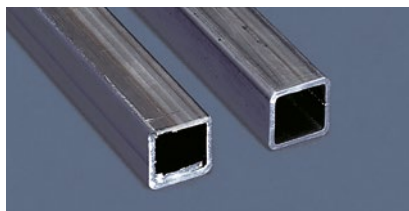
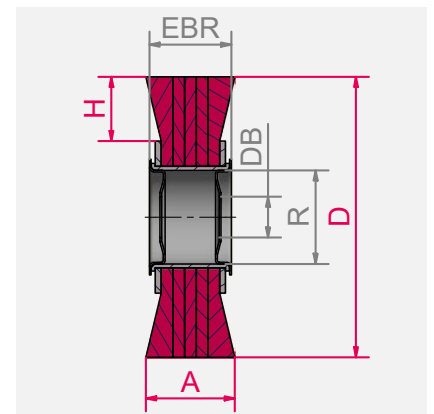


Plate with tube 80 and 100 (Set 4 / 5)



## Adapter Set

All brushes are supplied with adapter sets for easy mounting on all popular grinding machines. The adapters have the following dimensions:

**Set 1** / tube 30:

30 / 1" / 22.2 / 20 / 16 / 1/2" / 12

**Set 2** / tube 40:

40 / 32 / 1" / 22.2 / 20 / 16 / 1/2"

**Set 3** / tube 50:

50 / 32 / 1" / 22.2 / 20 / 16 / 1/2"

**Set 4** / tube 80 + 100:

brushes with metal discs, bore 50.8

and double keyway 7x13;

plus adapter to bore 30.

**Set 5** / tube 80 + 100:

brushes with metal discs, bore 50.8

and double keyway 7x13;

plus adapter to bore 32.

By usage without adapter set the actual size might be up to 0.2 mm below nominal size.



You can find our **tutorials** here:  
[www.lessmann.com/index.php/en/content/view/full/711](http://www.lessmann.com/index.php/en/content/view/full/711)

**Item Nos. in bold** are available ex stock.

Consider our minimum order value for *italic printed* article numbers (see page 184).

**STA** = steel wire, crimped

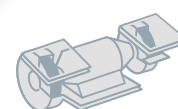
**STM** = brass coated steel, crimped





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2

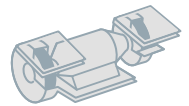


## Wheel Brushes, Steel Wire, Brass Coated Steel Wire

D	A	EBR	R	H	DB <sub>Stand.</sub>	DB <sub>min./max.</sub>	RPM	Pack.	1				2
									STA 0.15   0.006"	STA 0.20   0.008"	STA 0.30   *0.35 0.012" / 0.014"	STM 0.30   0.012"	
mm   inch					mm   inch		max.		Art.-No.	Art.-No.		Art.-No.	
80   3 1/4	18-20	18	20	20	10   3/8	10-20	10,000	1	available on demand	<b>312.142</b>	<b>312.162</b>		
80   3 1/4	25-27	24	20	20	10   3/8	10-20	10,000	1	available on demand	312.143	<b>312.163</b>		
100   4	20-22	19	30	23	Set 1	10-30	8,000	1	323.132	<b>323.142</b>	<b>323.162</b>		
100   4	28-30	25	30	23	Set 1	10-30	8,000	1	323.133	<b>323.143</b>	<b>323.163</b>		
125   5	21-23	20	40	27	Set 2	13-40	6,000	1	334.132	<b>334.142</b>	<b>334.162</b>		
125   5	29-31	26	40	27	Set 2	13-40	6,000	1	available on demand	334.143	<b>334.163</b>		
150   6	22-24	20	40	33	Set 2	13-40	6,000	1	344.132	<b>344.142</b>	<b>344.172*</b>		
150   6	30-34	26	40	33	Set 2	13-40	6,000	1	344.133	<b>344.143</b>	<b>344.173*</b>		
150   6	23-25	22	50	33	Set 3	13-50	6,000	1	345.132	<b>345.142</b>	<b>345.162</b>	345.762	
150   6	30-34	30	50	33	Set 3	13-50	6,000	1	345.133	<b>345.143</b>	<b>345.163</b>		
178   7	23-26	22	50	37	Set 3	16-50	6,000	1	available on demand	<b>355.142</b>	<b>355.162</b>	355.762	
178   7	32-35	30	50	37	Set 3	16-50	6,000	1	355.133	<b>355.143</b>	<b>355.163</b>		
200   8	24-27	22	50	48	Set 3	16-50	6,000	1	365.132	<b>365.142</b>	<b>365.172*</b>	365.762	
200   8	35-38	30	50	48	Set 3	16-50	6,000	1	365.133	<b>365.143</b>	<b>365.173*</b>	365.763	
200   8	28-32	29	80	38	Set 4+1	16-80	4,500	1	available on demand	<b>366.142</b>	<b>366.162</b>	366.762	
200   8	40-45	39	80	38	Set 4+1	16-80	4,500	1	available on demand	366.143	<b>366.163</b>		
250   10	30-35	29	80	50	Set 4+1	20-80	3,600	1	available on demand	<b>376.142</b>	<b>376.162</b>		
250   10	42-45	39	80	50	Set 4+1	20-80	3,600	1	available on demand	available on demand	<b>376.163</b>		
250   10	32-37	30	100	50	Set 4+1	20-100	3,600	1	available on demand	<b>377.142</b>	<b>377.162</b>	377.762	
250   10	43-48	39	100	50	Set 4+1	20-100	3,600	1	available on demand	377.143	<b>377.163</b>		
250   10	55-60	49	100	50	Set 4+1	20-100	3,600	1	available on demand	377.144	<b>377.164</b>		
300   12	35-40	30	100	60	Set 4	30-100	3,000	1	available on demand	<b>387.142</b>	<b>387.162</b>		
300   12	47-52	39	100	60	Set 4	30-100	3,000	1	available on demand	387.143	<b>387.163</b>		
300   12	30-35	34	120	50	Set 4	32-100	3,000	1			<b>388.172*</b>		
300   12	42-47	46	120	50	Set 4	32-100	3,000	1			<b>388.173*</b>		
350   14	35-40	30	100	85	Set 5	32-100	2,400	1	available on demand	397.142	<b>397.172*</b>		
350   14	55-60	39	100	85	Set 5	32-100	2,400	1	available on demand	397.143	<b>397.173*</b>		

Bore must be indicated in the order. Standard bore delivery ex stock, short termed. Other bores are available with extra charge: 1–10 pcs. EUR 6 / 11–25 pcs. EUR 4

# Wheel Brushes



IIII  
EAN

## Wheel Brushes, Stainless Steel, Silicon Carbide Bristles

D	A	EBR	R	H	DB <sub>stand.</sub>	DB <sub>min./max.</sub>	RPM	Pack.	ROF 0.20   0.008"	ROF 0.30   0.012"	RO4 0.30   0.012"	SIC 80/1.2	SIC 180/1.0
mm   inch					mm   inch		max.		Art.-No.	Art.-No.	Art.-No.	Art.-No.	Art.-No.
80   3 1/4	18-20	18	20	20	10   3/8	10-20	10,000	1	312.342	<b>312.362</b>			
80   3 1/4	25-27	24	20	20	10   3/8	10-20	10,000	1	available on demand	312.363			
100   4	20-22	19	30	23	Set 1	10-30	8,000	1	323.342	<b>323.362</b>			
100   4	28-30	25	30	23	Set 1	10-30	8,000	1	323.343	<b>323.363</b>			
125   5	21-23	20	40	27	Set 2	13-40	6,000	1	334.342	<b>334.362</b>			
125   5	29-31	26	40	27	Set 2	13-40	6,000	1	334.343	<b>334.363</b>			
150   6	22-24	20	40	33	Set 2	13-40	6,000	1	344.342	<b>344.362</b>			
150   6	30-34	26	40	33	Set 2	13-40	6,000	1	344.343	<b>344.363</b>			
150   6	18-20	20	50	33	Set 3	13-50	6,000	1				<b>345.822</b>	<b>345.852</b>
150   6	23-25	22	50	33	Set 3	13-50	6,000	1	345.342	<b>345.362</b>	<b>345.462.V4</b>		
150   6	30-34	30	50	33	Set 3	13-50	6,000	1	345.343	<b>345.363</b>		<b>345.823</b>	<b>345.853</b>
178   7	23-26	22	50	37	Set 3	16-50	6,000	1	<b>355.342</b>	<b>355.362</b>			
178   7	30-32	29	50	37	Set 3	16-50	6,000	1				<b>355.823</b>	<b>355.853</b>
178   7	32-35	30	50	37	Set 3	16-50	6,000	1	available on demand	<b>355.363</b>			
200   8	24-27	22	50	33	Set 3	16-50	6,000	1			<b>365.462.V4</b>		
200   8	24-27	22	50	48	Set 3	16-50	6,000	1	<b>365.342</b>	<b>365.362</b>			
200   8	28-30	29	50	38	Set 3	16-50	3,600	1				<b>365.823</b>	<b>365.853</b>
200   8	35-38	30	50	48	Set 3	16-50	6,000	1	365.343	<b>365.363</b>			
200   8	28-32	29	80	38	Set 4+1	16-80	4,500	1	366.342	<b>366.362</b>			
200   8	40-45	39	80	38	Set 4+1	16-80	4,500	1	366.343	<b>366.363</b>			
250   10	30-35	29	80	50	Set 4+1	20-80	3,600	1	376.342	<b>376.362</b>			
250   10	42-45	39	80	50	Set 4+1	20-80	3,600	1	376.343	<b>376.363</b>			
250   10	32-37	30	100	50	Set 4+1	20-100	3,600	1	377.342	<b>377.362</b>			
250   10	43-48	39	100	50	Set 4+1	20-100	3,600	1	377.343	<b>377.363</b>			
300   12	35-40	30	100	60	Set 4	30-100	3,000	1	387.342	<b>387.362</b>			
300   12	47-52	39	100	60	Set 4	30-100	3,000	1	387.343	387.363			
350   14	35-40	30	100	85	Set 5	32-100	2,400	1	available on demand	397.362			

Bore must be indicated in the order. Standard bore delivery ex stock, short termed. Other bores are available with extra charge: 1–10 pcs. EUR 6 / 11–25 pcs. EUR 4

### Stainless Steel Brushes

Information on working on stainless steel you find at [www.lessmann.com](http://www.lessmann.com)

Plate with tube 80 and 100  
(Set 4 / 5)





## Wheel Brushes, Brass Wire, Bronze Wire

D	A	EBR	R	H	DB <sub>Stand.</sub>	DB <sub>min./max.</sub>	RPM	Pack.	MES 0.20   0.008"	MES 0.30   0.012"	BRO 0.30
mm   inch					mm   inch		max.		Art.-No.	Art.-No.	Art.-No.
80   3 1/4	18-20	18	20	20	10   3/8	10-20	10,000	1	<b>312.542</b>	312.562	
80   3 1/4	25-27	24	20	20	10   3/8	10-20	10,000	1	312.543	312.563	
100   4	20-22	19	30	23	Set 1	10-30	8,000	1	<b>323.542</b>	323.562	
100   4	28-30	25	30	23	Set 1	10-30	8,000	1	323.543	323.563	
125   5	21-23	20	40	27	Set 2	13-40	6,000	1	<b>334.542</b>	334.562	
125   5	29-31	26	40	27	Set 2	13-40	6,000	1	334.543	available on demand	
150   6	22-24	20	40	33	Set 2	13-40	6,000	1	<b>344.542</b>	<b>344.562</b>	<b>344.662</b>
150   6	30-32	26	40	33	Set 2	13-40	6,000	1	344.543	<b>344.563</b>	
150   6	23-25	22	50	33	Set 3	13-50	6,000	1	<b>345.542</b>	<b>345.562</b>	345.662.MS*
150   6	30-34	30	50	33	Set 3	13-50	6,000	1	345.543	<b>345.563</b>	
178   7	23-26	22	50	37	Set 3	16-50	6,000	1	355.542	<b>355.562</b>	
178   7	32-35	30	50	37	Set 3	16-50	6,000	1	355.543	<b>355.563</b>	
200   8	24-27	22	50	48	Set 3	16-50	6,000	1	<b>365.542</b>	<b>365.562</b>	
200   8	35-38	30	50	48	Set 3	16-50	6,000	1	365.543	<b>365.563</b>	
200   8	28-32	29	80	38	Set 4+1	16-80	4,500	1	366.542	<b>366.562</b>	
200   8	40-45	39	80	38	Set 4+1	16-80	4,500	1	366.543	366.563	
250   10	30-35	29	80	50	Set 4+1	20-80	3,600	1	376.542	376.562	
250   10	42-45	39	80	50	Set 4+1	20-80	3,600	1	376.543	available on demand	
250   10	32-37	30	100	50	Set 4+1	20-100	3,600	1	available on demand	<b>377.562</b>	
250   10	43-48	39	100	50	Set 4+1	20-100	3,600	1	available on demand	available on demand	
300   12	35-40	30	100	60	Set 4	30-100	3,000	1	available on demand	<b>387.562</b>	
300   12	47-52	39	100	60	Set 4	30-100	3,000	1	available on demand	available on demand	
350   14	35-40	30	100	85	Set 5	32-100	2,400	1	available on demand	397.562	

\* Bronze Wire, fittings brass (low-sparkling)

Bore must be indicated in the order.  
Standard bore delivery ex stock, short termed.  
Other bores are available with extra charge:  
1 – 10 pcs. EUR 6 / 11 – 25 pcs. EUR 4

Item Nos. in bold are available ex stock.  
Consider our minimum order value for *italic printed*  
article numbers (see page 184).

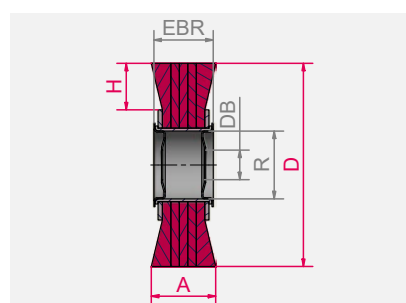
ROF = stainless steel wire, crimped

RO4 = premium-quality stainless steel

MES = brass wire, crimped

BRO = bronze wire, crimped

SIC = silicon carbide bristles



# Brushes for the wood machining industry



## Satinising Brushes

Satinising brushes are the perfect tool for satinising, polishing, abrading/smoothing, matting and structuring.

## Staple Set Wheel and Disc Brushes

Wheel and Disc Brushes with abrasive nylon filament are used for the wood machining industry. Used on angle grinders, the disc brushes are ideal for maintaining, cleaning, structuring or polishing wood.

Besides the brushes are used for giving wood a rustic effect or for roughening it before treating with colour or lacquer. The brushes are very effective when working on large surfaces.

## Structuring Brushes with Shank

These brushes are special brushes which can be used for wood grain surfaces.

**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

**STM** = brass coated steel, crimped

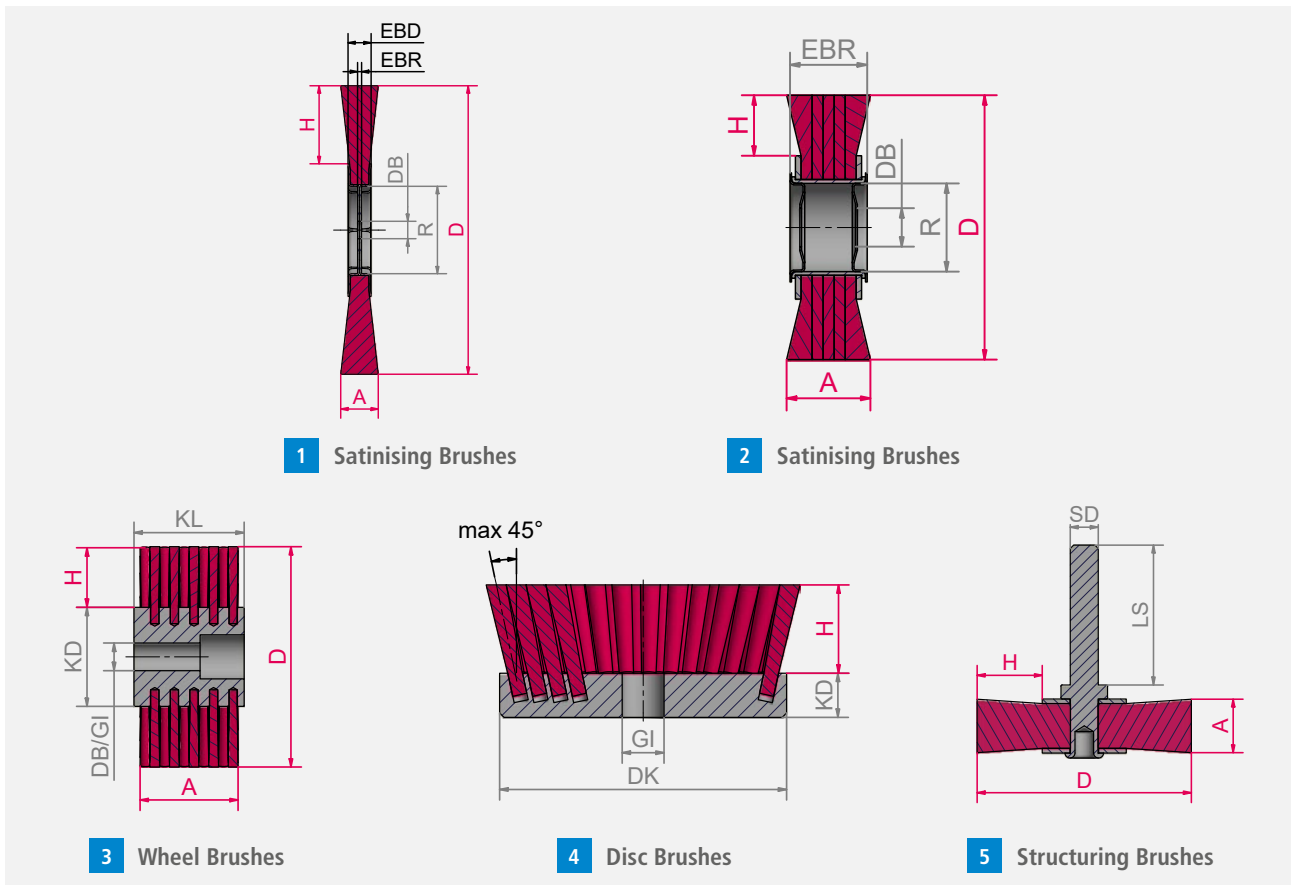
**STL** = cord wire, crimped

**ROF** = stainless steel wire, crimped

**SIC** = silicon carbide bristles

**FIB** = fibre

**PA** = polyamide, crimped





Satinising Brushes

	D	A	EBR	R	H	DB	RPM	Pack.	ROF 0.20   0.008"	SIC 80/1.2	STL 0.25   0.010"	FIB/PA 0.4   0.016"
	mm   inch	mm   inch	mm   inch	mm   inch	mm   inch	mm   inch	max.		Art.-No.	Art.-No.	Art.-No.	Art.-No.
1	100   4	12   1/2	12   1/2	30   1 1/4	21	19.2   3/4	8,000	5	320.341.19	320.821.19	320.703.19	
2	100   4	70   2 3/4	70   2 3/4	30   1 1/4	23	19.2   3/4	8,000	1	<b>323.348.19</b>	<b>323.828.19</b>	<b>323.704.19</b>	
	100   4	100   4	102   4	30   1 1/4	23	19.2   3/4	8,000	1	323.305.19	323.805.19	<b>323.705.19</b>	<b>323.900.10</b>
	D	A	EBR	R	H	DB	RPM	Pack.	STM 0.35   0.014"	SIC 80/1.2	SIC 120/1.1	
	mm   inch	mm   inch	mm   inch	mm   inch	mm   inch	mm   inch	max.		Art.-No.	Art.-No.	Art.-No.	
2	100   4	120   4 3/4	122   4 3/4	30   1 1/4	23	12.7   1/2	8,000	1	323.770.13	323.820.13	323.830.13	

Bore must be indicated in the order. Standard bore with double keyway 5,2 x 23 mm delivery ex stock, short termed. Other bores are available with extra charge: 1-10 pcs. EUR 6 / 11-25 pcs. EUR 4

3 Staple Set Wheel Brushes

	D	KL	A	GI	KD	RPM	Pack.	SIC 46/1.6	SIC 60/1.5	SIC 80/1.2	SIC 120/1.10	STM 0.30
	mm   inch	mm   inch	mm   inch			max.		Art.-No.	Art.-No.	Art.-No.	Art.-No.	Art.-No.
	140   5 1/2	58   2 9/32	40   1 5/8	M 14	80	2,500	1	402.881	402.882	<b>402.880</b>	402.883	<b>402.780</b>
	140   5 1/2	90   3 1/23	75   3	M 14	80	2,500	1	402.891	402.892	<b>402.890</b>	402.893	

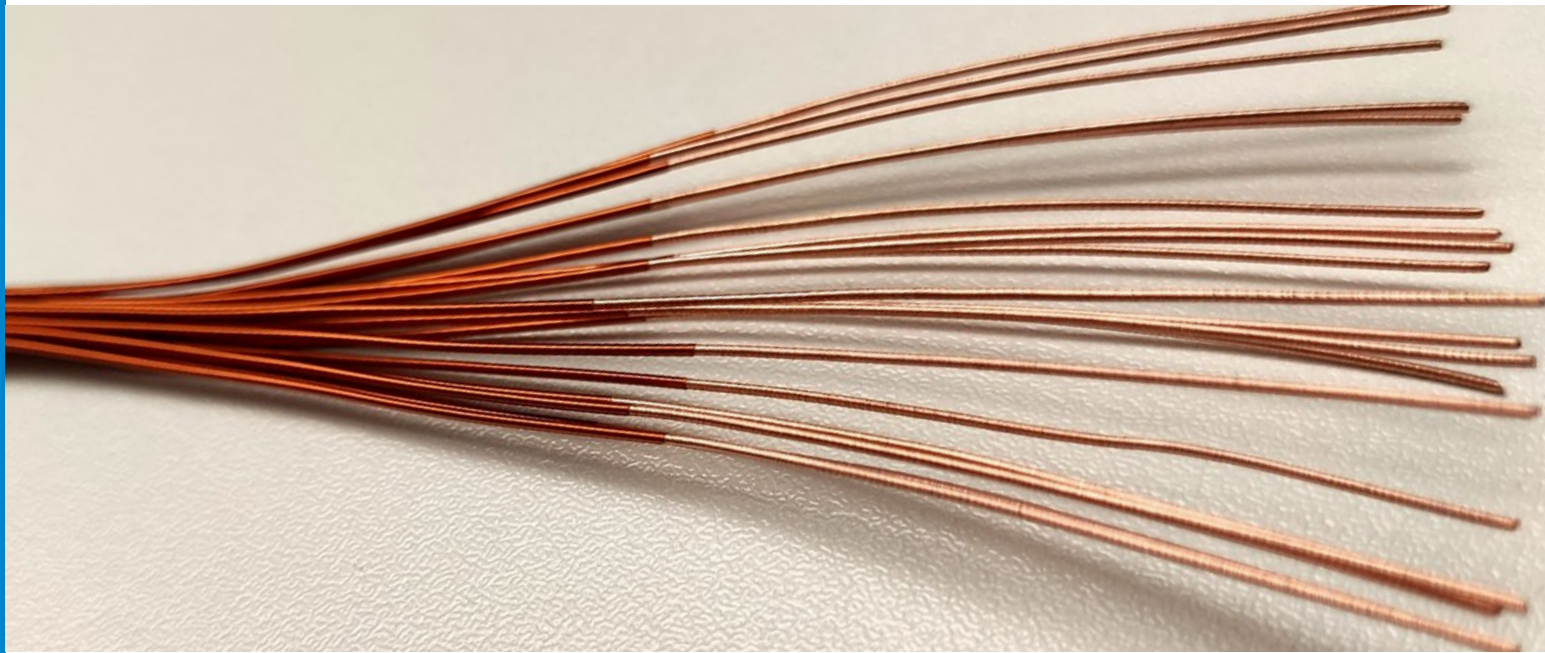
4 Staple Set Disc Brushes

	DK	KD	H	GI	RPM	Pack.	Art.-No.
Filling	mm   inch	mm   inch	mm   inch		max.		
SIC 46/1.6	130   5 1/8	20   3/4	50   2	M 14 x 2.0	2,500	1	<b>405.843</b>
SIC 60/1.5	130   5 1/8	20   3/4	50   2	M 14 x 2.0	2,500	1	<b>405.844</b>
SIC 80/1.2	130   5 1/8	20   3/4	50   2	M 14 x 2.0	2,500	1	<b>405.845</b>

Structuring Brushes with Shank Ø 8 mm

	D	A	H	RPM	Pack.	5	Art.-No.
	mm   inch			max.		STM 0.25   0.010"	SIC 80/1.2
						Art.-No.	Art.-No.
	80   3 1/4	35   1 3/8	25   31/32	4,000	1	<b>418.704</b>	
	80   3 1/4	35   1 3/8	24   15/16	15,000	1		<b>418.826</b>

# Stripping brushes



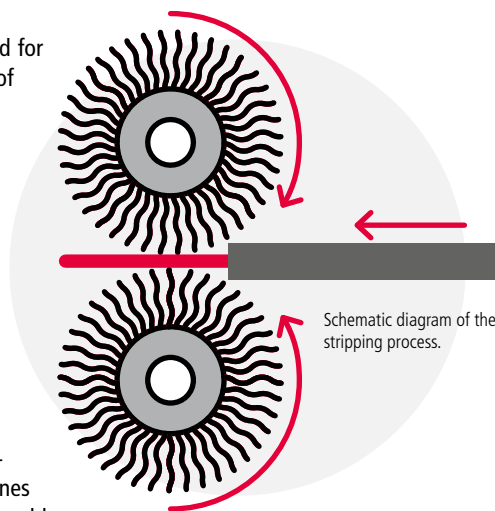
## For fast wiring

These brushes are specifically designed for a single application: To remove layers of paint and other insulating materials from cables and electrical conductors. They are installed in hand-held or stationary machines. The ground surface of the wires as well as the precise concentricity allow a gentle removal of lacquer from cables without overloading them.

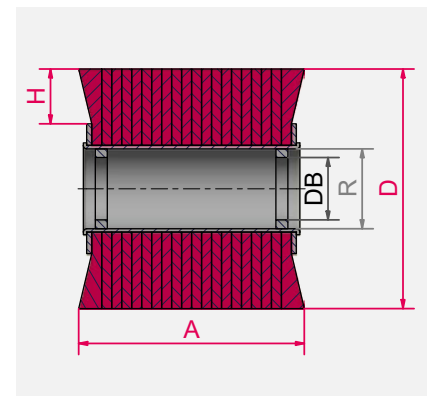
## Functionality of the devices

In all devices the cable is stripped between two rotating brushes. The running direction of the brushes determines whether a tensile force is acting on the cable. If the brushes rotate in opposite directions, the cable is pulled into the device, whereas if the brushes rotate in the same direction, no pulling force is generated.

With different types of brushes the stripping quality can be adapted and optimized to the cable diameter and insulation material. In addition, they can be continuously adjusted to cables of different thickness by means of a locking screw.



Schematic diagram of the stripping process.



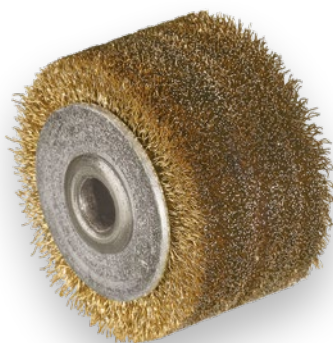
**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

**STA** = steel wire, crimped

**STM** = brass coated steel, crimped



1



2



3

**1 Stripping brushes, steel wire**

D	A	R	DB	RPM	Pack.	STA 0.10 0.004"	STA 0.15 0.006"	STA 0.20 0.008"	STA 0.25 0.010"	STA 0.30 0.012"
mm inch	mm inch	mm inch	mm	max.		Art.-Nr.	Art.-Nr.	Art.-Nr.	Art.-Nr.	Art.-Nr.
30 1 1/8	20 3/4	8 3/8	6	20.000	10	301.213.10	<b>301.213.15</b>	<b>301.213.20</b>	301.213.25	301.213.30
35 1 3/8	20 3/4	8 3/8	6	18.000	10	301.214.10	301.214.15	<b>301.214.20</b>	301.214.25	<b>301.214.30</b>
40 1 5/8	25 1	12 1/2	10	18.000	10	301.225.10	<b>301.225.15</b>	<b>301.225.20</b>	301.225.25	<b>301.225.30</b>
80 3 1/8	30 1 1/8	30 1 1/8	16	8.000	10			301.236.20	301.236.25	301.236.30

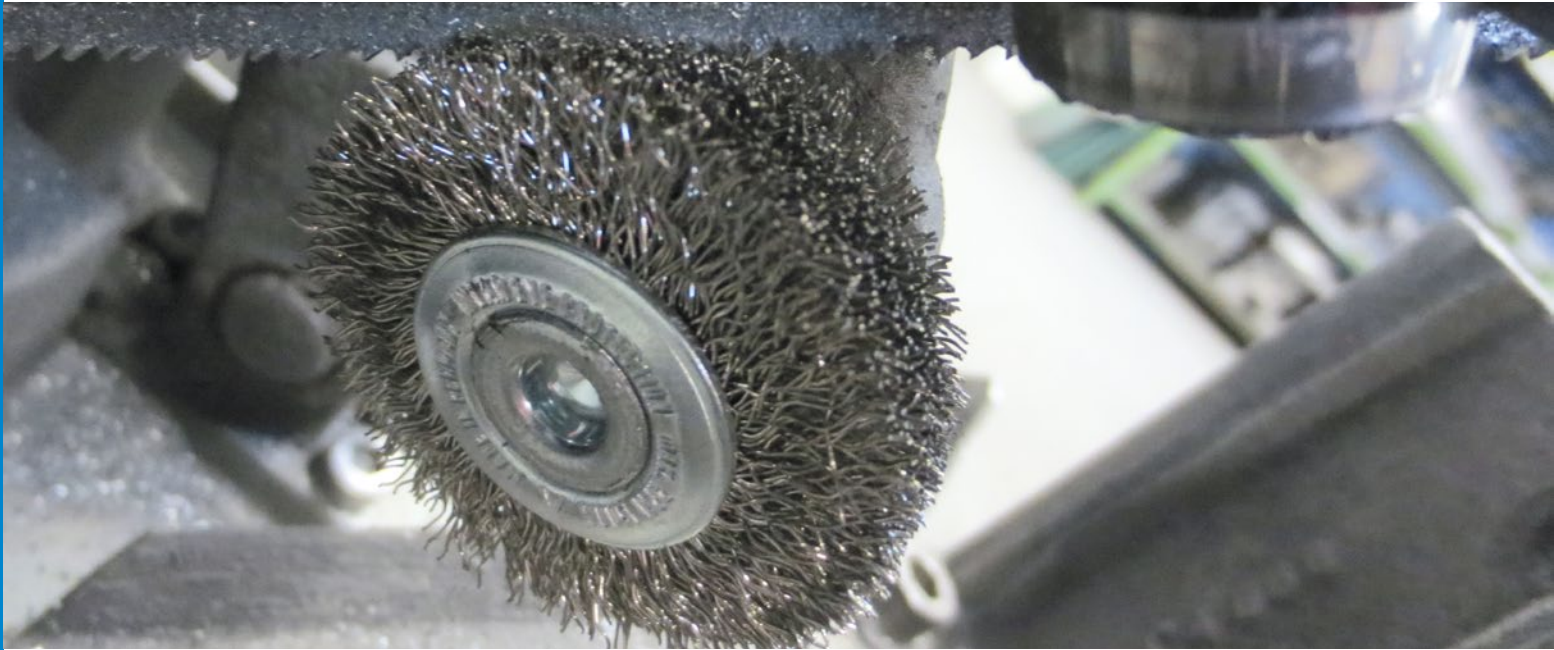
**2 Stripping brushes, brass coated steel wire**

D	A	R	DB	RPM	Pack.		STM 0.15 0.006"	STM 0.20 0.008"	STM 0.25 0.010"	STM 0.30 0.012"
mm inch	mm inch	mm inch	mm	max.			Art.-Nr.	Art.-Nr.	Art.-Nr.	Art.-Nr.
30 1 1/8	20 3/4	8 3/8	6	20.000	10		301.713.15	301.713.20	301.713.25	
35 1 3/8	20 3/4	8 3/8	6	18.000	10		<b>301.714.15</b>	301.714.20	301.714.25	301.724.30
40 1 5/8	25 1	12 1/2	10	18.000	10			<b>301.725.20</b>	301.725.25	301.725.30
80 3 1/8	30 1 1/8	30 1 1/8	16	8.000	10			301.736.20		<b>301.736.30</b>

**3 Stripping brushes, encapsulated steel wire**

D	A	R	DB	RPM	Pack.		STA 0.20 0.008"		
mm inch	mm inch	mm inch	mm	max.			Art.-Nr.		
35 1 3/8	20 3/4	8 3/8	6	18.000	10		3KG.214.20		
40 1 5/8	25 1	12 1/2	10	18.000	10		3KG.215.20		

# Band Saw Brushes

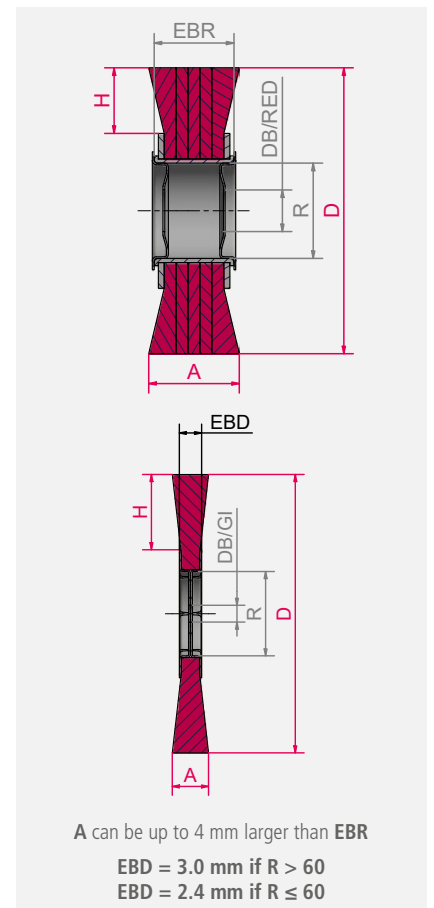


## Band Saw Brushes

Wheel Brushes in circular saws or band saws are used for cleaning the chipping space. A wheel brush with diameter 80–100 mm is pressed against the saw blade (circular or band saw). By moving the saw blade or band the brush is rolling and it taking the chipping out of the shipping space. Hence a built-up edge is prevented and the durability of the saw blade extended. The used wheel brushes usually are with steel wire, corded wire or nylon filament.



**Notice:**  
The brushes are suitable for all common machines.



**Item Nos. in bold** are available ex stock.  
Consider our minimum order value for *italic printed* article numbers (see page 184).

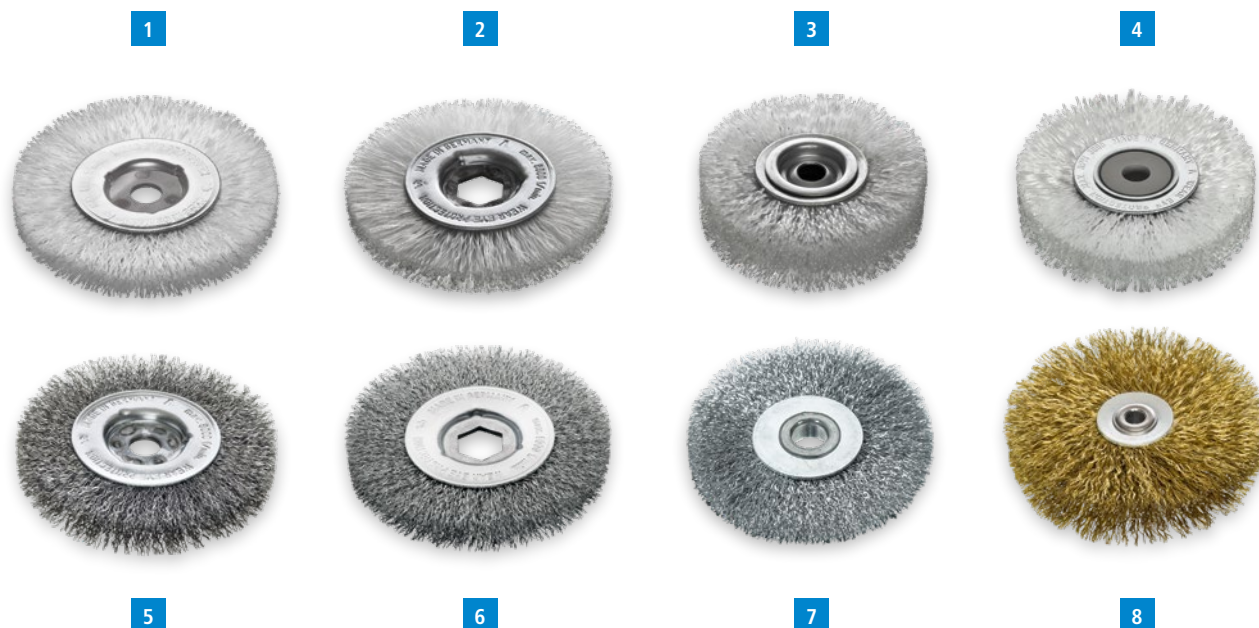
**STA** = steel wire, crimped

**STM** = brass coated steel, crimped

**STL** = cord wire, crimped

**PA** = polyamide, crimped





### Band Saw Brushes, polyamide

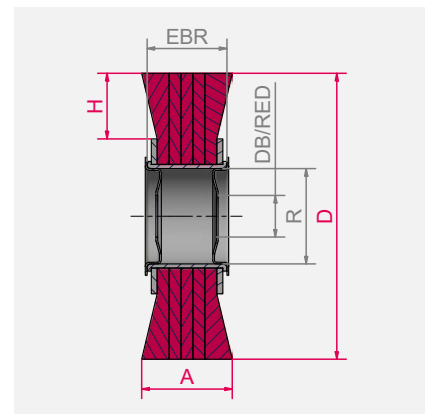
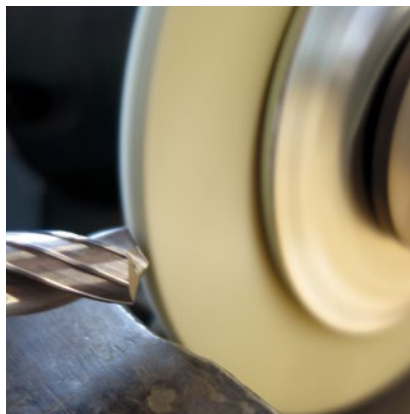
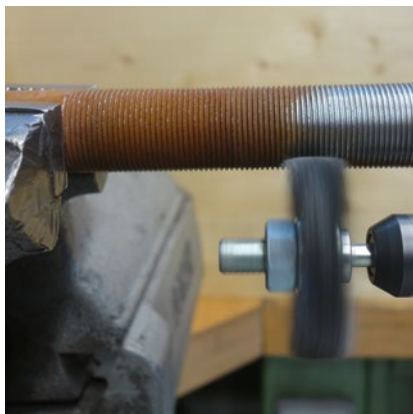
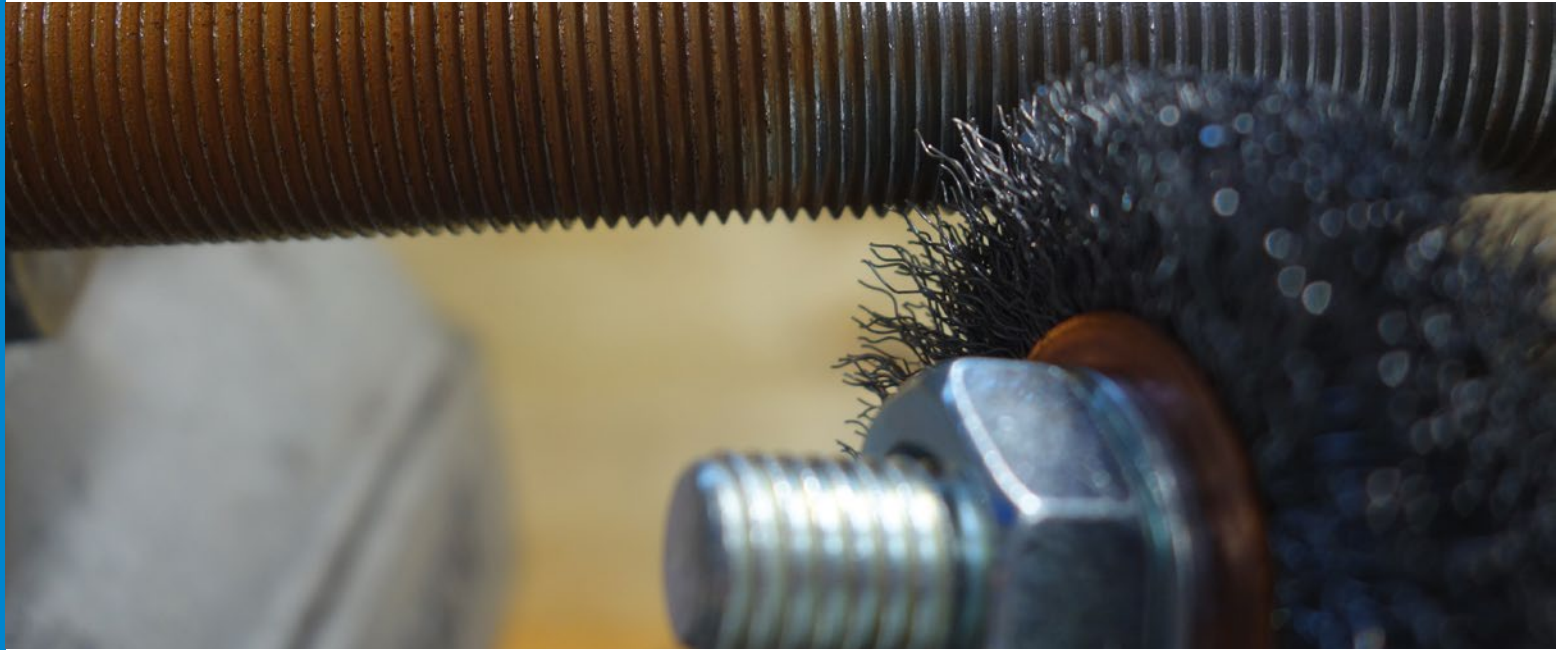
	D mm   inch	A mm   inch	R mm   inch	H mm   inch	DB mm	RPM max.	Pack.	PA 0.50   0.020" Art.-Nr.	PA 0.80   0.031" Art.-No.	PA 1.00   0.039" Art.-No.
<b>1</b>	85   3 11/32	10   25/64	30   1 3/16	14   35/64	12	8,000	10	300.091		
	100   3 15/16	13   33/64	30   1 3/16	21   53/64	12	8,000	10	<b>320.001</b>	<b>320.003</b>	<b>320.009</b>
	100   3 15/16	13   33/64	30   1 3/16	21   53/64	13	8,000	10	<b>320.004</b>		
	125   4 59/64	13   33/64	30   1 3/16	33   1 19/64	13	8,000	5			<b>330.001</b>
<b>2</b>	100   3 15/16	13   33/64	30   1 3/16	21   53/64	SW 17	8,000	10	<b>320.00K.17</b>	320.01K.17	
<b>3</b>	100   3 15/16	20-22   25/32-55/64	30   1 3/16	23   29/32	12	8,000	10		323.002	
<b>4</b>	100   3 15/16	20   25/32	30   1 3/16	23   29/32	12	8,000	5		323.003*	

\* bore with plastic sleeve

### Band Saw Brushes, steel wire, brass coated steel wire, cord wire

	D mm   inch	A mm   inch	R mm   inch	H mm   inch	DB mm	RPM max.	Pack.	STA 0.20 Art.-No.	STA 0.30 Art.-No.	STM 0.20 Art.-No.	STM 0.30 Art.-No.	STL 4 x 0.25 Art.-No.
<b>5</b>	100   3 15/16	13   33/64	30   1 3/16	21   53/64	12	8,000	10		<b>320.161</b>			
	100   3 15/16	13   33/64	30   1 3/16	21   53/64	13	8,000	10		<b>320.161.13</b>			
<b>6</b>	100   3 15/16	12   15/32	30   1 3/16	21   53/64	SW 17	8,000	10		<b>320.16K.17</b>			
<b>7</b>	80   3 5/32	12   15/32	20   25/32	20   25/32	10	15,000	10	<b>312.141</b>				
<b>8</b>	60   2 23/64	10-12   25/64-5/32	8   5/16	19   3/4	6	15,000	10			300.742		
	80   3 5/32	15   19/32	10   25/64	27   1 1/8	6.8	15,000	10			311.742.01		
	80   3 5/32	15   19/32	10   25/64	27   1 1/8	8	15,000	10				<b>311.762</b>	
	80   3 5/32	18-20   45/64-25/32	10   25/64	27   1 1/8	6	15,000	10					<b>310.702.06</b>

# Special Models



## Small diameter crimped wheels SDW

LESSMANN small diameter crimped wheels have a manifold use, e.g. for deburring, cleaning, derusting or paint stripping on various work pieces and surfaces. A typical application e.g. is the cleaning of interior and exterior threads or the treatment of areas which are hard to reach.

The brushes are inserted directly into the machine or are mounted into a drilling machine or fast-moving item with a suitable drive arbor. Depending on the application and requirements several brushes can be mounted in a row. Suitable adapters are available on request.

The typical filling material LESSMANN offers is steel wire, stainless steel wire or abrasive nylon. On request other wire diameters and filling materials are available. All brushes are manufactured with a copper shell.

## Wheel Brushes for the treatment of hard metal

Wheel brushes with diamond filling are often used for the rounding of edges of carbide or diamond tools.

Cutting edges on carbide tools extend the lifetime and allow a higher cutting speed. The treatment on major cutting edges of drills are mainly operated manually. LESSMANN wheel brushes with diamond support to decrease abrasion and to improve the surface quality of the work piece. Due to the consistent and narrow filling a clean and steady dipping of the edges is possible.

Surfaces of chip flutes of carbide drills are finished with brushes with aluminum oxide filling material. Finished chip flutes have a better process stability when drilling.

## Stainless Steel Brushes

Information on working on stainless steel you find at [www.lessmann.com](http://www.lessmann.com)

**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

**STA** = steel wire, crimped

**ROF** = stainless steel wire, crimped

**SIC** = silicon carbide bristles

**AO** = aluminium oxide bristles



### Small Diameter crimped Wheels SDW

1										STA 0.15   0.006"	STA 0.20   0.008"	STA 0.35   0.014"	ROF 0.15   0.006"	
D	A	EBR	DB	H	RPM	Pack.					Art.-No.	Art.-No.	Art.-No.	Art.-No.
mm   inch	mm   inch	mm   inch	mm   inch	mm   inch	max.									
50   2	10   3/8	7   9/32	13   1/2	13   1/2	20,000	10					<b>35E.136</b>	<b>35E.146</b>		<b>35E.336</b>
63   2 1/2	10   3/8	7   9/32	13   1/2	20   3/4	20,000	10						<b>36E.146</b>	<b>36E.176</b>	
75   3	12   1/2	7   9/32	13   1/2	20   3/4	20,000	10						37E.146		<b>37E.336</b>
75   3	12   1/2	8   5/16	16   5/8	22   7/8	20,000	10					37E.137	<b>37E.147</b>		

2										SIC 120/0.6	SIC 180/0.9	SIC 320/0.6	
D	A	EBR	DB	H	RPM max.	Pack.					Art.-No.	Art.-No.	Art.-No.
mm   inch	mm   inch	mm   inch	mm   inch	mm   inch									
50   2	10   3/8	8   5/16	13   1/2	12   1/2	20.000	10					<b>35E.846</b>	<b>35E.856</b>	<b>35E.876</b>
50   2	10   3/8	9   23/64	16   5/8	12   1/2	20.000	10					<b>35E.847</b>	<b>35E.857</b>	<b>35E.877</b>
63   2 1/2	10   3/8	8   5/16	13   1/2	18   5/8	20.000	10					<b>36E.846</b>	<b>36E.856</b>	<b>36E.876</b>
63   2 1/2	10   3/8	9   23/64	16   5/8	18   5/8	20.000	10					<b>36E.847</b>		<b>36E.877</b>

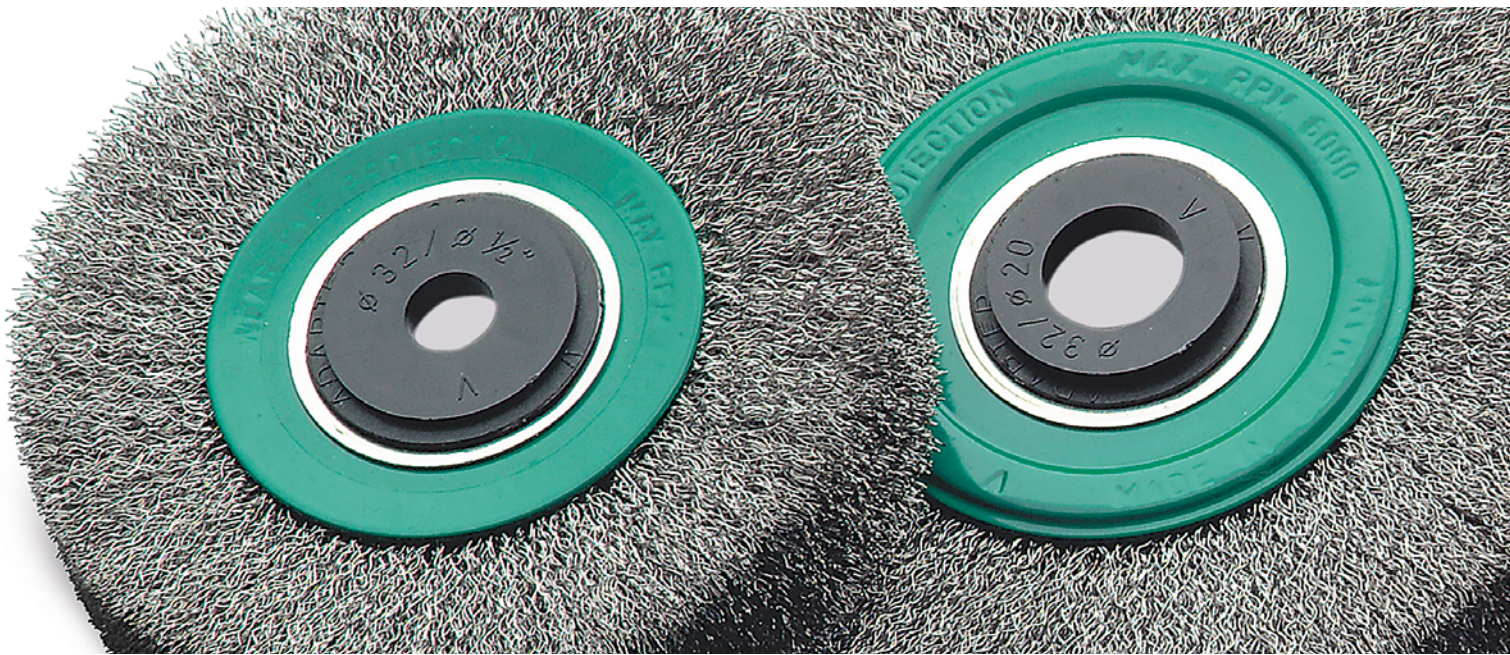
### Wheel Brushes for the treatment of hard metal

3												
D	A	EBR	DB	H	RPM	Pack.	Diam. K240	Diam. K320	Diam. K400	Diam. K600	Diam. K800	Diam. K1000
mm   inch	mm   inch	mm   inch	mm   inch	mm   inch	max.		Art.-No.	Art.-No.	Art.-No.	Art.-No.	Art.-No.	Art.-No.
150   6	5   13/64	11   7/16	20   3/4	23   59/64	3,000	1		408.817.DB	408.819.DB	408.812.DB	408.811.DB	408.813.DB
150   6	10   3/8	16.5   21/32	20   3/4	23   59/64	3,000	1	408.825.DB	408.827.DB	408.829.DB	408.822.DB	408.821.DB	408.820.DB
150   6	15   5/8	22   7/8	20   3/4	23   59/64	3,000	1		408.837.DB	408.839.DB			

4										AO 600	
D	A	EBR	DB	H	RPM max.	Pack.					Art.-No.
mm   inch	mm   inch	mm   inch	mm   inch	mm   inch							
100   4	15   5/8	12   1/2	16   5/8	27   1	3,000	1					320.061*
150   6	15   5/8	15   5/8	20   3/4	23   59/64	3,000	1					345.051*

\* Filling with angular cut

# Accessories



## Adapters

With these adapters the bore can be reduced to the required size.

The wheel brushes are supplied with adapter sets which makes it possible to mount the brushes on all popular grinding machines.

The adapters have the following dimensions:



### Set 1 / tube 30

30 / 1" / 22,2 / 20 / 16 / 1/2" / 12

### Set 2 / tube 40:

40 / 32 / 1" / 22,2 / 20 / 16 / 1/2"

### Set 3 / tube 50:

50 / 32 / 1" / 22,2 / 20 / 16 / 1/2"

### Set 4 / tube 80 + 100:

brushes with metal discs, bore 50.8 and double keyway 7x13; plus adapter to bore 30. Further reduction possible with set 1.

### Set 5 / tube 80 + 100:

brushes with metal discs, bore 50.8 and double keyway 7x13; plus adapter to bore 32. Further reduction possible with set 1.

A technical advice and safety information leaflet is included.

The practical adapter sets can also be ordered separately.

Single plastic reducing rings in many different dimensions can be supplied ex stock.

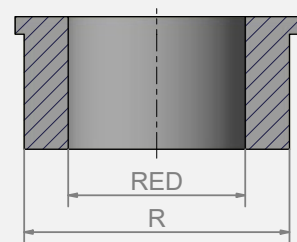
## Drive Arbors

For use on drilling machines.

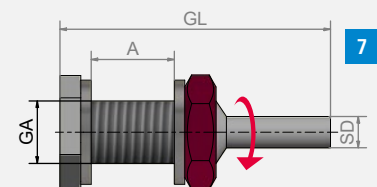
## Metal Discs

Brushes with tube diameter 80 and 100 mm are supplied with our standard metal plates made of steel. Occasionally these metal plates are also required for brushes with smaller tubes. The metal plates on this page are therefore also suitable for the brushes on pages 32–35. Please indicate the required bore size on your order and note that normally two metal plates are required for one brush.

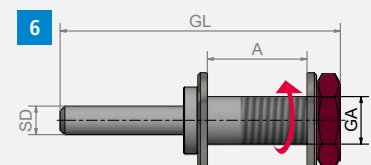
## Adapter



## Drive Arbor Thread left



## Drive Arbor Thread right



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).



Adapter Sets							
			R	RED		Pack.	Art.-No.
1	Set 1	Tube 30	30	1" - 22.2 - 20 - 16 - 1/2" - 12		2	<b>000.886.63</b>
2	Set 2	Tube 40	40	32 - 1" - 22.2 - 20 - 16 - 1/2"		2	<b>000.886.64</b>
3	Set 3	Tube 50	50	32 - 1" - 22.2 - 20 - 16 - 1/2"		2	<b>000.886.65</b>
4	Set 4	Tube 80/100	50.8	30 (further adapters with Set 1)		2	<b>000.886.68</b>
5	Set 5	Tube 80/100	50.8	32		2	<b>000.888.32</b>
5 Single plastic reducing rings in many different dimensions can be supplied ex stock.							

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Drive Arbors							
6	D mm   inch	GL mm   inch	GA	A	RPM max.	Pack.	Art.-No.
	6   1/4	60   2 3/8	M 10 x 1,5	max. 18 mm	4,500	1	000.041
	10   3/8	60   2 3/8	M 10 x 1,5	max. 18 mm	4,500	1	000.042
	10   3/8	75   3	M 14 x 2,0	max. 29 mm	4,500	1	<b>000.043</b>
7	D mm   inch	GL mm   inch	GA	A	RPM max.	Pack.	Art.-No.
	6   1/4	40   1 3/8	M 10 left	max. 15 mm	4,500	1	<b>000.044</b>
	6   1/4	50   2	M 12 left	max. 20 mm	4,500	1	<b>000.045</b>

8 Metal Discs as Spare Part		
	Pack.	Art.-No.
R 30	2	000.631
R 40	2	000.641
R 50	2	000.651
R 80	2	000.661
R100*	2	000.671

Bore must be indicated!

\* On request with double keyset 12 x 7 (50.8 / 52.9 / 54.5)

# LESSMANN®

THE GERMAN BRUSH COMPANY



# DEBURRING BRUSHES



# Deburring Brushes



Part before brushing



Part after brushing



## Deburring Brushes

Specially developed wheel brushes for deburring. These are suitable for all common deburring machines. Although they are heavier than other brushes because of their dense filling, we exclude any imbalance by evenly arranged filling material and the testing of every brush. Filled with high-quality wire, these brushes have a longer service life.

All brushes are with double keyway. Please indicate the required bore.

On the following pages you will find the standard measurements. Special measurements are available on request.

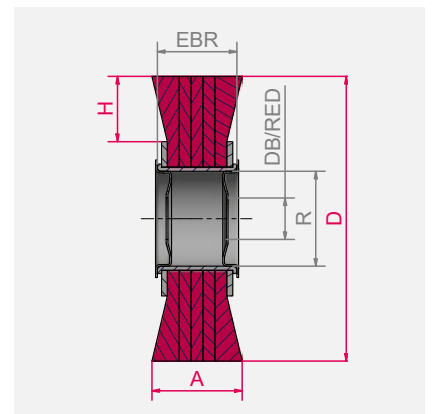
## Deburring Brushes with Cord Wire STL / ROL

Deburring Brushes with cord wire are usually used for working on very hard materials. This wire construction gives the wires additional hold, hence the output of the brush is increased.

## Encapsulated Deburring Brushes

Are ideal for an aggressive and very exact working. An early break of the wires can be prevented. Therefore the brush has a longer life time and a better durability.

For more information about deburring please ask for our leaflet "Deburring with brushes".



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

**STH** = steel wire, high tensile, crimped

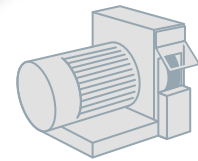
**STM** = brass coated steel, crimped

**STL** = cord wire, crimped



You can find our **Enquiry Forms** in the respective category under: [www.lessmann.com/index.php/en/content/view/full/61](http://www.lessmann.com/index.php/en/content/view/full/61) or in the catalog from page 179





## 1 Deburring Brushes, Steel Wire

D mm   inch	A mm   inch	EBR	R mm   inch	H mm   inch	DB Stand.	RPM max.	Pack.	STH 0.20   0.008"		
								Art.-No.	Art.-No.	Art.-No.
250   10	60   2 3/8	58	100   4	50   2	50.8	3,600	1	<b>377.051</b>	<b>377.053</b>	<b>377.054</b>
250   10	60   2 3/8	58	100   4	50   2	52.9	3,600	1	377.051.26	377.053.26	377.054.26
250   10	60   2 3/8	58	100   4	50   2	54.5	3,600	1	377.051.27	377.053.27	377.054.27
250   10	60   2 3/8	55	100   4	50   2	100	3,600	1	377.051.00	377.053.00	377.054.00
250   10	60   2 3/8	53	100   4	50   2	50.8	3,600	1	377.051.T1	377.053.T1	377.054.T1
250   10	60   2 3/8	50	100   4	50   2	100	3,600	1	377.051.TA	<b>377.053.TA</b>	377.054.TA
250   10	80   3 1/4	79	100   4	50   2	50.8	3,600	1	377.052	377.095	377.077
250   10	100   4	99	100   4	50   2	50.8	3,600	1	377.059	377.066	377.096
300   12	60   2 3/8	49	100   4	60   2 3/8	50.8	3,000	1	387.051	<b>387.053</b>	387.054
300   12	100   4	93	100   4	60   2 3/8	50.8	3,000	1	available on demand	387.055	available on demand



## 2 Deburring Brushes, Cord Wire, Brass Coated Steel Wire

D mm   inch	A mm   inch	EBR	R mm   inch	H mm   inch	DB Stand.	RPM max.	Pack.	STL 0.38   0.015"	
								Art.-No.	Art.-No.
250   10	60   2 3/8	58	100   4	50   2	50.8	3,600	1	<b>377.043</b>	377.063
250   10	60   2 3/8	55	100   4	50   2	100	3,600	1	377.043.00	377.063.00
250   10	60   2 3/8	53	100   4	50   2	50.8	3,600	1	377.043.T1	377.063.T1
250   10	60   2 3/8	50	100   4	50   2	100	3,600	1	377.043.TA	377.063.TA
250   10	80   3 1/4	79	100   4	50   2	50.8	3,600	1	377.045	available on demand
250   10	100   4	99	100   4	50   2	50.8	3,600	1	377.048	available on demand
250   10	100   4	96	100   4	50   2	100	3,600	1	377.048.00	

All brushes with metal disc and bore 50.8 mm and double keyway 13 x 7 mm!  
Further standard bores: 52.9 / 54.5 mm; DB min/max: 30 mm ≤ DB ≤ R; Deburring Brushes also available with tube 120.

# Deburring Brushes



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## Deburring Brushes, Stainless Steel Wire, Cord Wire

										1			2
D	A	EBR	R	H	DB	RPM	Pack.						
mm   inch	mm   inch				Stand. max.			ROH 0.20   0.008"	ROH 0.35   0.014"	ROH 0.50   0.020"	ROL 0.35   0.014"		
								Art.-No.	Art.-No.	Art.-No.	Art.-No.		
250   10	60   2 3/8	58	100	50	50.8	3,600	1	<b>377.044</b>	<b>377.089</b>	377.094	<b>377.707</b>		
250   10	60   2 3/8	58	100	50	52,9	3,600	1	377.044.26	377.089.26	377.094.26	377.707.26		
250   10	60   2 3/8	58	100	50	54,5	3,600	1	377.044.27	377.089.27	377.094.27	377.707.27		
250   10	60   2 3/8	55	100	50	100	3,600	1	377.044.00	377.089.00	377.094.00	377.707.00		
250   10	60   2 3/8	53	100	50	50.8	3,600	1	377.044.T1	377.089.T1	377.094.T1	377.707.T1		
250   10	60   2 3/8	50	100	50	100	3,600	1	377.044.TA	377.089.TA	377.094.TA	377.707.TA		
250   10	80   3 1/4	79	100	50	50.8	3,600	1	377.047	377.090	377.097	available on demand		
250   10	100   4	99	100	50	50.8	3,600	1	377.049	377.093	377.099	available on demand		
300   12	100   4	95	100	60	50.8	3,000	1	available on demand	available on demand	available on demand	available on demand		

All brushes with metal disc and bore 50.8 mm and double keyway 13 x 7 mm!

Further standard bores: 52.9 / 54.5 mm; DB min/max: 30 mm ≤ DB ≤ R; Deburring Brushes also available with tube 120.

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## Deburring Brushes, encapsulated

										3		4	
D	A	R	H	DB	Pack.								
mm   inch	mm   inch			Stand.		STH 0.20   0.008"	STH 0.35   0.014"	ROH 0.20   0.008"	ROH 0.35   0.014"				
						Art.-No.	Art.-No.	Art.-No.	Art.-No.				
250   10	13   1/2	100	58	33	1	370.241.KG	<b>370.271.KG</b>	<b>370.441.KG</b>	<b>370.471.KG</b>				
250   10	20   3/4	100	57	33	1	370.242.KG	370.272.KG	<b>370.442.KG</b>	<b>370.472.KG</b>				

### Stainless Steel Brushes

LESSMANN brushes with stainless steel wire have green site plates.

More information for brush applications on stainless materials you will find at [www.lessmann.com](http://www.lessmann.com)

Item Nos. in bold are available ex stock.

Consider our minimum order value for *italic printed* article numbers (see page 184).

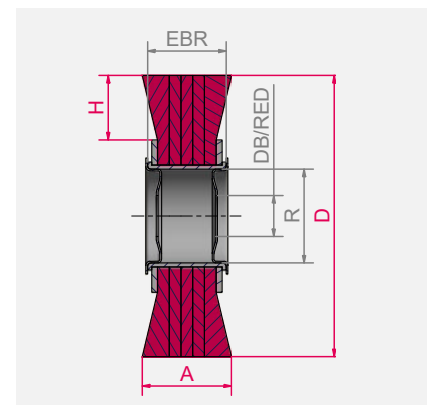
STH = steel wire, high tensile, crimped

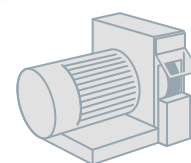
ROL = stainless steel, cord wire

ROH = stainless steel wire, high tensile, crimped

ROF = stainless steel wire, crimped

SIC = silicon carbide bristles





2

1

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## 1 Deburring Brushes, Silicon Carbide Bristles

D	A	EBR	R	H	DB	RPM	Pack.	SIC 80/1.2	SIC 120/1.1	SIC 180/1.0	SIC 320/0.6
mm   inch	mm   inch		mm   inch	mm   inch	Stand.	max.		Art.-No.	Art.-No.	Art.-No.	Art.-No.
250   10	60   2 <sup>3/8</sup>	58	100   4	50   2	50.8	3,600	1	377.824	<b>377.835</b>	<b>377.854</b>	377.875
250   10	60   2 <sup>3/8</sup>	55	100   4	50   2	100	3,600	1	377.824.00	377.835.00	377.854.00	377.875.00
250   10	50   2	53	100   4	50   2	50.8	3,600	1	377.824.T1	377.835.T1	377.854.T1	377.875.T1
250   10	50   2	50	100   4	50   2	100	3,600	1	377.824.TA	377.835.TA	377.854.TA	377.875.TA
250   10	80   3 <sup>1/4</sup>	79	100   4	50   2	50.8	3,600	1	available on demand	377.837	available on demand	available on demand
250   10	100   4	99	100   4	50   2	50.8	3,600	1	available on demand	377.839	available on demand	available on demand
300   12	60   2 <sup>3/8</sup>	55	100   4	60   2 <sup>3/8</sup>	50.8	3,000	1	387.824	available on demand	available on demand	available on demand
300   12	100   4	95	100   4	60   2 <sup>3/8</sup>	50.8	3,000	1	available on demand	available on demand	available on demand	available on demand

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## Deburring Brushes, Ceramic Grit

D	A	EBR	R	H	DB	RPM	Pack.		KK 180/1.1   0.04"	KK 180/1.0   0.043"
mm   inch	mm   inch		mm   inch	mm   inch	Stand.	max.			Art.-No.	Art.-No.
250   10	50   2	58	100   4	50   2	50.8	3,600	1		<b>377.C35</b>	377.C55

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## 2 Deburring Brushes, mixed filament

D	A	EBR	R	H	DB	RPM	Pack.	ROF 0.20 - SIC 120		
mm   inch	mm   inch		mm   inch	mm   inch	Stand.	max.		Mixed filament with mixing proportion 1:1		
								Art.-No.		
250   10	60   2 <sup>3/8</sup>	58	100   4	50   2	50.8	3,600	1	377.091		
250   10	60   2 <sup>3/8</sup>	55	100   4	50   2	100	3,600	1	377.091.00		

All brushes with metal disc and bore 50.8 mm and double keyway 13 x 7 mm!

Further standard bores: 52.9 / 54.5 mm; DB min/max: 30 mm ≤ DB ≤ R; Deburring Brushes also available with tube 120.

# Roller Brushes



## Roller Brushes

Roller Brushes for the use in deburring machines. For Deburring e.g. cutting edges of tubes.

As filling material you can choose from steel and stainless steel wire, brass coated steel wire or cord wire. These brushes feature with their dense filling.

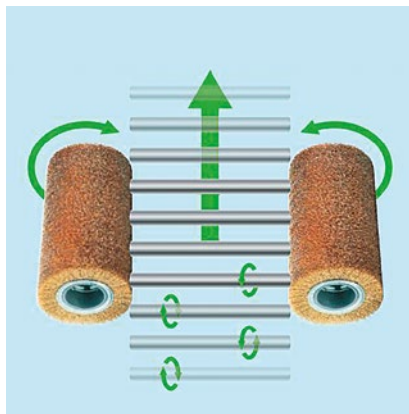
## Roller Brushes

Deburring brushes are available with  
**D = 250–400 mm** and  
**A = 55–700 mm**

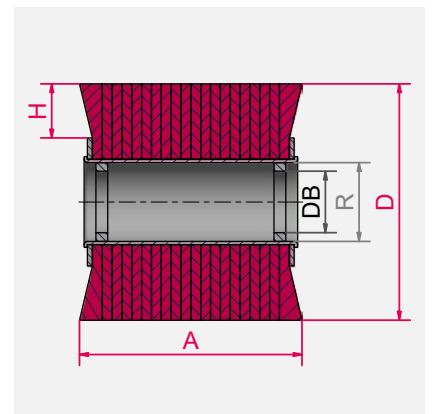
**In your inquiry please indicate measure D, A and the bore e.g. 50.8 mm, 52.9 mm or 54.5 mm with double keyway 13 x 7 mm. Other bores up to 120 mm are available on demand.**

Moreover we offer with our welded metal plate special collets for the roller brushes. Bores and keyways will be produced customized.

**Note:** Due to our advanced manufacturing technology it is possible to produce balanced roller brushes without balancing weights. Hence the brush has a steady run throughout its whole lifetime.



Function chart of a deburring machine with roller brushes



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

- |            |   |
|------------|---|
| <b>STH</b> | = steel wire, high tensile, straight          |
| <b>STL</b> | = cord wire, crimped                          |
| <b>ROH</b> | = stainless steel wire, high tensile, crimped |
| <b>SIC</b> | = silicon carbide bristles                    |



Strip brushes for deburring machines you find on pages 162 et seq.



**Roller Brushes, Steel Wire, Cord Wire**

D	A	R	H	DB	RPM	Pack.	STH 0.20   0.008"	STH 0.35   0.014"	STH 0.50   0.020"	STL 0.38   0.015"
mm   inch	mm   inch	mm   inch	mm   inch	Stand.	max.		Art.-No.	Art.-No.	Art.-No.	Art.-No.
250   10	300   12	100   4	50   2	100	3,600	1	377.240.30	377.270.30	377.290.30	377.780.30
250   10	460   18	100   4	50   2	100	3,600	1	377.240.46	377.270.46	377.290.46	377.780.46
250   10	600   24	100   4	50   2	100	3,600	1	377.240.60	377.270.60	377.290.60	377.780.60
300   12	460   18	100   4	60   2 3/8	100	3,000	1	387.240.46	387.270.46	387.290.46	387.780.46
300   12	450   17 7/8	120   4 3/4	50   2	120	3,000	1		388.270.45		
300   12	460   18	120   4 3/4	50   2	120	3,000	1	388.240.46	388.270.46	388.290.46	388.780.46
300   12	600   24	120   4 3/4	50   2	120	3,000	1	388.240.60	388.270.60	388.290.60	388.780.60

**Roller Brushes, Stainless Steel, Abrasive Bristles**

D	A	R	H	DB	RPM	Pack.	ROH 0.20   0.008"	ROH 0.35   0.014"	ROH 0.50   0.020"	SIC 120 / 1.1
mm   inch	mm   inch	mm   inch	mm   inch	Stand.	max.		Art.-No.	Art.-No.	Art.-No.	Art.-No.
250   10	300   12	100   4	50   2	100	3,600	1	377.440.30	377.470.30	377.490.30	377.830.30
250   10	460   18	100   4	50   2	100	3,600	1	377.440.46	377.470.46	377.490.46	377.830.46
250   10	600   24	100   4	50   2	100	3,600	1	377.440.60	377.470.60	377.490.60	377.830.60
300   12	460   18	100   4	60   2 3/8	100	3,000	1	387.440.46	387.470.46	387.490.46	387.830.46
300   12	460   18	120   4 3/4	50   2	120	3,000	1	388.440.46	388.470.46	388.490.46	388.830.46
300   12	600   24	120   4 3/4	50   2	120	3,000	1	388.440.60	388.470.60	388.490.60	388.830.60

Other measurements and filling materials as well as collets in special measurements are available on request.

# Deburring End Brushes



## Deburring End Brushes

These brushes are perfect for deburring tubes, profiles or even plane surfaces. Deburring end brushes are used in a set of 8, 16 or 24 single end brushes integrated in one deburring device.

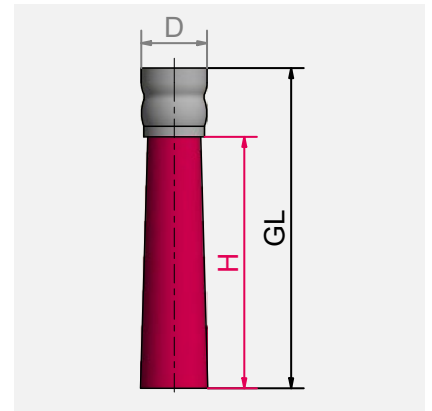
The metal bush fits all standard collets.

## Stainless Steel

Information on working on stainless steel material you find at [www.lessmann.com](http://www.lessmann.com)



Schematic diagram of a deburring device for deburring end brushes



**Item Nos. in bold** are available ex stock.  
Consider our minimum order value for *italic printed* article numbers (see page 184).

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**STH** = steel wire, high tensile, straight

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**STL** = cord wire, crimped

---

**ROH** = stainless steel wire, high tensile, crimped

---

**SIC** = silicon carbide bristles

---



## 1 Deburring End Brushes, Steel Wire

D	GL	H	Pack.	STH 0.20   0.008"	STH 0.35   0.014"	STH 0.50   0.020"
mm   inch	mm   inch	mm   inch		Art.-No.	Art.-No.	Art.-No.
25   1	120   4 <sup>3/4</sup>	95   3 <sup>1/2</sup>	16	<b>048.241</b>	<b>048.271</b>	<b>048.291</b>

## 2 Deburring End Brushes, CordWire

D	GL	H	Pack.	STL 0.35   0.014"
mm   inch	mm   inch	mm   inch		Art.-No.
25   1	120   4 <sup>3/4</sup>	95   3 <sup>1/2</sup>	16	<b>048.701</b>

## 3 Deburring End Brushes, Stainless Steel Wire

D	GL	H	Pack.	ROH 0.20   0.008"	ROH 0.35   0.014"	ROH 0.50   0.020"
mm   inch	mm   inch	mm   inch		Art.-No.	Art.-No.	Art.-No.
25   1	120   4 <sup>3/4</sup>	95   3 <sup>1/2</sup>	16	<b>048.441</b>	048.471	048.491

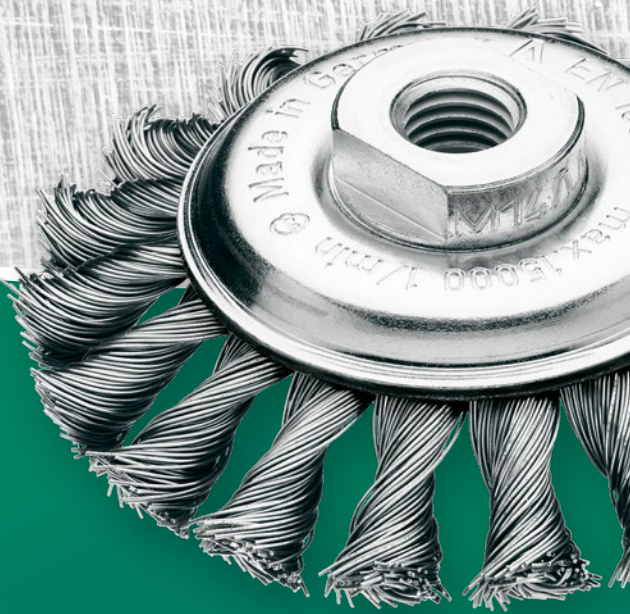
## Deburring End Brushes, Silicon Carbide Bristles, mixed wire

D	GL	H	Pack.	4			5
				SIC 80 / 1.2	SIC 120 / 1.1	SIC 180 / 1.0	SIC 120 / 1.1 - ROH 0.20
mm   inch	mm   inch	mm   inch		Art.-No.	Art.-No.	Art.-No.	Art.-No.
25   1	120   4 <sup>3/4</sup>	95   3 <sup>1/2</sup>	16	048.821	<b>048.841</b>	048.851	<b>048.901*</b>
25   1	120   4 <sup>3/4</sup>	95   3 <sup>1/2</sup>	16				<b>048.941**</b>

\* Mixing proportion 1:1 | \*\* Mixing proportion 2:1

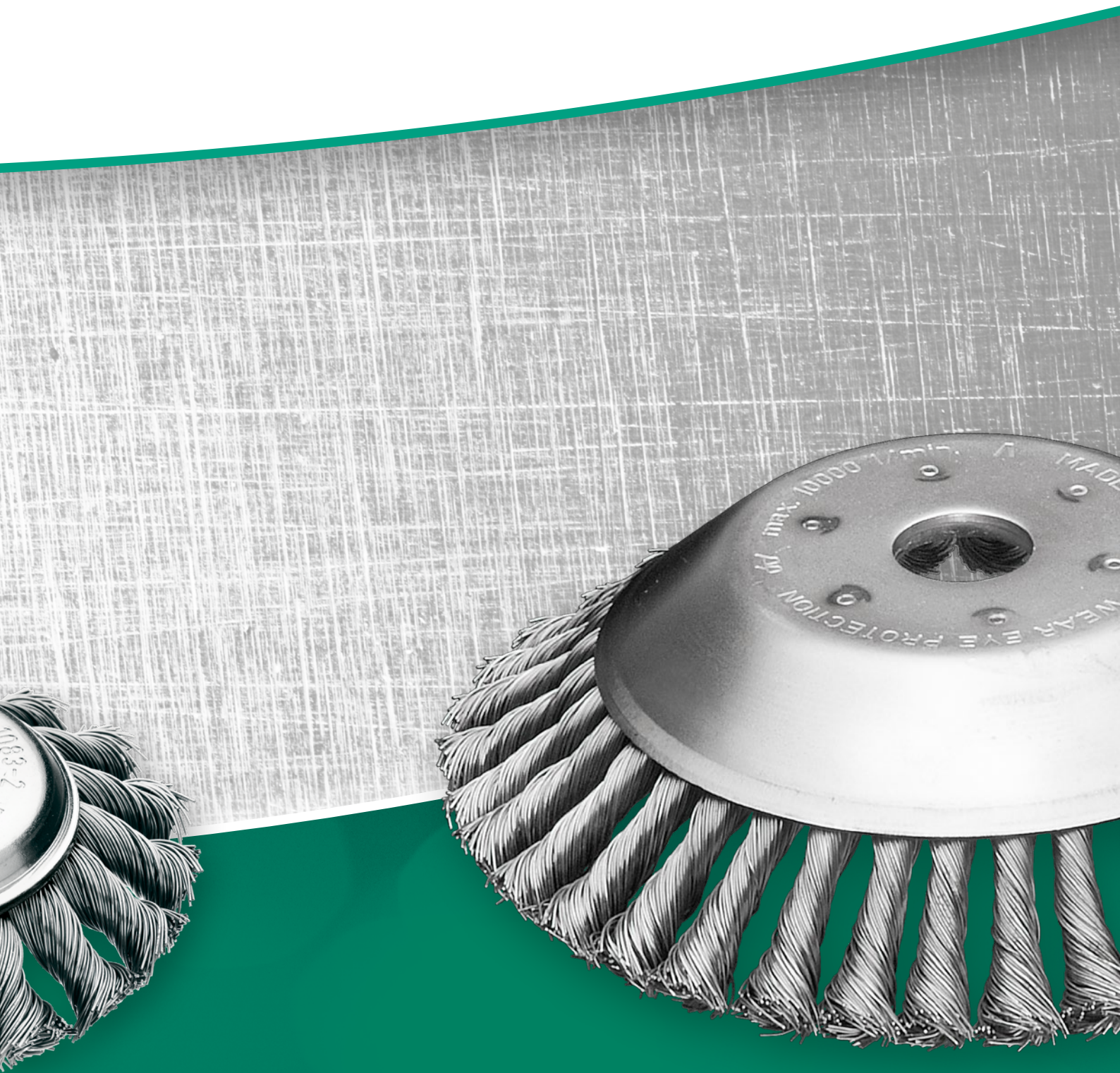
# LESSMANN®

THE GERMAN BRUSH COMPANY





# CUP AND BEVEL BRUSHES



# Cup Brushes



## Cup Brushes

Knot cup brushes are for heavy duty use: for the preparing of metal surfaces before painting, the removal of slag, rust, scale or concrete waste.

The brushes diameter 80/100/125 mm (Art. No. 484/486/487) have a **bridle** fitted for stability. The bridle can be removed after wear of the wire exposing a further 20 mm of useable wire!

**User tip:** We recommend the use of our brush with diameter 90 mm for small angle grinders. Compared to the common brush with diameter 65 mm this model has 50% more wire and it is really something special in the brush market!

## Cup brushes with narrow knots

Our new range of cup brushes with narrower six millimetre knots is optimized for usage on flat surfaces, weld seams and firmly attached dirt:

- Improved removal rate, therefore more efficient working
- Less imbalance, therefore quieter working
- Long lifetime
- Attractive price-performance ratio

## Knot Cup Brushes with extra long filling

For the use on large areas and for a flexible cleaning and derusting of e.g. shipyards. For a use in angle grinders. Easy working also in areas which are hard to reach.

## Cup Brushes, left-right knotted

Left-right knotted cup brushes usually are more aggressive, hence they are often used for heavy brushing operations. Besides the knots open less, therefore they are ideal for the treatment of edges.

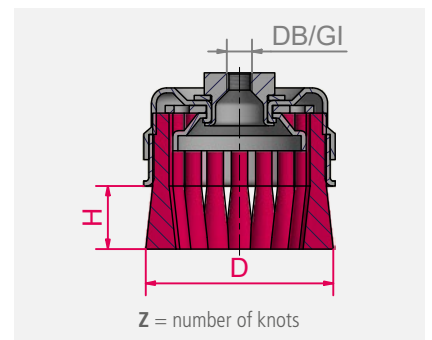
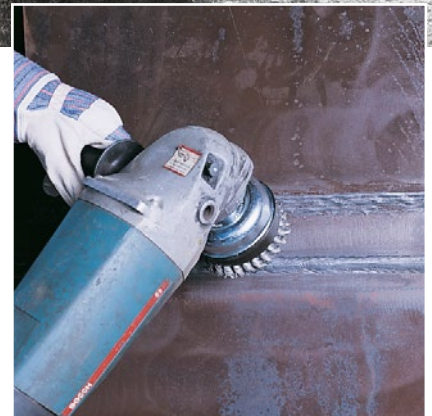
## Cup Brushes

Cup brushes with crimped wire are ideal for working on large surfaces with angle grinders. They can also be used for the removal of rust, paint, dirt or scale and for polishing.

## Special Designs

The cup brushes can be delivered with different filling materials according to your requirements e.g. brushes with brass cups and brass wire for non-sparkling applications.

For promoting sales all standard wheel brushes are packed individually for self display. They are also available in bulk.



You can find our **tutorials** here:  
[www.lessmann.com/index.php/en/content/view/full/711](http://www.lessmann.com/index.php/en/content/view/full/711)



You can find our **Enquiry Forms** in the respective category under:  
[www.lessmann.com/index.php/en/content/view/full/61](http://www.lessmann.com/index.php/en/content/view/full/61) or in the catalog from page 179



**Chunky packaging**  
 Many articles you receive as standard in handy covering boxes with 10 pcs.



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

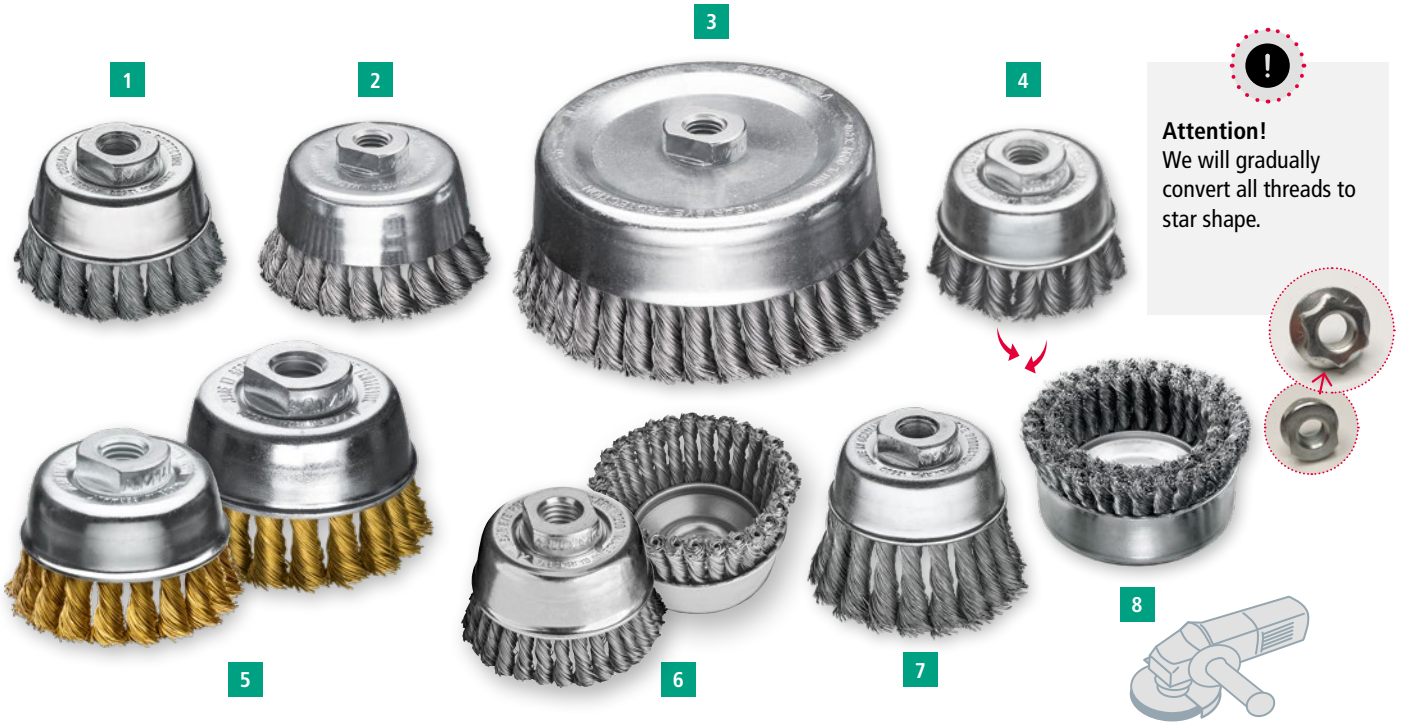
**STH** = steel wire, high tensile, straight

**STM** = brass coated steel, straight

**MES** = brass wire

**BRO** = bronze wire

**ROH** = stainless steel wire, high tensile, straight



|||||  
EAN

## 5 Knot Cup Brushes without Bridle, 1 Row, Steel Wire, Brass coated Steel Wire

	D mm   inch	GI	H mm   inch	Z	RPM max.	Pack.	5				
							STH 0.35   0.014"	STH 0.50   0.020"	STH 0.80   0.031"	STM 0.35   0.014"	STM 0.50   0.020"
							Art.-No.	Art.-No.	Art.-No.	Art.-No.	Art.-No.
1	65   2 1/2	M 10 x 1.5	20   3/4	18	12,500	1	482.114*	482.214*	available on demand		
	65   2 1/2	M 14 x 2.0	20   3/4	18	12,500	1	482.117*	482.217*	482.317*	482.117.SM*	482.217.SM*
	75   3	M 14 x 2.0	20   3/4	20	12,500	1	483.117*	483.217*	483.317		
2	90   3 1/2	M 14 x 2.0	22   7/8	20	11,500	1	485.137*	485.237*	485.337		485.237.SM*
	100   4	M 14 x 2.0	25   1	26	9,000	1	available on demand	486.237*	available on demand		
3	125   5	M 14 x 2.0	25   1	32	7,000	1	available on demand	487.237	available on demand		
	150   6	M 14 x 2.0	30   1 1/4	36	6,600	1	available on demand	488.237	available on demand		
	150   6	5/8" - 11 UNC	30   1 1/4	36	6,600	1	available on demand	488.238	available on demand		
4	65   2 1/2	M 14 x 2.0	20   3/4	18	12,500	1	available on demand	482.217.WZ*			

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EAN

## 6 Cup brushes with narrow knots

D mm   inch	GI	H mm   inch	Z	RPM max.	Pack.	STH 0,50   0.020"
						Art.-No.
65   2 1/2	M14 x 2,0	20   3/4	30	12,500	1	482.207
65   2 1/2	5/8" - 11 UNC	20   3/4	30	12,500	1	482.208
65   2 1/2	M10 x 1,5	20   3/4	30	12,500	1	482.204

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## 7 Knot Cup Brushes, without Bridle, 1 Row, Steel Wire, with extra long filling

D mm   inch	GI	H mm   inch	Z	RPM max.	Pack.	STH 0.35   0.014"	STH 0.50   0.020"
						Art.-No.	Art.-No.
80   3 1/4	M 14 x 2.0	33   1 1/4	18	12,500	25	480.117	480.217

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EAN

## 8 Knot Cup Brushes without Bridle, 2 Rows, Steel Wire

D mm   inch	GI	H mm   inch	Z	RPM max.	Pack.	STH 0.35   0.014"	STH 0.50   0.020"	STH 0.80   0.031"
						Art.-No.	Art.-No.	Art.-No.
100   4	5/8" - 11 UNC	25   1	26+20	9,000	1	486.148	486.248	486.348
125   5	5/8" - 11 UNC	25   1	32+26	7,000	1	available on demand	487.248	available on demand
150   6	5/8" - 11 UNC	25   1	36+32	6,600	1	available on demand	488.248	available on demand

\* Packed 10 pieces per carton

# Cup Brushes



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## Knot Cup Brushes with Bridle, 1 Row, Steel Wire

								1		
D	DB/GI	H	H <sub>1</sub>	Z	RPM	Pack.	STH 0.35   0.014"	STH 0.50   0.020"	STH 0.80   0.031"	
mm   inch	mm   inch	mm   inch	mm   inch		max.		Art.-No.	Art.-No.	Art.-No.	
80   3 1/4	22.2   7/8	25   1	15   5/8	20	9,000	1			<b>484.311*</b>	
80   3 1/4	M 14 x 2.0	25   1	15   5/8	20	9,000	1	<b>484.117*</b>	<b>484.217*</b>	<b>484.317*</b>	
80   3 1/4	5/8" - 11 UNC	25   1	15   5/8	20	9,000	1	<i>484.118</i>	<b>484.218</b>	<i>484.318</i>	
100   4	22.2   7/8	23   7/8	12   1/2	26	9,000	1	<b>486.111</b>	<b>486.211*</b>	<b>486.311*</b>	
100   4	M 14 x 2.0	23   7/8	12   1/2	26	9,000	1	<b>486.117*</b>	<b>486.217*</b>	<b>486.317*</b>	
100   4	5/8" - 11 UNC	23   7/8	12   1/2	26	9,000	1	<i>486.118</i>	<b>486.218*</b>	<i>486.318*</i>	
125   5	22.2   7/8	23   7/8	15   5/8	32	6,600	1			<i>487.311**</i>	
125   5	M 14 x 2.0	23   7/8	15   5/8	32	6,600	1	<b>487.117</b>	<b>487.217</b>	<b>487.317</b>	
125   5	5/8" - 11 UNC	23   7/8	15   5/8	32	6,600	1	<i>487.118</i>	<b>487.218</b>	<i>487.318</i>	

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## Knot Cup Brushes with Bridle, 1 Row, bronze wire, fittings brass

								2	
D	DB/GI	H	H <sub>1</sub>	Z	RPM	Pack.	BRO 0.50   0.020"		
mm   inch	mm   inch	mm   inch	mm   inch		max.		Art.-No.		
125   5	16   5/8	23   7/8	15   5/8	32	4,000	1	<i>487.011.MS***</i>		

After removing the bridle there is the following further trimming length (see measure H<sub>1</sub>).

\* Packed 10 pieces per carton. | \*\* This brush doesn't work with angle grinders. | \*\*\* With adjustable angle grinder, note RPM.

**Attention!**  
We will gradually convert all threads to star shape.



Six wrench flats instead of only two give you more flexibility when working.



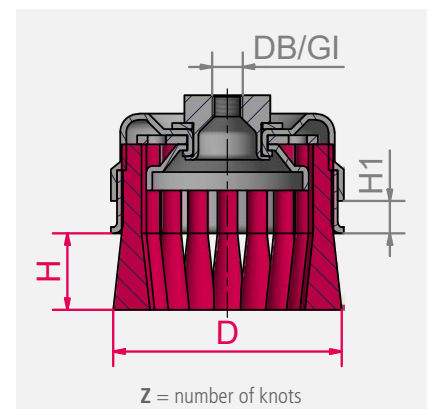
Item Nos. in bold are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

**STH** = steel wire, high tensile, straight

**ROH** = stainless steel wire, high tensile, straight

**ROH** = premium quality stainless steel wire

**BRO** = bronze wire





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**1** Knot Cup Brushes without Bridle, 1 Row, Stainless Steel Wire

	D	GI	H	Z	RPM	Pack.	ROH 0.35   0.014"	ROH 0.50   0.020"	RO4 0.50   0.020"
	mm   inch		mm   inch		max.		Art.-No.	Art.-No.	Art.-No.
<b>1</b>	65   2 1/2	M 10 x 1.5	20   3/4	18	12,500	1	482.714	482.814*	
	65   2 1/2	M 14 x 2.0	20   3/4	18	12,500	1	<b>482.717*</b>	<b>482.817*</b>	<b>482.517*</b>
	75   3	M 14 x 2.0	20   3/4	20	12,500	1	available on demand	<b>483.817*</b>	
	80   3 1/4	M 14 x 2.0	33   1 1/4	18	15,500	25	<b>480.717</b>	available on demand	
<b>2</b>	65   2 1/2	M 14 x 2.0	20   3/4	18	12,500	1	available on demand	<b>482.817.WZ*</b>	

IIIIII  
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**3** Knot Cup Brushes with Bridle, 1 Row, Stainless Steel Wire

	D	GI	H	H <sub>1</sub>	Z	RPM	Pack.	ROH 0.35   0.014"	ROH 0.50   0.020"
	mm   inch	mm   inch	mm   inch	mm   inch		max.		Art.-No.	Art.-No.
	80   3 1/4	M 14 x 2.0	25   1	15   5/8	20	9,000	1	<b>484.717</b>	<b>484.817*</b>
	80   3 1/4	5/8" - 11 UNC	25   1	15   5/8	20	9,000	1	484.718	484.818
	100   4	M 14 x 2.0	23   7/8	12   1/2	26	9,000	1	<b>486.717*</b>	<b>486.817*</b>
	100   4	5/8" - 11 UNC	23   7/8	12   1/2	26	9,000	1	486.718	486.818
	125   5	M 14 x 2.0	23   7/8	15   5/8	32	6,600	1	available on demand	<b>487.817</b>

\* Packed 10 pieces per carton

IIIIII  
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**4** Cup brushes with narrow knots, Stainless Steel Wire

	D	GI	H	Z	RPM	Pack.	ROH 0.50   0.020"
	mm   inch		mm   inch		max.		Art.-No.
	65   2 1/2	M14 x 2,0	20   3/4	30	12,500	1	<b>482.807</b>
	65   2 1/2	5/8" - 11 UNC	20   3/4	30	12,500	1	482.808

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EAN

**5** Knot Cup Brushes without Bridle, 1 Row, brass wire, bronze wire

	D	GI	H	Z	RPM	Pack.	MES 0.35   0.014"	MES 0.50   0.020"	BRO 0.50   0.020"
	mm   inch		mm   inch		max.		Art.-No.	Art.-No.	Art.-No.
	65   2 9/16	M 14 x 2.0	20   51/64	18	12,500	1	<b>482.017</b>	<b>482.027</b>	<b>482.057</b>

**Stainless Steel Brushes**

LESSMANN brushes with stainless steel wire have green cups. More information for brush

applications on stainless materials you will find at [www.lessmann.com](http://www.lessmann.com)

# Cup Brushes



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## Cup Brushes with Crimped Wire

D mm   <i>inch</i>	DB/GI mm   <i>inch</i>	H max.	RPM max.	Pack.	1			2		3
					STA 0.20   0.008" Art.-No.	STA 0.35   0.014" Art.-No.	STA 0.50   0.020" Art.-No.	ROF 0.35   0.012" Art.-No.	RO4 0.30   0.012" Art.-No.	MES 0.30   0.012" Art.-No.
65   2 <sup>3/8</sup>	M 10 x 1,5	20	12,000	1		<b>421.164*</b>		421.364		421.564
65   2 <sup>3/8</sup>	M 14 x 2.0	20	12,000	1	<b>421.147</b>	<b>421.167*</b>	<b>421.197</b>	<b>421.367*</b>	<b>421.467*</b>	<b>421.567*</b>
75   3	M 14 x 2.0	22	12,500	1		<b>423.167*</b>	on demand	<b>423.367*</b>		on demand
75   3	5/8" - 11 UNC	22	12,500	1		423.168*	on demand	<b>423.368</b>		on demand
80   3 <sup>1/4</sup>	22.2   7/8	25	8,500	1		<b>424.171*</b>	on demand	424.361		on demand
80   3 <sup>1/4</sup>	M 14 x 2.0	25	8,500	1	<b>424.147</b>	<b>424.177*</b>	<b>424.197</b>	<b>424.367*</b>		<b>424.567</b>
80   3 <sup>1/4</sup>	5/8" - 11 UNC	25	8,500	1		424.178	424.198	424.368		on demand
100   4	22.2   7/8	30	9,000	1		<b>426.171*</b>		426.361		
100   4	M 14 x 2.0	30	9,000	1	<b>426.147*</b>	<b>426.177*</b>	<b>426.197*</b>	<b>426.367*</b>		<b>426.567</b>
100   4	5/8" - 11 UNC	30	9,000	1		<b>426.178*</b>	426.198	426.368		426.568
125   5	22.2   7/8	30	8,000	1		<b>427.171**</b>	on demand	on demand		on demand
125   5	M 14 x 2.0	30	8,000	1	<b>427.147</b>	<b>427.177</b>	<b>427.297</b>	<b>427.367*</b>		<b>427.567*</b>
125   5	5/8" - 11 UNC	30	8,000	1		<b>427.178</b>	427.298			
150   6	22.2   7/8	40	6,500	1		<b>429.171</b>				
150   6	M 14 x 2.0	40	6,500	1		<b>429.177</b>	429.197	429.367		
150   6	5/8" - 11 UNC	40	6,500	1		429.178	429.198			

\* Packed 10 pieces per carton.

\*\* This brush doesn't work with angle grinders.

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## Cup Brushes, Cord Wire, Brass Coated Steel Wire, Silicon Carbide Bristles

D mm   <i>inch</i>	DB/GI	H	RPM max.	Pack.	4			
					STL 0.35   0.014" Art.-No.	STM 0.30   0.012" Art.-No.	SIC 80/1.2 Art.-No.	SIC 180/0.9 Art.-No.
65   2 <sup>3/8</sup>	M 14 x 2.0	20	12,000	1		<b>421.767</b>	<b>421.827</b>	421.857
100   4	22.2   7/8	30	9,000	1	426.701			
100   4	M 14 x 2.0	30	9,000	1		<b>426.767</b>		



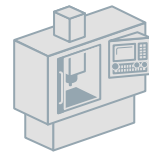
1



2



3



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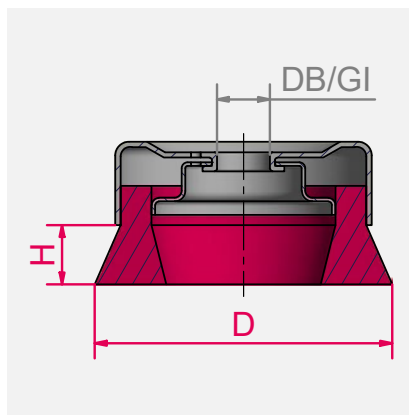
Cup Brushes, Straight Filament

	D mm   inch	DB/GI mm   inch	H max.	RPM	Pack.	STH 0.35   0.014" Art.-No.	STM 0.35   0.014" Art.-No.	STL 0.35 Art.-No.	SIC 80/1.2 Art.-No.	SIC 180/1.0 Art.-No.
1	90   3 <sup>1/2</sup>	M 14	25	9,000	1				<b>446.827*</b>	<b>446.857*</b>
	90   3 <sup>1/2</sup>	22.2   7/8	25	9,000	1				available on demand	446.851**
3	100   4	M 14	30	9,000	1	446.277*	446.777*			
	100   4	22.2   7/8	30	9,000	1	446.271*	446.771*	<b>446.701*</b>		
2	110   4 <sup>1/2</sup>	M 14	30	7,000	1				<b>447.827*</b>	<b>447.857*</b>
3	125   5	M 14	30	5,000	1	<b>447.277*</b>	available on demand	447.707		

1 with bridle | \* Packed 10 pieces per carton  
\*\* This brush doesn't work with angle grinders.

Cup Brushes with Straight Wire

They are used for deburring surfaces, mostly in machining centers. The brushes are available with steel wire, stainless steel wire, abrasive nylon or any other filament. Due to the straight cup the filament of the brush is less flaring out and more cone points of the bristles work on the surface. Please contact us for more information!



Item Nos. in bold are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

- STA = steel wire, crimped
- STH = steel wire, high tensile, straight
- STM = brass coated steel, crimped
- STL = cord wire, crimped
- ROH = stainless steel wire, high tensile, crimped
- RO4 = premium quality stainless steel wire
- MES = brass wire, crimped
- SIC = silicon carbide bristles



**Attention!**  
We will gradually convert all threads to star shape.



Six wrench flats instead of only two give you more flexibility when working.



# Bevel Brushes



## Bevel Brushes

The special shape of these brushes enables the user to work in hard to reach places. The knots are left hand twisted to increase stability. For promoting sales all standard knot bevel brushes are packed individually for self display. These brushes are also available bulk packed.

## Wheel Brushes with thread

Like bevel brushes, wheel brushes with a thread are ideal for working in areas which are hard to reach. Usually the brushes are used on angle grinders.



Other measurements and filling materials are available on request.

## Stainless Steel Brushes

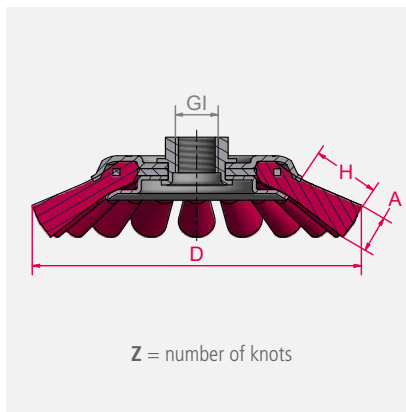
LESSMANN brushes with stainless steel wire have green cups. We use wire with material number 1.4310. Material number 1.4401 can be used on request.

More information for brush applications on stainless materials you will find at [www.lessmann.com](http://www.lessmann.com)

## Bevel Brushes, left-right knotted

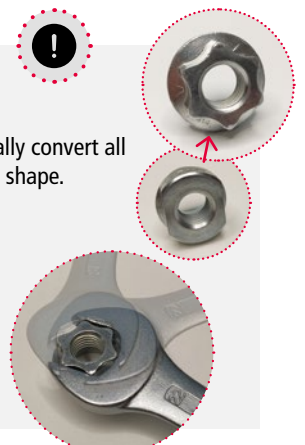
Left-right knotted bevel brushes usually are more aggressive, hence they are often used for heavy brushing operations.

Besides the knots open less, therefore there are ideal for the treatment of edges.



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

<b>STA</b>	= steel wire, crimped
<b>STM</b>	= brass coated steel wire
<b>STH</b>	= steel wire, high tensile, straight
<b>ROF</b>	= stainless steel wire, crimped
<b>ROH</b>	= stainless steel wire, high tensile, straight



**Attention!**  
We will gradually convert all threads to star shape.

Six wrench flats instead of only two give you more flexibility when working.





IIIIII  
EAN

### 1 Knot Bevel Brushes, Steel Wire, Stainless Steel Wire

D mm   inch	A mm   inch	GI mm   inch	H	Z	RPM max.	Pack.	1		2	
							STH 0.35   0.014" Art.-No.	STH 0.50   0.020" Art.-No.	ROH 0.35   0.014" Art.-No.	ROH 0.50   0.020" Art.-No.
100   4	12   1/2	M 10 x 1.5	20	18	15,000	1		<b>471.254</b>		
100   4	12   1/2	M 14 x 2.0	20	18	15,000	1	<b>471.157*</b>	<b>471.257</b>	<b>471.757*</b>	<b>471.857*</b>
115   4 1/2	12   1/2	M 14 x 2.0	24	20	15,000	1	<b>472.157*</b>	<b>472.257</b>	<b>472.757*</b>	<b>472.857*</b>
115   4 1/2	12   1/2	M 14 x 2.0	24	24	15,000	1		472.257.V4*		
125   5	12   1/2	M 14 x 2.0	29	20	15,000	1		<b>473.257*</b>		<b>473.857</b>
<b>3</b> 115   4 1/2	12   1/2	M 14 x 2.0	24	20	15,000	1		<b>472.257.WZ*</b>		<b>472.857.WZ*</b>

IIIIII  
EAN

### 4 Knot Bevel Brushes, Steel Wire, Brass coated steel wire

D mm   inch	A mm   inch	GI mm   inch	H	Z	RPM max.	Pack.		
							STM 0.35   0.014" Art.-No.	STM 0.50   0.020" Art.-No.
100   4	12   1/2	M 14 x 2.0	20	18	15,000	1		471.157.SM*
115   4 1/2	12   1/2	M 14 x 2.0	24	20	15,000	1		<b>472.257.SM*</b>

IIIIII  
EAN

### Bevel Brushes, Crimped Wire

D mm   inch	A mm   inch	GI	H	RPM max.	Pack.			
						5 STA 0.35   0.014" Art.-No.	ROF 0.30   0.012" Art.-No.	6 STM 0.30   0.012" Art.-No.
100   4	10   3/8	M 14 x 2.0	20	15,000	1	<b>422.177*</b>	<b>422.367*</b>	<b>422.767</b>

IIIIII  
EAN

### 7 Wheel Brushes, crimped wire, with thread

D mm   inch	A mm   inch	GI	H	RPM max.	Pack.			
						STA 0.30   0.012" Art.-No.	ROF 0.30   0.012" Art.-No.	STM 0.30   0.012" Art.-No.
115   4 1/2	12   1/2	M 14	24	12,500	1	<b>304.161.14</b>	304.361.14	<b>304.761.14</b>
125   5	13   1/2	M 14	19.5	12,500	1	<b>335.161.14</b>	<b>335.361.14</b>	<b>335.761.14</b>

\* Packed 10 pieces per carton

# Brushes for grass trimmers

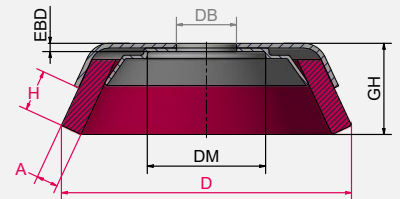


**BEFORE**



**AFTERWARDS**

## Bevel Brushes



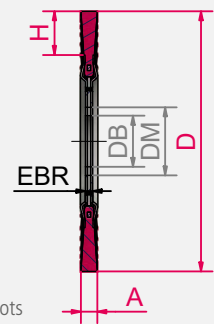
## Brushes for grass trimmers

Knotted brushes or Bevel Brushes with PBT on grass trimmers are ideal for removing weeds on grass pavers, curbstones, cobbled areas or other spots which are hard to reach. Those brushes clean larger areas like courtyards, terraces or longer alleys effortlessly and sustainably.

Besides, brushes are ecologically friendly and they remove weeds fast and effectively.

In sensitive areas such as agriculture synthetic filaments are a decisive criterion. Synthetic bristles are soft and therefore ideally suited for sensitive surfaces, as they do not scratch. The brush with synthetic bristles is ideal for grass trimmers with battery due to its lighter weight and scores with a longer service life and even wear.

## Wheel Brushes



ZF = Knot type  
Z = number of knots  
R = number of rows

**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

**STM** = brass coated steel, straight

**STH** = steel wire, high tensile, straight

**PBT** = Polyester PBT

**PP** = Polypropylen



### Attention:

When working with brushes on grass trimmers, please be aware of stringent safety rules. Please take note of the data sheet we attach the brushes or have a look at [www.lessmann.com](http://www.lessmann.com).



You can find our **tutorials** here: [www.lessmann.com/index.php/en/content/view/full/711](http://www.lessmann.com/index.php/en/content/view/full/711)



IIIIII  
EAN

## Knotted Bevel Brushes, for grass trimmers

	D	A	EBD	DM	H	GH	Z	DB	ZF	RPM	Pack.	STH 0.50   0.020"	STM 0.50   0.020"	STH 0.80   0.032"
	mm   inch	mm   inch			mm   inch			mm   inch		max.		Art.-No.	Art.-No.	Art.-No.
1	155   6 1/8	12   1/2	3.5	50	35   1 3/8	54	30	20   3/4	B	10,000	1	475.2M0.01	475.5M0.01	
	155   6 1/8	12   1/2	3.5	50	35   1 3/8	54	30	25.4   1	B	10,000	1	475.2M1.01	475.5M1.01	
2	180   7	14   9/16	3.5	64	35   1 3/8	58	36	20   3/4	B	8,000	1	476.2M0.01	476.5M0.01	
	180   7	14   9/16	3.5	64	35   1 3/8	58	36	25.4   1	B	8,000	1	476.2M1.01	476.5M1.01	
3	350   14	14   9/16	5	115	78   3 1/16	86	64	30   1 3/16	B	900	1			479.3M2.01*

\* For special machines

IIIIII  
EAN

## Bevel Brushes, for grass trimmers, PBT

	D	A	EBD	DM	H	GH	DB	RPM	Pack.	PBT 2.50	PP 1.60
	mm   inch	mm   inch			mm   inch	mm   inch	mm   inch	max.		Art.-Nr.	Art.-Nr.
4	180   7	10   3/8	3.5	60	55   2 3/16	70	20   3/4	10,000	1	425.000.01	425.010.01
	180   7	10   3/8	3.5	60	55   2 3/16	70	25.4   1	10,000	1	425.001.01	425.011.01
	200   8	10   3/8	3.5	80	60   2 3/8	82	20   3/4	8,000	1	426.000.01	426.010.01
	200   8	10   3/8	3.5	80	60   2 3/8	82	25.4   1	8,000	1	426.001.01	426.011.01

IIIIII  
EAN

## Bevel Brushes, for grass trimmers, crimped

	D	A	EBD	DM	H	GH	DB	RPM	Pack.	STA 0.50
	mm   inch	mm   inch			mm   inch	mm   inch	mm   inch	max.		Art.-Nr.
5	180   7	18   23/32	3.5	60	50   1 31/32	70	20   3/4	6,000	1	425.290
	180   7	18   23/32	3.5	60	50   1 31/32	70	25.4   1	6,000	1	425.291
	210   8 1/4	25   1	3.5	80	60   2 3/8	82	20   3/4	6,000	1	426.290
	210   8 1/4	25   1	3.5	80	60   2 3/8	82	25.4   1	6,000	1	426.291

IIIIII  
EAN

## Knotted Wheel Brushes, for grass trimmers

	D	A	EBR	DM	H	Z	ZF	RPM	Pack.	d = 20 mm	d = 25.4 mm	
	mm   inch	mm   inch			mm   inch			max.		STH 0.50   0.020"	STH 0.50   0.020"	
											Art.-No.	Art.-No.
6	175   6 7/8	6   1/4	8	68	34   1 1/4	40	B	12,500	1	475.260.01	475.261.01	
	200   8	6   1/4	8	68	46   1 49/64	40	B	12,500	1	476.260.01	476.261.01	
7	250   10	6   1/4	3	90	42   1 5/8	56	B	10,000	1	477.260.01	477.261.01	
	300   12	6   1/4	3	90	67   2 5/8	56	B	10,000	1	478.260.01	478.261.01	

# X-LOCK brush assortment

**LESSMANN**<sup>®</sup>  
THE GERMAN BRUSH COMPANY



**XLOCK**

Technology by **BOSCH**  
Invented for life



## Quick. Simple. Safe.

The new X-LOCK quick-change system for angle grinders from Bosch noticeably simplifies tool changing. The user saves time and productivity is increased – ideal for professional applications.

Lessmann is also a major partner of Bosch and offers a comprehensive range of brushes suitable for the X-LOCK. All brushes meet the LESSMANN usual high quality standards – developed and produced „Made in Germany“.

## Advantages of X-LOCK

- Tool change in just one step: The brush is mounted quickly and easily on the angle grinder
- No accessories or additional tools required for assembly or tool change
- Safe: The brush audibly locks and is thereby securely fixed
- Highest quality and safety standards are met



## TOOL CHANGE MADE EASY



### Mounting the tool

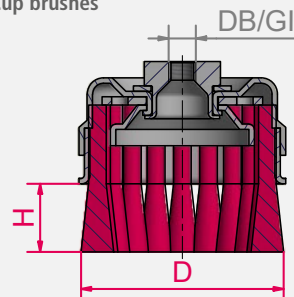
Place the brush on the X-LOCK holder of the angle grinder and press lightly. An audible click confirms that the tool has locked. Done.



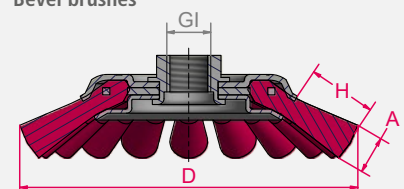
### Disassembly of the tool

Operate the lever on the angle grinder. The brush can be easily removed from the X-LOCK holder.

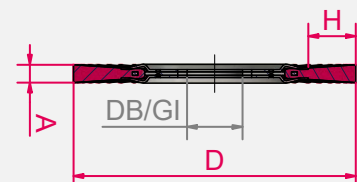
Cup brushes



Bevel brushes



Wheel brushes



ZF = Knot type  
Z = Number of knots  
R = Number of rows

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Consider our minimum order value for *italic printed* article numbers (see page 184).

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**STH** = steel wire, high tensile, straight

**PBT** = Polyester PBT

**PP** = Polypropylen



EAN	X-LOCK cup brushes								knotted		crimped	
	D	DB/GI	H	Z	ZF	RPM	Pack.	STH 0,50	ROF 0,50	STA 0,35	ROF 0,35	
	mm   inch	mm   inch	mm   inch			max.		Art.-No.	Art.-No.	Art.-No.	Art.-No.	
1	85   3 3/8	12   1/2	20   13/16	20	B	11.500	1	<b>483.21X</b>	<b>483.81X</b>			
2	85   3 3/8	16   5/8	22   7/8	-	-	12.500	1			<b>423.16X</b>	<b>423.36X</b>	

EAN	X-LOCK bevel brushes								knotted		crimped	
	D	DB/GI	H	Z	ZF	RPM	Pack.	STH 0,50	ROF 0,50	STA 0,35	ROF 0,35	
	mm   inch	mm   inch	mm   inch			max.		Art.-No.	Art.-No.	Art.-No.	Art.-No.	
3	115   4 1/2	12   1/2	24   15/16	20	B	15.000	1	<b>472.25X</b>	<b>472.85X</b>			
4	115   4 1/2	16   5/8	20   13/16	-	-	15.000	1			<b>423.17X</b>	<b>423.37X</b>	

EAN	X-LOCK wheel brushes knotted								STH 0,50		ROH 0,50	
	D	DB/GI	H	Z	ZF	RPM	Pack.		Art.-No.	Art.-No.	Art.-No.	
	mm   inch	mm   inch	mm   inch			max.						
5	115   4 1/2	14   9/16	23,5   15/16	20	B	12.500	1		<b>472.21X</b>		<b>472.81X</b>	
	125   4 15/16	14   9/16	28,5   1 1/8	20	B	15.000	1		<b>473.21X</b>		<b>473.81X</b>	

EAN	X-LOCK pipeline brushes knotted								STH 0,50		ROH 0,50	
	D	DB/GI	H	Z	ZF	RPM	Pack.		Art.-No.	Art.-No.	Art.-No.	
	mm   inch	mm   inch	mm   inch			max.						
6	115   4 1/2	6   1/4	21,5   7/8	32	D	15.000	1		<b>472.20X.32</b>		<b>472.80X.32</b>	
	125   4 15/16	6   1/4	26,5   1 1/16	40	D	15.000	1		<b>473.20X.40</b>		<b>473.80X.40</b>	

# Low sparking brushes



## Low sparking brushes

are recommended for the working in areas where flammable steams, liquids or dusts are a part of the working conditions. Also, they are used in all other situations where sparks could lead to a potential fire or explosion hazard.

In explosion-proof areas, low sparking brushes are recommended. In comparison to the wooden handles of the hand brushes, the bodies of machine driven brushes are made of brass. The filling material is bronze CuSn6. These materials generate a low amount of sparks, which ensures a working environment with the minimum of sparks.

Another benefit of bronze is, its corrosion resistant properties

## Typical application areas

Low sparking brushes are used in all industries and companies which have explosion risks or fire hazard due to flying sparks. e.g.:

- Oil and gas industry
- Pipeline industry
- Chemical industry
- Nuclear power plants
- Plastics industry
- Food industry, e.g.: bakeries
- And many others

For example cleaning tanks or working in an explosive environment.

## Work instructions

- Low sparking brushes (with bronze filling) are a lot softer than other regularly used fill materials e.g. Steel and Stainless Steel
- Therefore these brushes have a higher abrasion rate, this means these brushes have to be used with more carefully so as not to damage the workpiece.

**Item Nos. in bold** are available ex stock.

Consider our minimum order value for *italic printed* article numbers (see page 184).

**BRO** = bronze wire



The use of these tools does not prevent the formation of ignitable sparks with 100% certainty.

- Overuse is to be avoided.
- The use of low-sparking tools has to be not your only protection measure against fire or explosions.
- To ensure a comprehensive protection of staff and building please respect the given provisions of the different institutions, e.g.: provisions of trade associations, employers or legislators.

### 1 Handbrushes standard; KL 290

Rows	H	Pack.	BRO 0.20/BRO 0.40*
	mm   inch		Art.-No.
3	25   1	12	108.331
4	25   1	12	<b>108.341</b>
5	25   1	12	108.351
4	25   1	12	108.041*

### 2 Handbrushes export model; KL 350

Rows	H	Pack.	BRO 0.30
	mm   inch		Art.-No.
3	30   1 3/16	6	<b>122.771</b>
4	30   1 3/16	6	<b>122.821</b>
5	30   1 3/16	6	122.871

### 3 Dusters; KL320

Rows	H	Pack.	BRO 0.30
	mm   inch		Art.-No.
4	40   1 5/8	12	124.181

### 4 Spark Plug Brushes; KL 200

Rows	H	Pack.	BRO 0.15
	mm   inch		Art.-No.
3	15   19/32	12	<b>132.801</b>

### 5 Brooms and scrubs

Rows	KL	KB	H	Pack.	BRO 0.40
	mm   inch	mm   inch	mm   inch		Art.-No.
6	300   12	70   2 3/4	55   2 11/64	12	146.270
6	220   8 5/8	60   2 3/8	40   1 5/8	12	148.170



## Special models

Rows	KL	KB	A	H	Pack.	BRO 0.15 crimped	BRO 0.08 crimped	
	mm   inch	mm   inch	mm   inch	mm   inch		Art.-No.	Art.-No.	
<b>6</b>	7	150   6	50   2	140   5 <sup>533/64</sup>	20   51/64	12	<b>144.011</b>	
	6	180   7 <sup>3/32</sup>	60   2 <sup>3/8</sup>	170   6 <sup>11/16</sup>	20   51/64	12	<b>144.111</b>	
	6	150   6	50   2	130   15 <sup>1/8</sup>	15   19/32	12	<b>144.311</b>	
<b>7</b>	6	180   7 <sup>3/32</sup>	60   2 <sup>3/8</sup>	160   6 <sup>19/64</sup>	20   51/64	12	<b>144.411</b>	
<b>8</b>	11	120   4 <sup>23/32</sup>	70   2 <sup>3/4</sup>	110   4 <sup>21/64</sup>	14   9/16	4		<b>152.811</b>

## Cup Brushes

D	d	H	H1	Z	RPM	Cup	Pack.	BRO 0.50 knotted	
mm   inch	mm   inch	mm   inch	mm   inch		max.			Art.-No.	
<b>9</b>	125   5	16   5/8	23   29/32	15   19/32	32	4,000	brass	1	<b>487.011.MS*</b>

\* With adjustable angle grinder, note RPM.

## Wheel Brushes

D	A	EB	R	H	d.	d.	RPM	Pack.	BRO 0.30 crimped	
mm   inch	mm   inch	mm   inch	mm   inch	mm   inch	Stand	min./max.			Art.-No.	
<b>10</b>	150   6	23-25   7/8-1	22   7/8	50   2	33   1 <sup>19/64</sup>	Set 3	13-50	6,000	1	<b>345.662.MS</b>

## Cylinder Brushes; GL330

D	A	GL	drilling wire	Pack.	BRO 0.20
mm   inch	mm   inch	mm			Art.-No.
<b>11</b>	10   25/64	100   4	330 <b>MES 2.5</b>	10	<b>542.034</b>
	20   51/64	100   4	330 <b>MES 2.5</b>	10	<b>543.006</b>
	35   1 <sup>3/8</sup>	100   4	330 <b>MES 3.0</b>	10	<b>543.926</b>

GL = total length  
KL = body length

# LESSMANN®

THE GERMAN BRUSH COMPANY

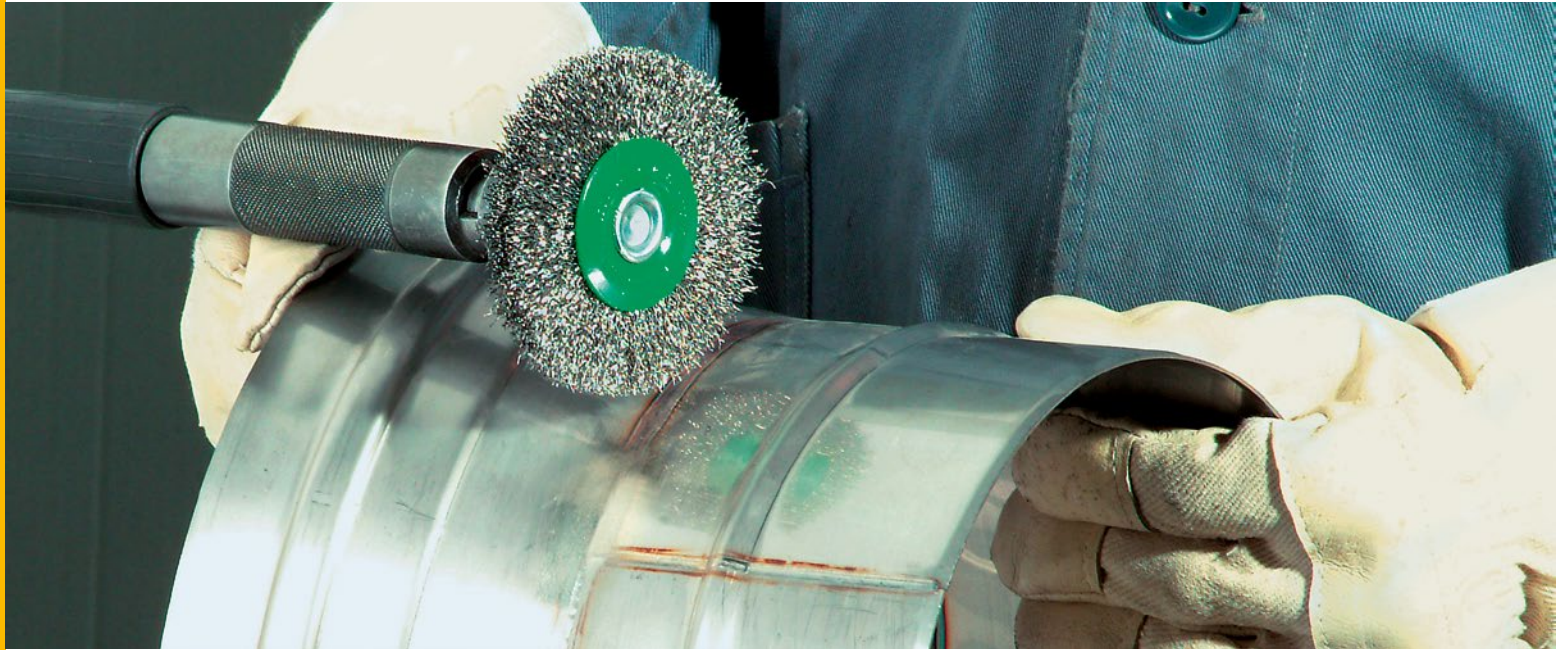




# BRUSHES WITH SHANK



# Wheel Brushes with Shank



## Wheel Brushes with Shank

The wheel brushes shown on these pages are manufactured with a mounted shank for professional use. Tight filling wire and balanced running make these brushes excellent tools.

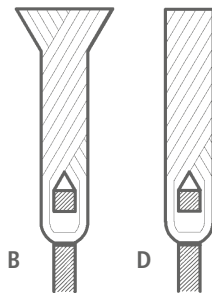
## Stainless Steel Brushes

LESSMANN brushes with stainless steel wire have green site plates. We use wire with material number 1.4310. Material number 1.4401. can be used on request.

More information for brush applications on stainless materials you will find at [www.lessmann.com](http://www.lessmann.com)

## Knotted Wheel Brushes with Shank

It does not matter if the brush has one or two rows, the brush is the perfect tool for removing underseal, rust deburring, roughening etc. For working in narrow places we recommend our brush 417.198.11, which is an especially narrow Brush.



### Knot types ZF

B: Rose Bud

D: Fully knotted (wire ends are cut completely)



You can find our **tutorials** here:  
[www.lessmann.com/index.php/en/content/view/full/711](http://www.lessmann.com/index.php/en/content/view/full/711)



You can find our **Enquiry Forms** in the respective category under:  
[www.lessmann.com/index.php/en/content/view/full/61](http://www.lessmann.com/index.php/en/content/view/full/61)  
or in the catalog from page 179



The brushes have a 6 mm shank. On demand the brushes can also be supplied with 1/4" shanks (USA execution).

Brushes with other diameters, filling widths and filling material are available on request.



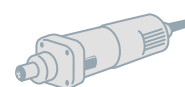
1



2



3



**Knot Wheel Brushes with Shank Ø 6 mm**

	D mm   inch	A mm   inch	H mm   inch	Z	ZF	R	RPM max.	Pack.	STH 0.35   0.014" Art.-No.	STH 0.50   0.020" Art.-No.	ROH 0.50   0.020" Art.-No.
1	75   3	9   3/8	15   5/8	18	D	1	25,000	10	417.178.11	<b>417.198.11</b>	
	75   3	12   1/2	15   5/8	18	B	1	25,000	10	<b>417.168</b>	<b>417.198</b>	<b>417.398</b>
2	75   3	16   5/8	15   5/8	18	B	2	25,000	10		<b>417.199</b>	417.399

**Wheel Brushes with Shank Ø 6 mm, Encapsulated**

	D mm   inch	A mm   inch	H mm   inch	RPM max.	Pack.	STA 0.30   0.012" Art.-No.
3	50   2	8   5/16	13   1/2	15,000	10	<b>415.160</b>
	60   2 3/8	8   5/16	18   3/4	15,000	10	<b>416.160</b>
	76   3	8   5/16	23   7/8	15,000	10	<b>417.160</b>

**Encapsulated Brushes**

By embedding in tough plastic the filling width always remains the same and early break of the wires can be prevented. It's the perfect tool for long lasting and safe working. The colour on the picture can differ from the colour on the brush.

**Well marked**

In future you will be able to recognize our encapsulated brushes even better by the new embossing or laser marking. This guarantees that you are holding a quality product "Made in Germany" in your hands. All important safety information can also be easily read on the product.

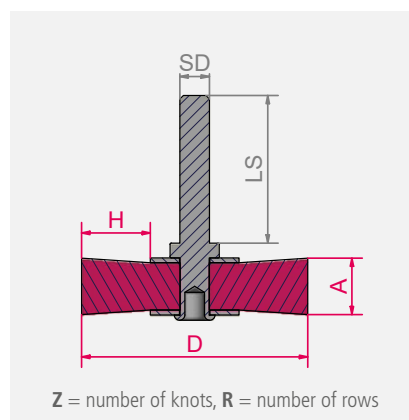
**Hardness Grading**

From now on, the encapsulated brushes from Lessmann can be delivered in three different Shore hardness scale measurements:

- Black – Hard
- Red – Standard
- White – Soft

Please note:

The more aggressive the application, the harder the plastic material should be. Another advantage of the harder plastic material is the dimensional stability.



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

- STA = steel wire, crimped
- STH = steel wire, high tensile, straight
- ROH = stainless steel wire, high tensile

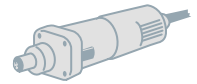
# Wheel Brushes with Shank



1



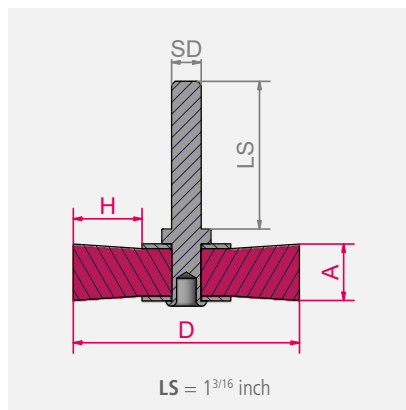
2



Wheel Brushes with Shank Ø 6 mm, Steel Wire

D	A	H	RPM	Pack.	1   2			
					STA 0.15   0.006"	STA 0.20   0.008"	STA 0.30   0.012"	STA 0.50   0.020"
mm   inch	mm   inch	mm   inch	max.	Art.-No.	Art.-No.	Art.-No.	Art.-No.	
20   5/16	6   15/64	3   1/8	20,000	10	411.132	<b>411.142</b>		
30   1 3/16	6   15/64	6   15/64	20,000	10	<b>413.132</b>	<b>413.142</b>	<b>413.162</b>	
30   1 3/16	9   23/64	6   15/64	20,000	10	413.133	<b>413.143</b>	<b>413.163</b>	
40   1 3/8	9   23/64	9   23/64	18,000	10	<b>414.132</b>	<b>414.142</b>	<b>414.162</b>	<b>414.192</b>
40   1 3/8	12   15/32	9   23/64	18,000	10	414.133	<b>414.143</b>	<b>414.163</b>	414.193
50   2	11   7/16	12   15/32	15,000	10	415.132	<b>415.142</b>	<b>415.162</b>	<b>415.192</b>
50   2	15   19/32	12   15/32	15,000	10	<b>415.133</b>	<b>415.143</b>	<b>415.163</b>	415.193
60   2 3/8	13   33/64	17   43/64	15,000	10	416.132	<b>416.142</b>	<b>416.162</b>	available on demand
60   2 3/8	18   45/64	17   43/64	15,000	10	<b>416.133</b>	<b>416.143</b>	<b>416.163</b>	416.193
70   2 3/4	9   23/64	19   3/4	15,000	10	417.132	<b>417.142</b>	<b>417.162</b>	
70   2 3/4	13   33/64	19   3/4	15,000	10	<b>417.133</b>	<b>417.143</b>	<b>417.163</b>	<b>417.193</b>
80   3 1/4	9   23/64	20   51/64	15,000	10	available on demand	<b>418.142</b>		
80   3 1/4	13   33/64	20   51/64	15,000	10	available on demand	<b>418.143</b>	<b>418.162</b>	418.192
80   3 1/4	19   3/4	20   51/64	15,000	10			<b>418.163*</b>	
100   4	14   9/16	25   1	12,000	10		<b>412.143*</b>	<b>412.163*</b>	
100   4	19   3/4	25   1	12,000	10		<b>412.144*</b>	<b>412.164*</b>	

\* Shank length for these articles is 20 mm instead of 30 mm.



Item Nos. in bold are available ex stock. Consider our minimum order value for italic printed article numbers (see page 184).

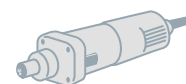
STA = steel wire, crimped  
 ROF = stainless steel wire, crimped  
 RO4 = stainless steel wire, straight, 1.4401



1



2



### Wheel Brushes with Shank Ø 6 mm, Stainless Steel

D	A	H	RPM	Pack.	1				
					ROF 0.10   0.004"	ROF 0.20   0.008"	ROF 0.30   0.012"	RO4 0.20   0.008"	RO4 0.30   0.012"
mm   inch	mm   inch	mm   inch	max.	Art.-No.	Art.-No.	Art.-No.	Art.-No.	Art.-No.	
20   5/16	6   15/64	3   1/8	20,000	10		<b>411.342</b>			
30   1 3/16	6   15/64	6   15/64	20,000	10		<b>413.342</b>	413.362		
30   1 3/16	9   23/64	6   15/64	20,000	10		<b>413.343</b>	413.363		
40   1 3/8	9   23/64	9   23/64	18,000	10		<b>414.342</b>	<b>414.362</b>		<b>414.462</b>
40   1 3/8	12   15/32	9   23/64	18,000	10		<b>414.343</b>	available on demand		
50   2	11   7/16	12   15/32	15,000	10	<b>415.312</b>	<b>415.342</b>	<b>415.362</b>	<b>415.442</b>	<b>415.462</b>
50   2	15   19/32	12   15/32	15,000	10		<b>415.343</b>	<b>415.363</b>		
60   2 3/8	13   33/64	17   43/64	15,000	10	<b>416.312</b>	<b>416.342</b>	<b>416.362</b>		<b>416.462</b>
60   2 3/8	18   45/64	17   43/64	15,000	10		<b>416.343</b>	<b>416.363</b>		
70   2 3/4	9   23/64	19   3/4	15,000	10		<b>417.342</b>	<b>417.362</b>		<b>417.462</b>
70   2 3/4	13   33/64	19   3/4	15,000	10	<b>417.312</b>	<b>417.343</b>	<b>417.363</b>		
80   3 1/4	9   23/64	20   51/64	15,000	10		<b>418.342</b>			418.462
80   3 1/4	13   33/64	20   51/64	15,000	10	<b>418.312</b>	<b>418.343</b>	<b>418.362</b>		
80   3 1/4	19   3/4	20   51/64	15,000	10			<b>418.363*</b>		
100   4	14   9/16	25   1	12,000	10		<b>41Z.343*</b>	<b>41Z.363*</b>		
100   4	19   3/4	25   1	12,000	10		<b>41Z.344*</b>	<b>41Z.364*</b>		

\* Shank length for these articles is 20 mm instead of 30 mm.

### 2 Wheel Brushes with Shank Ø 6 mm, Completely Stainless

D	A	H	RPM	Pack.	ROF 0.20   0.008"		ROF 0.30   0.012"	
					Art.-No.	Art.-No.	Art.-No.	Art.-No.
mm   inch	mm   inch	mm   inch	max.					
50   2	15   19/32	12   15/32	15,000	10	<b>415.301</b>		<b>415.302</b>	
60   2 3/8	17   43/64	17   43/64	15,000	10	<b>416.303</b>		416.302	
70   2 3/4	18   45/64	19   3/4	15,000	10	<b>417.306</b>		<b>417.309</b>	

#### Wheel brushes with shank, completely stainless

All the inner and outer parts of these brushes (shanks, side plates, rings, etc.) are made of stainless steel, making these brushes the perfect tool for working in damp and difficult places.



**Attention:**  
Completely stainless brushes do not have green side plates.

# Wheel Brushes with Shank



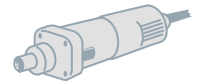
1



2



3



## 1 Wheel Brushes with Shank Ø 6 mm, brass coated steel wire

D mm   inch	A mm   inch	H mm   inch	RPM max.	Pack.	STM 0.25   0.010" Art.-No.
40   1 3/8	9   23/64	9   23/64	18,000	10	414.752
50   2	11   7/16	12   15/32	15,000	10	<b>415.752</b>
50   2	15   19/32	12   15/32	15,000	10	415.753
60   2 3/8	13   33/64	17   43/64	15,000	10	416.752
70   2 3/4	9   23/64	19   3/4	15,000	10	<b>417.752</b>
70   2 3/4	13   33/64	19   3/4	15,000	10	417.753
80   3 1/4	9   23/64	20   51/64	15,000	10	418.752

## 2 Body Brushes with Shank Ø 6 mm

D mm   inch	A	H	RPM max.	Pack.	STM 0.15   0.006" Art.-No.	STM 0.20   0.008" Art.-No.
26   1	3   1/8	4   5/32	20,000	10	<b>412.731</b>	
50   2	3   1/8	10   25/64	15,000	10		<b>415.741</b>

## Structuring Brushes with Shank Ø 8 mm

D mm   inch	A	H	RPM max.	Pack.	3 STM 0.25   0.010" Art.-No.	SIC 80/1.2 Art.-No.
80   3 1/4	35   1 3/8	25   31/32	4,000	1	<b>418.704</b>	
80   3 1/4	35   1 3/8	24   15/16	15,000	1		<b>418.826</b>

### Structuring Brushes with Shank

These brushes are special brushes which can be used for wood grain surfaces.

### Body brushes with shank

The brushes allow access to hard-to-reach areas in the car body, such as folds and grooves for solder joints or interior angles. The brushes can be used to easily remove rust, sealant, paint or scale.

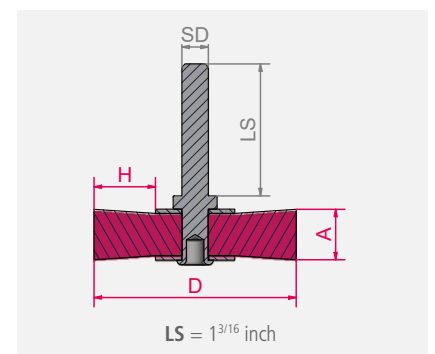
The brushes are also used for cleaning or activation on the surface before tinning.

**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

**STM** = brass coated steel, crimped

**MES** = brass wire, crimped

**SIC** = silicon carbide bristles





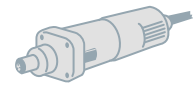
1



2



3



### 1 Wheel Brushes with Shank Ø 6 mm, Brass Wire

D	A	H	RPM	Pack.	MES 0.20   0.008"	MES 0.30   0.012"
mm   inch	mm   inch	mm   inch	max.		Art.-No.	Art.-No.
20   5/16	5   13/64	3   1/8	20,000	10	<b>411.542</b>	
30   1 3/16	5   13/64	6   1/4	20,000	10	<b>413.542</b>	
30   1 3/16	8   5/16	6   1/4	20,000	10	413.543	
40   1 3/8	7   9/32	9   3/8	18,000	10	<b>414.542</b>	
40   1 3/8	10   25/64	9   3/8	18,000	10	414.543	
50   2	10   25/64	12   15/32	15,000	10	<b>415.542</b>	
50   2	14   9/16	12   15/32	15,000	10	<b>415.543</b>	
60   2 3/8	12   15/32	17   43/64	15,000	10	<b>416.542</b>	415.562
60   2 3/8	16   5/8	17   43/64	15,000	10	<b>416.543</b>	
70   2 3/4	8   5/16	19   3/4	15,000	10	<b>417.542</b>	417.562
70   2 3/4	12   15/32	19   3/4	15,000	10	<b>417.543</b>	
80   3 1/4	8   5/16	20   51/64	15,000	10	<b>418.542</b>	
80   3 1/4	12   15/32	20   51/64	15,000	10	<b>418.543</b>	

### 2 Wheel Brushes with Shank Ø 6 mm, Silicon Carbide Bristles

D	A	H	RPM	Pack.	SIC 120/0.6	SIC 120/1.1	SIC 180/1.0	SIC 320/0.6
mm   inch	mm   inch	mm   inch	max.		Art.-No.	Art.-No.	Art.-No.	Art.-No.
30   1 3/16	6   15/64	6   15/64	20,000	10	<b>413.841</b>			<b>413.871</b>
40   1 3/8	15   19/32	12   15/32	18,000	10		<b>414.842</b>		<b>414.872</b>
50   2	10   25/64	12   15/32	15,000	10		<b>415.842</b>	<b>415.852</b>	<b>415.872</b>
60   2 3/8	10   25/64	14   9/16	15,000	10		416.842	416.852	416.872
70   2 3/4	10   25/64	20   51/64	15,000	10		<b>417.842</b>	<b>417.852</b>	<b>417.872</b>
80   3 1/4	12   15/32	20   51/64	15,000	10		<b>418.842</b>	418.852	<b>418.872</b>

### 3 Wheel Brushes with Shank Ø 6 mm, Cermaic Grit

D	A	H	RPM	Pack.	KK 120/1,1	KK 180/1,0	KK 320/0,6
mm   inch	mm   inch	mm   inch	max.		Art.-Nr.	Art.-Nr.	Art.-Nr.
50   2	10   25/64	12   15/32	15,000	10	<b>415.C42</b>	415.C52	<b>415.C72</b>
70   2 3/4	10   25/64	12   15/32	15,000	10	<b>417.C42</b>	417.C52	<b>417.C72</b>

#### Shank Brushes with Silicon Carbide Bristles

The high quality bristles with silicon carbide can be used for deburring, polishing and

structuring of stainless steel, aluminium and plastic surfaces. Besides the articles men-

tioned on this page we can also supply other grits, diameters and widths.

# Cup Shank Brushes



## Cup Brushes with Shank

Ideal for working on medium and large areas.

## Cup Shank Brushes with Plastic Cup

Cup Shank Brushes with Plastic Cup and stainless steel wire especially are used for applications on stainless steel materials. The plastic cup prevents contact with the working piece, therefore it protects from corrosion or other foreign particles.

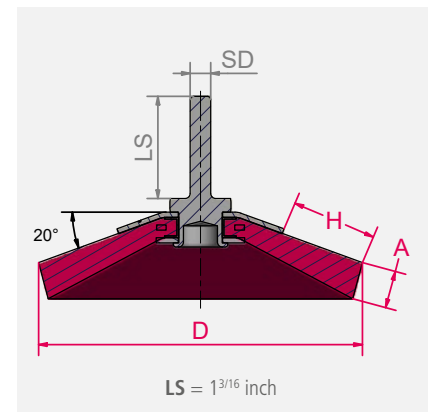
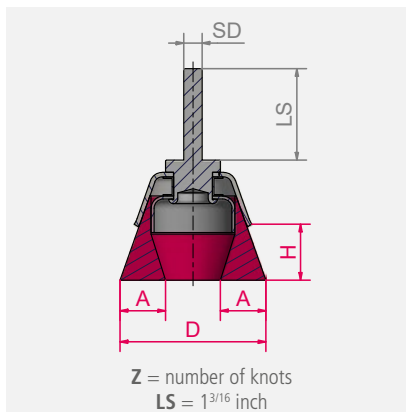
## Bevel Brushes with Shank

Due to the conical form these universal tools are ideal for notches, corners, grooves, inside edges and irregular surfaces. These professional brushes are suitable for drills and cordless screwdrivers as well for high-speed straight grinders and compressed-air drives.

## High speed – low wear

Brushes with steel and stainless steel wire can be used at higher RPM and can therefore be used on electrical and air driven grinding machines. These models are known for their high density of filling material and therefore they have a very long lifetime.

The brushes with silicon carbide bristles can be used for deburring, polishing or structuring of stainless steel, aluminium and plastic surfaces.



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

- |            |                                      |
|------------|--------------------------------------|
| <b>STA</b> | = steel wire, crimped                |
| <b>STH</b> | = steel wire, high tensile, straight |
| <b>ROF</b> | = stainless steel wire, crimped      |
| <b>MES</b> | = brass wire, crimped                |
| <b>SIC</b> | = silicon carbide bristles           |





Cup Brushes with Shank Ø 6 mm

D mm   inch	A mm   inch	H mm   inch	RPM max.	Pack.	1				2	
					STA 0.20   0.008"	STA 0.30   0.012"	ROF 0.20   0.008"	ROF 0.30   0.012"	MES 0.20   0.008"	MES 0.30   0.012"
					Art.-No.	Art.-No.	Art.-No.	Art.-No.	Art.-No.	Art.-No.
40   1 3/8	15   5/8	20   3/4	10,500	10	<b>434.142</b>	<b>434.162</b>	434.342	<b>434.362</b>	<b>434.542</b>	
50   2	16   5/8	20   3/4	10,500	10	<b>435.142</b>	<b>435.162</b>	435.342	<b>435.362</b>	<b>435.542</b>	<b>435.562</b>
60   2 3/8	18   3/4	25   1	8,000	10	available on demand	<b>436.162</b>	available on demand	<b>436.362</b>	available on demand	
70   2 3/4	20   3/4	25   1	6,000	10	<b>437.142</b>	<b>437.162</b>	437.342	<b>437.362</b>	<b>437.542</b>	

3 Cup Brushes with Shank Ø 6 mm and plastic cup

D mm   inch	A mm   inch	H mm   inch	RPM max.	Pack.	ROF 0.20   0.008"	ROF 0.25   0.010"	ROF 0.30   0.012"
					Art.-No.	Art.-No.	Art.-No.
40   1 3/8	20   3/4	30   1 1/4	15,000	10	<b>434.345</b>	<b>434.355</b>	<b>434.365</b>
50   2	25   1	28   1 7/64	10,500	10	<b>435.345</b>	<b>435.355</b>	<b>435.365</b>

4 Cup Brushes with Shank Ø 6 mm, Silicon Carbide Bristles

D mm   inch	A mm   inch	H mm   inch	RPM max.	Pack.	SIC 80/1.2	SIC 320/0.6
					Art.-No.	Art.-No.
50   2	10   3/8	20   3/4	4,500	10	<b>430.128</b>	<b>430.129</b>
75   3	15   5/8	22   7/8	4,500	10	<b>430.138</b>	<b>430.139</b>

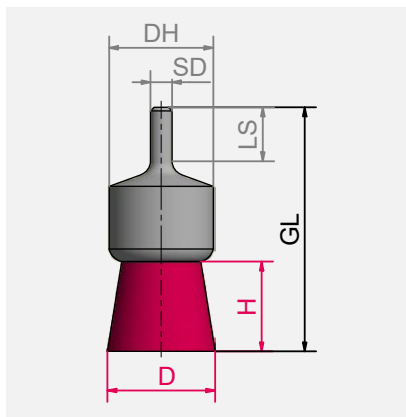
5 Knot Cup Brushes with Shank Ø 6 mm, Steel Wire

D mm   inch	H mm   inch	Z mm   inch	RPM max.	Pack.	STH 0.50   0.020"
					Art.-No.
75   3	20   3/4	18   3/4	8,500	10	<b>483.230</b>

6 Bevel Brushes with Shank Ø 6 mm

D mm   inch	A mm   inch	H mm   inch	RPM max.	Pack.	STA 0.30	ROF 0.30
					Art.-No.	Art.-No.
70   2 3/4	10   3/8	15   5/8	15,000	10	<b>4K7.161</b>	<b>4K7.361</b>
90   3 3/4	12   1/2	25   1	12,000	10	<b>4K9.161</b>	<b>4K9.361</b>

# End Brushes



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

- |            |                                      |
|------------|--------------------------------------|
| <b>STA</b> | = steel wire, crimped                |
| <b>STH</b> | = steel wire, high tensile, straight |
| <b>ROF</b> | = stainless steel wire, crimped      |
| <b>SIC</b> | = silicon carbide bristles           |



## End Brushes with Shank

For cleaning and deburring in hard to reach areas, removal of paint, rubber excess, cleaning of moulds and castings. Also for working on edges and curves, and in the inside of the bores, etc. End brushes are also available in other shapes, spreaded or pointed.

These brushes are perfect for fast moving tools. On demand also with 1/4" shank available.

## Special End Brushes, crimping

The special end brushes with narrow crimped wire are characterized by its dense filling. These brushes show a harder brushing effect than brushes with normal crimped wire. These brushes are also available with extra long shanks or different diameters.

## Square End Brushes

This special tool enables e. g. cleaning of blind holes and processing of bottom and side surfaces in one step.

It's perfect for cleaning and easy deburring applications, e.g. square bores. Other diameters available on demand.

## Encapsulated Brushes

By embedding in tough plastic the filling width always remains the same and early break of the wires can be prevented. It's the perfect tool for long lasting and safe working. The colour on the picture can differ from the colour on the brush.

## Well marked

In future you will be able to recognize our encapsulated brushes even better by the new embossing or laser marking. This guarantees that you are holding a quality product "Made in Germany" in your hands. All important safety information can also be easily read on the product.

## Hardness

### Grading

From now on, the encapsulated brushes from Lessmann can be delivered in three different Shore hardness scale measurements:

- Black – Hard
- Red – Standard
- White – Soft

Please note:

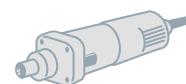
The more aggressive the application, the harder the plastic material should be. Another advantage of the harder plastic material is the dimensional stability.

## Stainless Steel Brushes

Further information for brushing on stainless steel you will find on [www.lessmann.com](http://www.lessmann.com)

## Special Design

For your order please state your requirements regarding the measures and wires.



#### Special End Brushes with Shank Ø 6 mm, narrow crimping

	D	DH	H	GL	RPM	Pack.	STH 0.35   0.014"	STH 0.50   0.020"
	mm   inch	mm   inch	mm   inch	mm   inch	max.		Art.-No.	Art.-No.
1	11   7/16	12   1/2	25   1	71   2 3/4	12,000	10	<b>466.171</b>	available on demand
2	11   7/16	12   1/2	25   1	71   2 3/4	12,000	10	<b>466.172*</b>	available on demand*
1	19   3/4	22   7/8	29   1 1/8	72   2 3/4	12,000	10	460.121	available on demand
2	19   3/4	22   7/8	29   1 1/8	72   2 3/4	12,000	10	460.122*	available on demand*

#### 3 Square End Brushes with Shank Ø 6 mm

	D	A	GL	RPM	Pack.	STA 0.15   0.006"	STA 0.25   0.010"	ROF 0.30   0.012"
	mm   inch	mm   inch	mm   inch	max.		Art.-No.	Art.-No.	Art.-No.
	25.4   1	8   5/16	84   3 1/4	4,500	10	469.131	469.151	469.362
	31.8   1 1/4	8   5/16	87   3 3/8	4,500	10	469.133	469.153	available on demand

#### 4 End Brushes with Shank Ø 6 mm, Encapsulated

	D	DH	H	GL	RPM	Pack.	STA 0.30   0.012"
	mm   inch	mm   inch	mm   inch	mm   inch	max.		Art.-No.
	10   3/8	10   3/8	20   3/4	65   2 1/2	15,000	10	<b>451.160</b>
	16   5/8	16   5/8	25   1	72   2 7/8	15,000	10	<b>452.160</b>
	22   7/8	22   7/8	25   1	72   2 7/8	15,000	10	<b>453.160</b>
	28   1 1/8	28   1 7/64	30   1 1/4	75   3	10,000	10	<b>456.160</b>

#### 5 End Brushes with Shank Ø 6 mm, Silicon Carbide Bristles

	D	DH	H	GL	RPM	Pack.	SIC 120/1.1	SIC 180/1.0	SIC 320/0.6
	mm   inch	mm   inch	mm   inch	mm   inch	max.		Art.-No.	Art.-No.	Art.-No.
	12   1/2	10   3/8	20   3/4	60   2 3/8	20,000	10	<b>451.831</b>	451.851	451.871
	17   5/8	16   5/8	22   7/8	68   2 3/4	10,000	10	<b>452.831</b>	452.851	available on demand
	23   7/8	22   7/8	25   1	70   2 3/4	10,000	10	454.831	<b>454.851</b>	<b>454.871</b>
	30   1 1/4	28   1	30   1 1/4	75   3	10,000	10	456.831	<b>456.851</b>	<b>456.871</b>

\* pointed

# End Brushes



## End Brushes with Shank Ø 6 mm, Steel Wire

	D	DH	H	GL	RPM	Pack.	Shape	STA 0.15   0.006"	STA 0.20   0.008"	STA 0.30   0.012"	STA 0.50   0.020"
	mm   inch	mm   inch	mm   inch	mm   inch	max.			Art.-No.	Art.-No.	Art.-No.	Art.-No.
1	12   1/2	10   3/8	20   3/4	60   2 3/8	20,000	10		451.131	451.141	451.161	451.191
2	12   1/2	10   3/8	20   3/4	60   2 3/8	20,000	10				451.162*	451.192*
3	12   1/2	10   3/8	20   3/4	120   4 3/4	15,000	10		458.131	458.141	458.161	458.191
4	17   5/8	16   5/8	22   7/8	65   2 1/2	20,000	10		452.131	452.141	452.161	452.191
5	23   7/8	22   7/8	25   1	68   2 3/4	18,000	10		453.131	453.141	453.161	453.191
	30   1 1/4	29   1 1/8	25   1	68   2 3/4	18,000	10		456.131	456.141	456.161	456.191
	50   2	22   7/8	18   3/4	68   2 3/4	18,000	10				453.163**	
6	70   2 3/4	29   1 1/8	25   1	68   2 3/4	18,000	10				456.163**	

## End Brushes with Shank Ø 6 mm, Brass Steel Wire, Cord Wire

	D	DH	H	GL	RPM	Pack.	Shape	7	8	
	mm   inch	mm   inch	mm   inch	mm   inch	max.			STM 0.25   0.010"	STL 0.175   0.007"	STL 0.22   0.009"
								Art.-No.	Art.-No.	Art.-No.
	17   5/8	16   5/8	22   7/8	65   2 1/2	20,000	10		452.751	452.703	452.705
	23   7/8	22   7/8	25   1	68   2 3/4	18,000	10		453.751	453.703	453.705
	30   1 1/4	29   1 1/8	25   1	68   2 3/4	18,000	10		456.751	456.703	456.705

## 9 End Brushes with Shank Ø 6 mm, Steel Wire high tensile, dense version, longer lifetime

	D	DH	H	GL	RPM	Pack.	Shape	STH 0.30   0.012"
	mm   inch	mm   inch	mm   inch	mm   inch	max.			Art.-No.
	12   1/2	12   1/2	20   3/4	66   2 1/2	20,000	10		451.261.BD
	17   5/8	16   5/8	22   7/8	65   2 1/2	20,000	10		452.261.BD
	23   7/8	22   7/8	25   1	68   2 3/4	18,000	10		453.261.BD
	30   1 1/4	29   1 1/8	25   1	68   2 3/4	18,000	10		456.261.BD



End Brushes with Shank Ø 6 mm, Stainless Steel and Brass Wire

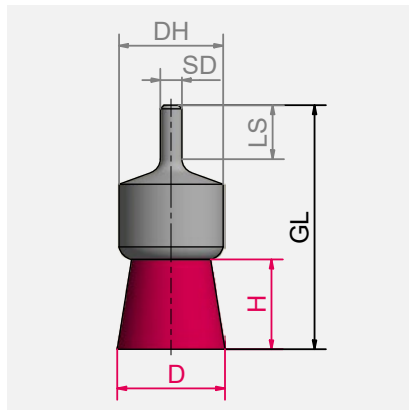
	D	DH	H	GL	RPM	Pack.	Shape				7	
								ROF 0.20   0.008"	ROF 0.30   0.012"	RO4 0.30   0.012"	MES 0.20   0.008"	MES 0.30   0.012"
	mm   inch	mm   inch	mm   inch	mm   inch	max.			Art.-No.	Art.-No.	Art.-No.	Art.-No.	Art.-No.
1	12   1/2	10   3/8	20   3/4	60   2 3/8	20,000	10		451.341	451.361	451.461	451.541	451.561
2	12   1/2	10   3/8	20   3/4	60   2 3/8	20,000	10			451.362		451.542	451.562
3	12   1/2	10   3/8	20   3/4	120   4 3/4	15,000	10		458.341	458.361		458.541	458.561
4	17   5/8	16   5/8	22   7/8	65   2 1/2	20,000	10		452.341	452.361		452.541	452.561
	23   7/8	22   7/8	25   1	68   2 3/4	18,000	10		453.341	453.361		453.541	453.561
5	30   1 1/4	29   1 1/8	25   1	68   2 3/4	18,000	10		456.341	456.361		456.541	456.561
6	50   2	22   7/8	18   3/4	68   2 3/4	18,000	10			453.363			

End Brushes with Shank Ø 6 mm, complete Stainless Steel

D	DH	H	GL	RPM	Pack.	Shape	ROF 0.30   0.012"
mm   inch	mm   inch	mm   inch	mm   inch	max.			Art.-No.
12   1/2	10   3/8	20   3/4	60   2 3/8	20,000	10		451.305
17   5/8	16   5/8	22   7/8	65   2 1/2	20,000	10		452.304
23   7/8	22   7/8	25   1	68   2 3/4	18,000	10		453.301



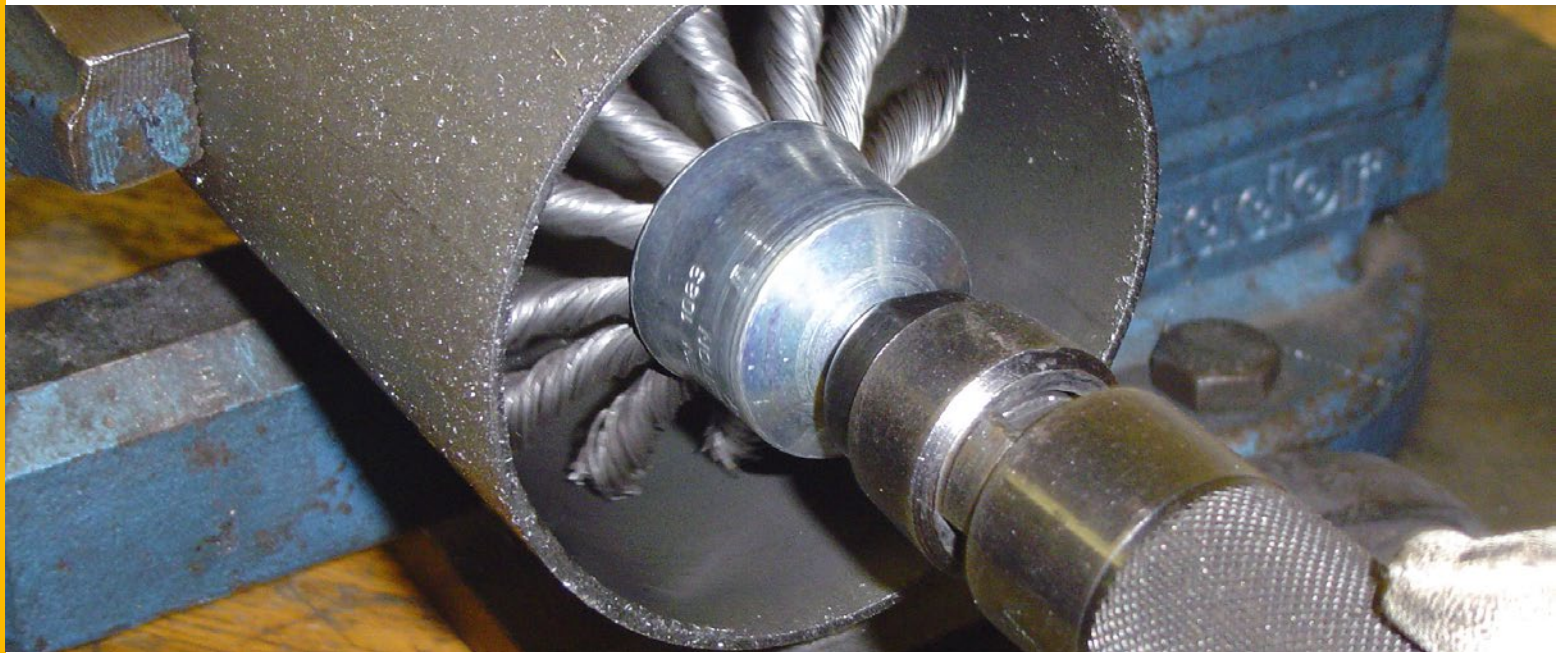
Brushes also available with shrink tubing.



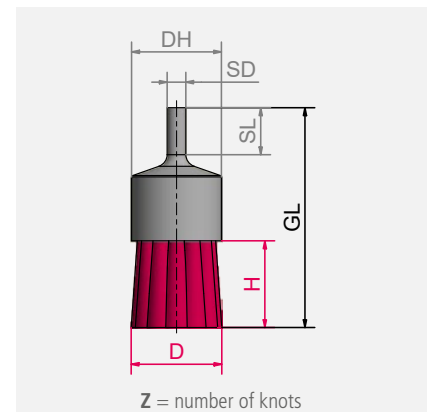
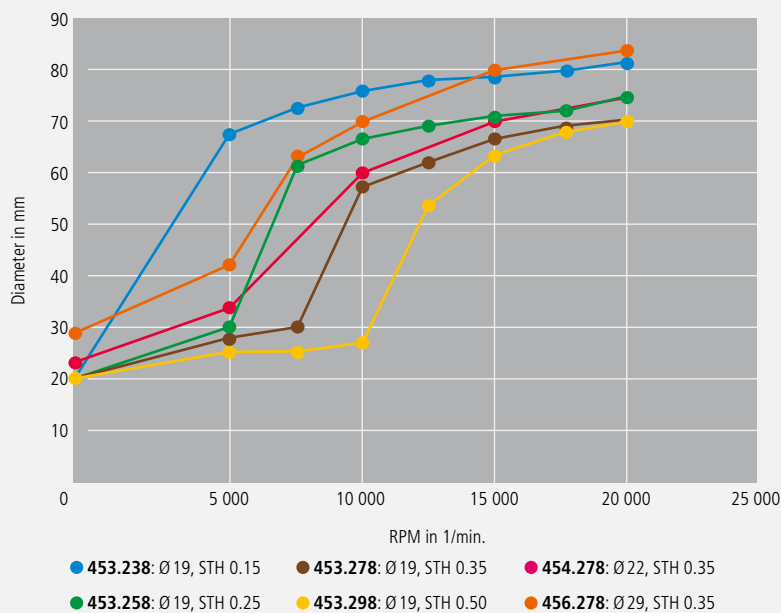
Item Nos. in bold are available ex stock.  
Consider our minimum order value for *italic printed* article numbers (see page 184).

- STA = steel wire, crimped
- STH = steel wire, high tensile, crimped
- STM = brass coated steel, crimped
- STL = cord wire, crimped
- ROF = stainless steel wire, crimped
- MES = brass wire, crimped

# Knot End Brushes



Opening of the end brushes depending on the RPM



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

**STH** = steel wire, high tensile, straight  
**STM** = brass coated steel, crimped  
**RO4** = stainless steel wire, straight, 1.4401



You can find our **tutorials** here:  
[www.lessmann.com/index.php/en/content/view/full/711](http://www.lessmann.com/index.php/en/content/view/full/711)

## Knotted End Brushes with Shank

According to the RPM the brush will vary in dimension and enable the user to work in hard to reach areas such as drilled holes and recesses of all kinds. The cups of the knot end brushes with stainless steel wire are **coated with**

**plastic** to protect the stainless surface. Knotted end brushes with stainless steel wire are green characterized.

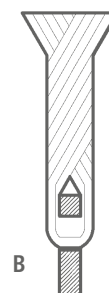
Further information on working on stainless steel you find at [www.lessmann.com](http://www.lessmann.com)

## Special End Brushes with Shank Ø 6mm, one Knot

One-knotted End Brushes to render precise working possible.

## End Brushes, filled with epoxy resin

End Brushes filled with epoxy resin are able to treat small, defined areas. The brushes are more aggressive and allow a precise handling, hence they are used e.g. for electrical cabinets or for treating mounting surfaces.



**Knot types ZF**  
**B:** Rose Bud  
**D:** Fully knotted (wire ends are cut completely)



### Knot End Brushes with Shank Ø 6 mm, Steel Wire

	D/DH mm   inch	GL mm   inch	H mm   inch	Z	ZF	RPM max.	Pack.	STH 0.15   0.006" Art.-No.	STH 0.25   0.010" Art.-No.	STH 0.35   0.014" Art.-No.	STH 0.50   0.020" Art.-No.
1	6/10   1/4/3/8	65   2 1/2	25   1	1	D	4,500	10	available on demand	<b>451.258</b>	<b>451.278</b>	available on demand

### Knot End Brushes with Shank Ø 6 mm, Stainless Steel Wire

	D/DH mm   inch	GL mm   inch	H mm   inch	Z	ZF	RPM max.	Pack.	RO4 0.15   0.006" Art.-No.	RO4 0.25   0.010" Art.-No.	RO4 0.35   0.014" Art.-No.	RO4 0.50   0.020" Art.-No.
1	6/10   1/4/3/8	65   2 1/2	25   1	1	D	4,500	10	available on demand	<b>451.458</b>	<b>451.478</b>	available on demand

### Knot End Brushes with Shank Ø 6 mm, Steel Wire

	D/DH mm   inch	GL mm   inch	H mm   inch	Z	ZF	RPM max.	Pack.	STH 0.15   0.006" Art.-No.	STH 0.25   0.010" Art.-No.	STH 0.35   0.014" Art.-No.	STH 0.50   0.020" Art.-No.
2	19   3/4	72   2 7/8	28   1	6	B	20,000	10	453.238	<b>453.258</b>	<b>453.278</b>	<b>453.298</b>
3	22   7/8	72   2 7/8	28   1	8	B	20,000	10	454.238	<b>454.258</b>	<b>454.278</b>	<b>454.298</b>
4	29   1 1/8	72   2 7/8	28   1	12	B	20,000	10	456.238	<b>456.258</b>	<b>456.278</b>	<b>456.298</b>
5	19   3/4	72   2 7/8	28   1	4	B	20,000	50	available on demand	available on demand	<b>452.278.GH*</b>	available on demand

\* filled with epoxy resin

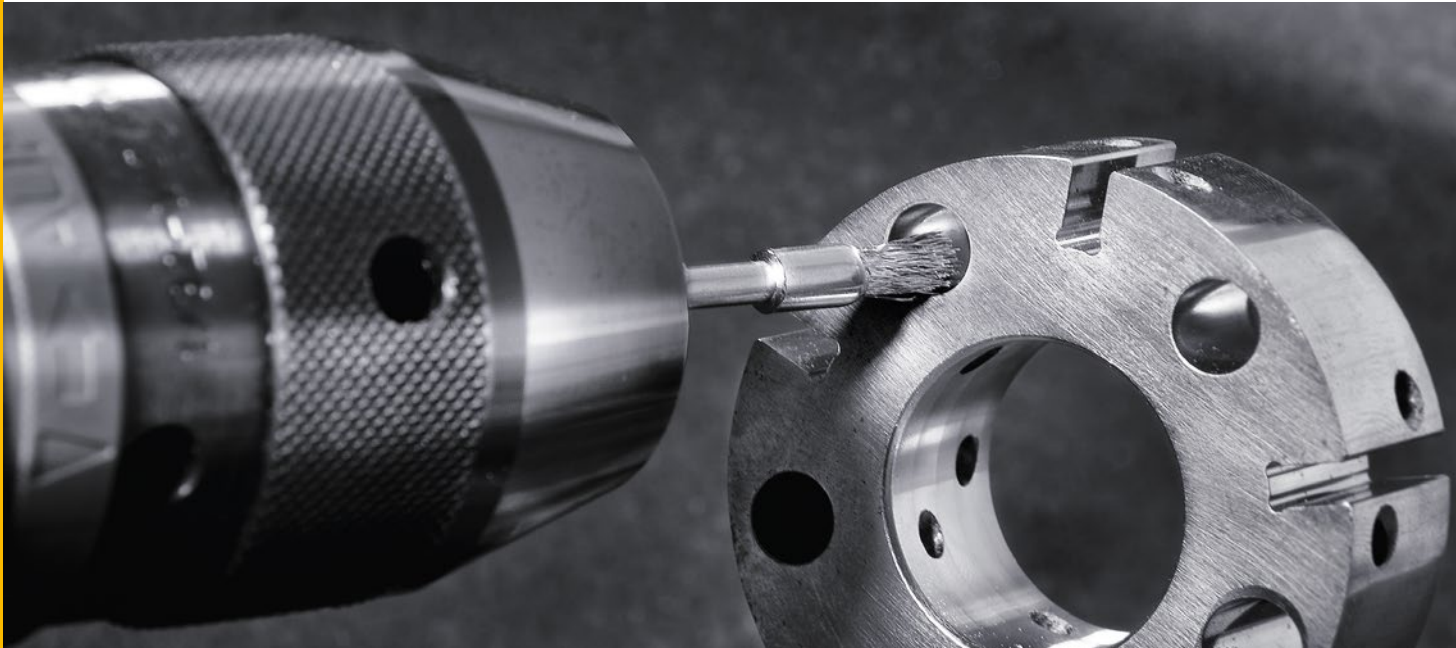
### 6 Knot End Brushes with Shank Ø 6 mm, Brass coated steel wire

	D/DH mm   inch	GL mm   inch	H mm   inch	Z	ZF	RPM max.	Pack.	STM 0.25   0.010" Art.-No.	STM 0.35   0.014" Art.-No.
	19   3/4	72   2 7/8	28   1	6	D	20,000	10	453.758	<b>453.778</b>
	22   7/8	72   2 7/8	28   1	8	D	20,000	10	454.758	454.778
	29   1 1/8	72   2 7/8	28   1	12	D	20,000	10	<b>456.758</b>	456.778

### 7 Knot End Brushes with Shank Ø 6 mm, Stainless Steel Wire

	D/DH mm   inch	GL mm   inch	H mm   inch	Z	ZF	RPM max.	Pack.	RO4 0.15   0.006" Art.-No.	RO4 0.25   0.010" Art.-No.	RO4 0.35   0.014" Art.-No.	RO4 0.50   0.020" Art.-No.
	19   3/4	72   2 7/8	28   1	6	B	20,000	10	<b>453.338</b>	<b>453.358</b>	<b>453.378</b>	453.398
	22   7/8	72   2 7/8	28   1	8	B	20,000	10	454.338	<b>454.358</b>	<b>454.378</b>	<b>454.398</b>
	29   1 1/8	72   2 7/8	28   1	12	B	20,000	10	456.338	<b>456.358</b>	<b>456.378</b>	<b>456.398</b>

# Miniature Brushes



## Miniature Brushes

Miniature Brushes are used for polishing, cleaning, or deburring of small-area surfaces or small working pieces. Miniature brushes remove waste and scale from weld seams or soldering points. The brushes are used on metal surfaces, steel, aluminum, cast iron, plastics, stone or wood.

Typical fields of applications:

- Precision tools
- Fine mechanics
- Pneumatic and hydraulics
- Electronics parts, e.g. plates

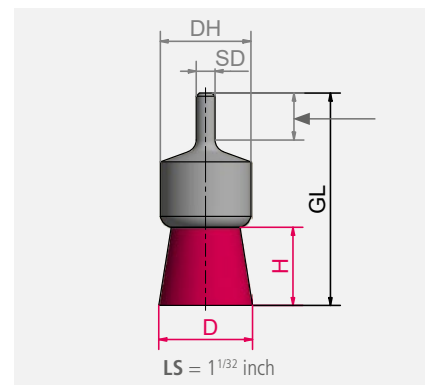
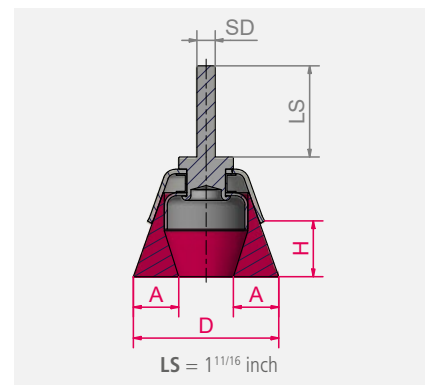
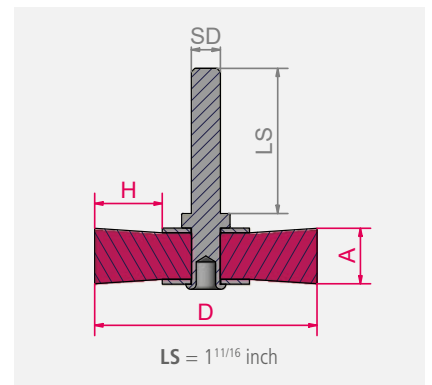
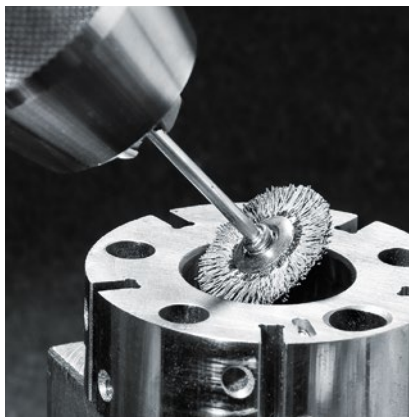
Miniature Brushes are available in different types as wheel, cup and end brushes.

The typical filling materials are steel wire, stainless steel wire, brass wire or abrasive bristles.

## Stainless Steel Brushes

Information on working on stainless steel you find at [www.lessmann.com](http://www.lessmann.com)

**Please Note:** Brushes with bristles or goat hair achieve an ideal brushing result by using polish.



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

**STH** = steel wire, high tensile, straight

**ROF** = stainless steel wire, crimped

**MES** = brass wire, crimped

**PA** = polyamide

**SIC** = silicon carbide bristles

**AO** = aluminium oxide bristles



All Brushes also available with shank  $\varnothing$  2.34 and 3.17 mm.





**1 Miniature Wheel Brushes with shank Ø 3 mm**

D mm   inch	A	H	RPM max.	Pack.	STH 0.10 Art.-No.	ROF 0.10 Art.-No.	MES 0.10 Art.-No.	SIC 320/0.55 Art.-No.	SIC 500/0.46 Art.-No.	SIC 800/0.25 Art.-No.	AO 320/0.50 Art.-No.
16   5/8	2	3	15,000	10	<b>410.221</b>	<b>410.321</b>	410.521	410.871	410.881	410.891	410.871.A0
19   3/4	2	5	12,000	10	<b>410.222</b>	<b>410.322</b>	<b>410.522</b>	410.872	410.882	410.892	410.872.A0
22   7/8	2	6	10,000	10	<b>410.223</b>	<b>410.323</b>	<b>410.523</b>	410.873	<b>410.883</b>	410.893	410.873.A0

D mm   inch	A	H	RPM max.	Pack.	AO 500/0.46 Art.-No.	AO 600/0.30 Art.-No.	Diamond K400 Art.-No.	PA 0.15 Art.-No.	Bristle white Art.-No.	Bristle schwarz Art.-No.	Goat hair Art.-No.
16   5/8	2	3	15,000	10	410.801	410.891.A0	410.811.DB	410.031	410.001.WB	410.001.SB	410.001.ZH
19   3/4	2	5	12,000	10	410.802	410.892.A0	410.812.DB	410.032	410.002.WB	410.002.SB	410.002.ZH
22   7/8	2	6	10,000	10	410.803	410.893.A0	410.813.DB	<b>410.033</b>	<b>410.003.WB</b>	<b>410.003.SB</b>	<b>410.003.ZH</b>

**2 Miniature Cup Brushes with shank Ø 3 mm**

D mm   inch	A	H	RPM max.	Pack.	STH 0.10 Art.-No.	ROF 0.10 Art.-No.	MES 0.10 Art.-No.	SIC 320/0.55 Art.-No.	SIC 500/0.46 Art.-No.	SIC 800/0.25 Art.-No.	AO 320/0.50 Art.-No.
15   5/8	2	5	15,000	10	<b>430.222</b>	<b>430.322</b>	<b>430.522</b>	430.872	430.882	430.892	430.872.A0
18   3/4	2	6	15,000	10	<b>430.223</b>	<b>430.323</b>	<b>430.523</b>	430.873	<b>430.883</b>	430.893	430.873.A0

D mm   inch	A	H	RPM max.	Pack.	AO 500/0.46 Art.-No.	AO 600/0.30 Art.-No.	Diamond K400 Art.-No.	PA 0.15 Art.-No.	Bristle white Art.-No.	Bristle schwarz Art.-No.	Goat hair Art.-No.
15   5/8	2	5	15,000	10	430.802	430.892.A0	430.812.DB	<b>430.031</b>	<b>430.001.WB</b>	<b>430.001.SB</b>	<b>430.001.ZH</b>
18   3/4	2	6	15,000	10	430.803	430.893.A0	430.813.DB	430.032	430.002.WB	430.002.SB	430.002.ZH

**3 Miniature End Brushes with shank Ø 3 mm**

D mm   inch	H	RPM max.	Pack.	STH 0.10 Art.-No.	ROF 0.10 Art.-No.	MES 0.10 Art.-No.	SIC 320/0.55 Art.-No.	SIC 500/0.46 Art.-No.	SIC 800/0.25 Art.-No.	AO 320/0.50 Art.-No.
5   13/64	8	15,000	10	<b>450.221</b>	<b>450.311</b>	<b>450.521</b>	450.871	<b>450.881</b>	450.891	450.871.A0

D mm   inch	H	RPM max.	Pack.	AO 500/0.46 Art.-No.	AO 600/0.30 Art.-No.	Diamond K400 Art.-No.	PA 0.15 Art.-No.	Bristle white Art.-No.	Bristle schwarz Art.-No.	Goat hair Art.-No.
5   13/64	8	15,000	10	450.801	450.891.A0	450.821.DB	<b>450.031</b>	<b>450.001.WB</b>	<b>450.001.SB</b>	<b>450.001.ZH</b>

All Brushes also available with shank Ø 2.34 and 3.17 mm.

# LESSMANN®

THE GERMAN BRUSH COMPANY



# HAND BRUSHES AND BROOMS



# Hand Brushes



## Hand Brushes

Hand Brushes are used everywhere, in the metal industry, construction work, in the workshop. They are found in every tool box. The complete range contains all types of filling materials, from coarse steel to the finest brass wire.

## Perfect balance

LESSMANN Handbrushes are of superb quality and yet are affordable due to a fully automated and efficient production facility. Using modern marking systems individual printing of brands and EAN Bar Codes can be made. This is done by burning stamps or tampon printing at low cost.

## Brake Caliper Brushes ROKI®

This brush has been manufactured in co-operation with the automobile industry. This brush is used for cleaning off clogged lining deposits when changing brake pad linings. Thus the brush is very slim with a heavy straight wire filling. Made in this way it prevents damage to sensitive brake areas during use. The brush 182.431 has to the top a sloping filling and is therefore extra hard. New is the two-components-handle with the latest ergonomical aspects. Because of the design and the ergonomic handle this brush is remarkably versatile to use.

## Hand Brushes with Two-Components Handles

apply to other requirements of modern high quality tools with best ergonomics.



## Rivet Brushes

The V shaped filling material enables the removal of slag and scale from normally hard to reach welds and fillet welds

## Hand Brushes with Scraper

For painters and bricklayers in the construction industry. These brushes are ideal for scraping off dirt or cement splashes.

## Hand Brushes, Heavy Duty

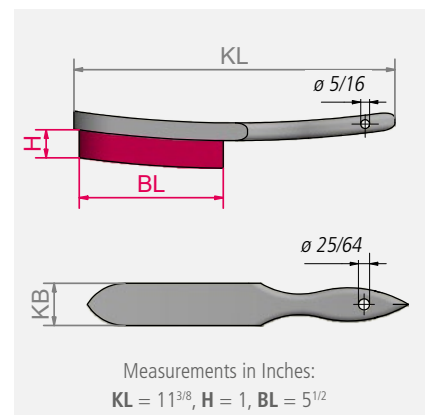
These models have a larger wooden handle and a longer and dense wire filling than our standard models.

## Universal Wire Brushes

For many uses, especially in the Do It Yourself section.

## Stainless Steel Brushes

Information on brushing on stainless materials you will find at [www.lessmann.com](http://www.lessmann.com)

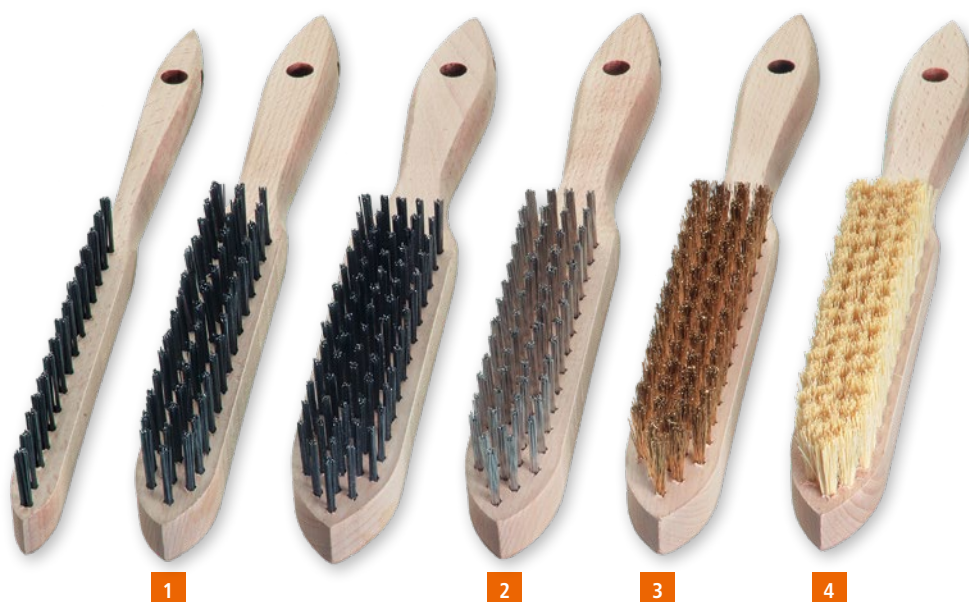


All standard hand brushes have a bar code stamp and LESSMANN-imprint.



The handles of all standard brushes are made of beech wood with two hanging holes.

# Hand Brushes Standard



IIII  
EAN

## Hand Brushes

	Rows >	1	2	3	4	5	6	
	Pack.	Art.-No.	Art.-No.	Art.-No.	Art.-No.	Art.-No.	Art.-No.	
1	STA straight 0.35   0.014"	12	<b>100.011</b>	<b>100.021</b>	<b>100.031</b>	<b>100.041</b>	<b>100.051</b>	<b>100.061</b>
	STA straight 0.35   0.014"	100		<b>100.020</b>	<b>100.030</b>	<b>100.040</b>	<b>100.050</b>	
	STM crimped 0.30   0.012"	12		<b>105.421</b>	<b>105.431</b>	<b>105.441</b>	<b>105.451</b>	<i>105.461</i>
	STA crimped 0.20   0.008"	12				<b>102.441</b>		
	STA crimped 0.30   0.012"	12	<b>102.611</b>	<b>102.621</b>	<b>102.631</b>	<b>102.641</b>	<i>102.651</i>	
2	ROF crimped 0.15   0.006"	12		<b>104.321</b>	<b>104.331</b>	<b>104.341</b>		
	ROF crimped 0.20   0.008"	12		<b>104.421</b>		<b>104.441</b>	<b>104.451</b>	
	ROF crimped 0.35   0.014"	12	<b>104.611</b>	<b>104.621</b>	<b>104.631</b>	<b>104.641</b>	<b>104.651</b>	<b>104.661</b>
	ROF straight 0.35   0.014"	12	<b>103.711</b>	<b>103.721</b>	<b>103.731</b>	<b>103.741</b>	<b>103.751</b>	<b>103.761</b>
	RO8 straight 0.30   0.012"	12			<b>105.731</b>	<b>105.741</b>		
3	MES crimped 0.15   0.006"	12		<b>107.321</b>	<b>107.331</b>	<b>107.341</b>	<b>107.351</b>	
	MES crimped 0.25   0.010"	12	<i>107.411</i>	<b>107.421</b>	<b>107.431</b>	<b>107.441</b>	<b>107.451</b>	<i>107.461</i>
	MES crimped 0.35   0.014"	12	<i>107.611</i>	<b>107.621</b>	<b>107.631</b>	<b>107.641</b>	<b>107.651</b>	<b>107.661</b>
	MES straight 0.35   0.014"	12			<b>106.631</b>	<b>106.641</b>		
4	BRO crimped 0.20   0.008"	12			<i>108.331</i>	<b>108.341</b>	<i>108.351</i>	
	BRO crimped 0.40   0.016"	12				<i>108.041</i>		
	PA straight 0.40   0.016"	12			<b>109.431</b>	<b>109.441</b>	<b>109.451</b>	
4	FIB	12				<b>109.741</b>		

Other filling materials and trim length on request.

Item Nos. in bold are available ex stock.  
Consider our minimum order value for *italic printed* article numbers (see page 184).

STA = steel wire

STM = brass coated steel

ROF = stainless steel wire

RO8 = stainless steel wire, extremely heat resistant

MES = brass wire

BRO = bronze wire

PA = polyamide

FIB = fibre



Promoting sustainable forest management  
www.pefc.de

# Special Hand Brushes



## Special Hand Brushes

Filling	Rows	KL	KB	BL	H	Pack.	Art.-No.
ROKI® Brake Caliper Brushes with Two-Components		mm   inch	mm   inch	mm   inch	mm   inch		
<b>1</b> STA straight 0.35   0.014"	2 x 12/13	225   9	12   1/2	90   3 1/2	22   7/8	10	<b>182.401</b>
STA crimped 0.30   0.012"	2 x 12/13	225   9	12   1/2	90   3 1/2	22   7/8	10	<b>182.411</b>
<b>2</b> STA straight 0.35   0.014"	2 x 12/13	225   9	12   1/2	90   3 1/2	14/22   1/2/7/8	10	<b>182.431*</b>
<b>3</b> ROF straight 0.35   0.014"	2 x 12/13	225   9	12   1/2	90   3 1/2	22   7/8	10	<b>182.421</b>
RO4 straight 0.35   0.014"	2 x 12/13	225   9	12/18   1/2/3/4	85   3 3/8	22   7/8	10	<b>182.441</b>
<b>4</b> MES crimped 0.25   0.010"	2 x 12/13	225   9	12   1/2	90   3 1/2	22   7/8	10	<b>182.451</b>

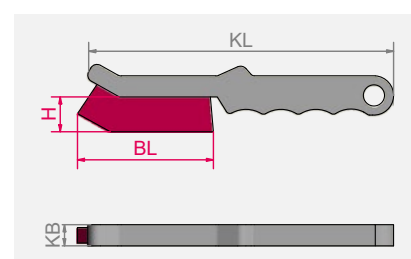
## Hand Brushes with Plastic Handles

<b>5</b>	STA straight 0.35   0.014"	2	285   11 1/4	20   3/4	130   5 1/8	25   1	10	<b>185.121</b>
	STA straight 0.35   0.014"	3	285   11 1/4	26   1	130   5 1/8	25   1	10	<b>185.131</b>
	STA straight 0.35   0.014"	4	285   11 1/4	31   1 1/4	130   5 1/8	25   1	10	<b>185.141</b>
	STA straight 0.35   0.014"	5	285   11 1/4	31   1 1/4	130   5 1/8	25   1	10	<b>185.151</b>
	ROF crimped 0.35   0.014"	2	285   11 1/4	20   3/4	130   5 1/8	25   1	10	<b>185.421</b>
	ROF crimped 0.35   0.014"	3	285   11 1/4	26   1	130   5 1/8	25   1	10	<b>185.431</b>
	ROF crimped 0.35   0.014"	4	285   11 1/4	31   1 1/4	130   5 1/8	25   1	10	<b>185.441</b>
	ROF crimped 0.35   0.014"	5	285   11 1/4	31   1 1/4	130   5 1/8	25   1	10	<b>185.451</b>
	MES straight 0.35   0.014"	2	285   11 1/4	20   3/4	130   5 1/8	25   1	10	<b>185.621</b>
	MES straight 0.35   0.014"	3	285   11 1/4	26   1	130   5 1/8	25   1	10	<b>185.631</b>
	MES straight 0.35   0.014"	4	285   11 1/4	31   1 1/4	130   5 1/8	25   1	10	<b>185.641</b>
	MES straight 0.35   0.014"	5	285   11 1/4	31   1 1/4	130   5 1/8	25   1	10	<b>185.651</b>

## Hand Brushes with Two-Components Handles

<b>6</b>	ROF straight 0.35   0.014"	3	285   11 1/4	26   1	130   5 1/8	25   1	10	<b>186.431</b>
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\* The brush has to the top a sloping filling and is therefore extra hard  
For the food industry

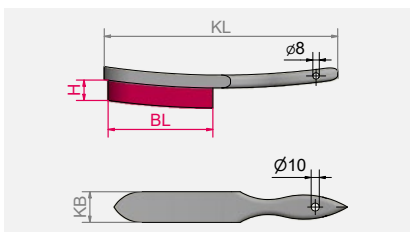


# Special Hand Brushes



## Special Hand Brushes

		Filling	Rows	KL	KB	Bl	H	Pack.	Art.-No.
				mm   inch	mm   inch	mm   inch	mm   inch		
IIIIII EAN	<b>1 Rivet Brushes</b>								
	<b>STA</b> straight 0.35   0.014"		3 x 15	290   11 3/8	35   1 1/2	135   5 3/8	35   1 1/2	12	<b>120.801</b>
	<b>ROF</b> straight 0.35   0.014"		3 x 15	290   11 3/8	35   1 1/2	135   5 3/8	35   1 1/2	12	<b>120.811</b>
	<b>RO8</b> straight 0.30   0.012"		3 x 15	290   11 3/8	35   1 1/2	135   5 3/8	35   1 1/2	12	<b>120.831</b>
	<b>ROF</b> straight 0.35   0.014" with Plastic Handles		3 x 15	290   11 3/8	31   1 1/4	135   5 3/8	35   1 1/2	10	<b>185.811</b>
IIIIII EAN	<b>2 Hand Brushes with Scraper</b>								
	<b>STA</b> straight 0.35   0.014"		4 x 15	290   11 3/8	33   1 1/4	130   5 1/8	25   1	12	<b>120.401</b>
	<b>STA</b> straight 0.35   0.014"		6 x 15	290   11 3/8	38   1 1/2	130   5 1/8	25   1	12	120.601
	<b>ROF</b> straight 0.35   0.014" w. stainless scraper		4 x 15	290   11 3/8	33   1 1/4	130   5 1/8	25   1	12	120.412
	<b>3 Hand Brushes Heavy Duty</b>								
	<b>STA</b> straight 0.35   0.014"		2 x 16	290   11 3/8	30   1 1/4	150   6	32   1 1/4	12	<b>136.101</b>
	<b>STA</b> straight 0.35   0.014"		3 x 16	290   11 3/8	35   1 1/2	150   6	32   1 1/4	12	<b>136.102</b>
	<b>STA</b> straight 0.35   0.014"		4 x 16	290   11 3/8	40   1 3/8	150   6	32   1 1/4	12	<b>136.103</b>
	<b>Hand Brushes Export Model</b>								
	<b>4 STA</b> straight 0.35   0.014"		4 x 17	300   12	30   1 1/4	130   5 1/8	25   1	12	<b>122.401</b>
	<b>5 STA</b> straight 0.35   0.014"		4 x 19	350   14	30   1 1/4	160   6 3/8	30   1 1/4	6	122.801
	<b>6 BRO</b> straight 0.30   0.012"		3 x 19	350   14	25   1	153   6 1/32	30   1 1/4	6	<b>122.771</b>
	<b>6 BRO</b> straight 0.30   0.012"		4 x 19	350   14	30   1 1/4	150   6	30   1 1/4	6	<b>122.821</b>
	<b>6 BRO</b> straight 0.30   0.012"		5 x 19	350   14	30   1 1/4	153   6 1/32	30   1 1/4	6	122.871
	<b>7 Universal Wire Brushes</b>								
	<b>STM</b> crimped 0.30   0.012"		1	260   10 1/4	10   3/8	135   5 3/8	28   1	24	<b>056.001</b>
	<b>STA</b> crimped 0.35   0.014"		1	260   10 1/4	10   3/8	135   5 3/8	28   1	24	<b>056.301</b>
	<b>ROF</b> crimped 0.30   0.012"		1	260   10 1/4	10   3/8	135   5 3/8	28   1	24	<b>056.501</b>
	<b>MES</b> crimped 0.30   0.012"		1	260   10 1/4	10   3/8	135   5 3/8	28   1	24	<b>056.701</b>



Item Nos. in bold are available ex stock.  
Consider our minimum order value for *italic printed* article numbers (see page 184).

- STA = steel wire
- STM = brass coated steel
- ROF = stainless steel wire
- RO4 = stainless steel wire, premium-quality
- RO8 = stainless steel wire, extremely heat resistant
- MES = brass wire
- BRO = bronze wire

# Spark Plug Brushes



## Spark Plug Brushes

	Filling	Rows	KL mm   inch	KB mm   inch	BL mm   inch	H mm   inch	Pack.	Art.-No.
<b>1</b>	MES crimped 0.15   0.006"	2 x 5	100   4	15   5/8	25   1	15   5/8	12	<b>125.111</b>
<b>2</b>	MES crimped 0.15   0.006"	3 x 5/6	150   6	15   5/8	40   1 3/8	15   5/8	12	<b>125.211</b>
<b>STA</b>	crimped 0.15   0.006"	3 x 5/6	150   6	15   5/8	40   1 3/8	15   5/8	12	<b>125.201</b>
<b>ROF</b>	crimped 0.15   0.006"	3 x 5/6	150   6	15   5/8	40   1 3/8	15   5/8	12	<b>125.231</b>
<b>MES</b>	crimped 0.15   0.006" / PP	3 x 5/6	150   6	15   5/8	40   1 3/8	15   5/8	12	125.221
<b>MES</b>	crimped 0.15   0.006"	3 x 5/6	150   6	15   5/8	40   1 3/8	15   5/8	12	<b>125.311*</b>
<b>ROF</b>	crimped 0.20   0.008"	3 x 5/6	150   6	15   5/8	40   1 3/8	15   5/8	12	<b>125.241</b>
<b>PA</b>	straight 0.30   0.012"	3 x 5/6	150   6	15   5/8	40   1 3/8	15   5/8	12	<b>125.251</b>
<b>3</b>	<b>BRO</b> crimped 0.15   0.006"	3 x 5/6	200   8	15   5/8	40   1 3/8	15   5/8	12	<b>132.801</b>
	MES crimped 0.15   0.006"	5 x 8/10	190   1 1/2	25   1	55   2 1/4	18   3/4	12	<b>125.511</b>
<b>4</b>	MES crimped 0.15   0.006" / PP	5 x 8/10	190   1 1/2	25   1	55   2 1/4	12   1/2	12	<b>125.521</b>
<b>5</b>	MES crimped 0.15   0.006"	4 x 6	155   6	22   7/8	40   1 3/8	18   3/4	12	<b>182.331**</b>

### Soldering tip brush, extra dense filament, wooden handle orange

<b>6</b>	ROF crimped 0.10   0.004"	3 x 7/8	150   6	15   5/8	39   1 3/8	9	12	<b>125.234</b>
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\* Wooden body varnished | \*\* Plastic body

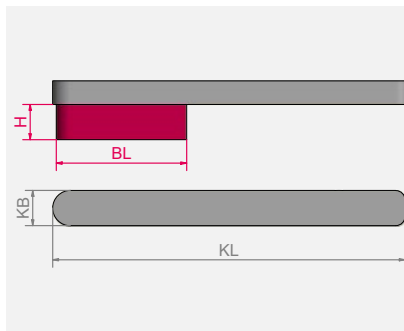
### Spark Plug Brushes

These small brushes are for all fine brushwork requiring thin wire.

They are available in different sizes and filling materials.

### Soldering tip brushes

Soldering tip brushes have an extra dense and fine trimming. They are ideal for processing soldering tips and cleaning circuit boards after the soldering process as well as for many other fine jobs.



Item Nos. in bold are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

STA = steel wire

ROF = stainless steel wire

MES = brass wire

BRO = bronze wire

PA = polyamide

PP = polypropylene

ROS = horse hair



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# Fine Scratch Brushes



1 2 3 4 5 6 7 8 9

## Fine Scratch Brushes

	Filling	Rows	KL mm   inch	KB mm   inch	BL mm   inch	H mm   inch	Pack.	Art.-No.
1	MES crimped 0.15   0.006"	3	225   9	16   5/8	110   4 3/8	20   3/4	12	126.311
	MES crimped 0.15   0.006"	4	225   9	20   3/4	110   4 3/8	20   3/4	12	126.411
	MES crimped 0.15   0.006"	5	225   9	24   1	110   4 3/8	20   3/4	12	126.511
	MES crimped 0.15   0.006"	6	225   9	28   1	110   4 3/8	20   3/4	12	126.611
	MES crimped 0.15   0.006"	8	225   9	36   1 1/2	110   4 3/8	20   3/4	12	126.811
	MES crimped 0.08   0.003"	4	220   8 5/8	18   11/16	100   4	20   3/4	12	126.441
	MES crimped 0.10   0.004"	4	225   9	20   3/4	110   4 3/8	20   3/4	12	126.431
ROF crimped 0.15   0.006"	4	225   9	20   3/4	110   4 3/8	20   3/4	12	126.481	
2	STA crimped 0.15   0.006"	4	225   9	20   3/4	110   4 3/8	20   3/4	12	126.401
	RO4 crimped 0.15   0.006"	4	225   9	20   3/4	100   4	20   3/4	12	126.491
3	PA straight 0.30   0.012"	4	225   9	20   3/4	110   4 3/8	20   3/4	12	126.451
4	ROS	4	225   9	20   3/4	110   4 3/8	20   3/4	12	126.472
5	ROF crimped 0.15   0.006" 	4	225   9	20   3/4	100   4	20   3/4	12	182.152**
	MES crimped 0.15   0.006"	4	225   9	20   3/4	100   4	20   3/4	12	182.162**
	PP straight 0.30   0.012" 	4	225   9	20   3/4	100   4 3/8	20   3/4	12	182.172**
	ROS	4	225   9	20   3/4	100   4	20   3/4	12	182.472**

## Special Brushes

6	MES crimped 0.35   0.014"	4 x 11/12	350   14	22   7/8	77   3	10   3/8	12	182.807**
	MES crimped 0.35   0.014"	4 x 11/12	400   15 3/4	20   3/4	77   3	10   3/8	12	183.704**
	MES crimped 0.35   0.014"	4 x 11/12	450   17 3/4	22   7/8	77   3	10   3/8	12	182.811**
	MES crimped 0.30   0.012"	5 x 9/8	700   27 1/2	25   1	54   2 1/4	6   1/4	12	183.706**
7	MES crimped 0.35   0.014"	4 x 11/12	350   14	22   7/8	80   3	10   3/8	12	137.701
8	MES crimped 0.30   0.012"	5 x 9	700   27 1/2	25   1	54   2 1/4	6   1/4	12	138.704
	MES crimped 0.30   0.012"	4 x 11/12	450   17 3/4	22   7/8	80   3	8   5/16	12	138.705
9	MES crimped 0.25   0.010"	2 x 10	200   8	15   5/8	80   3	19   3/4	12	132.701

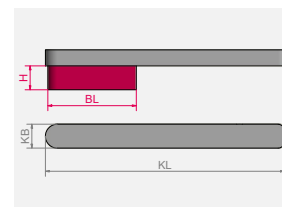
\*\* Plastic body |  For the food industry

### Fine Scratch Brushes

Also called watchmaker and goldsmith brushes. The brushes have a very high density of filling wires and are available in different widths. These brushes are used among other things to apply solvents and other cleansing agents.

### Special Brushes

The brushes were manufactured according to our customers' specification and show variations, which are possible through our flexible manufacturing procedures.



# Barbecue grill brushes



## Barbecue grill brushes

For regular cleaning of grill grates, Barbecue grill brushes are ideal to remove even stubborn and burned dirt. With the right brush, your grate shines like new again.

## Barbecue grill brushes Standard, with scraper

The all-rounder for every barbecue, the standard Barbecue grill brushes with a stainless steel scraper.

## Barbecue grill brushes curved Duty, dense filament

The curved handle makes handling these Barbecue grill brushes even easier. Dense filling with soft bristles and a scraper made of stainless steel, burned dirt has no chance.



All Barbecue grill brushes have a bar code stamp and LESSMANN-imprint.

## Barbecue grill brushes straight Duty, with scraper

Due to the hard and dense filling, heavy design particularly well suited for cleaning stubborn dirt. With the scraper made of stainless steel an effortless removal of burned dirt is possible.

## Barbecue grill brushes „curved Duty“

The allrounder modified with bent trimming and high-quality Two-Components handles for different grill gates, this brush is a highlight for every grill owner.



All Barbecue grill brushes with practical hanging hole and in a CutCase packaging.



Scraper flat



Scraper round



1

2

3

4

5

6



## Barbecue grill brushes, crimped wire

### Standard, with scraper

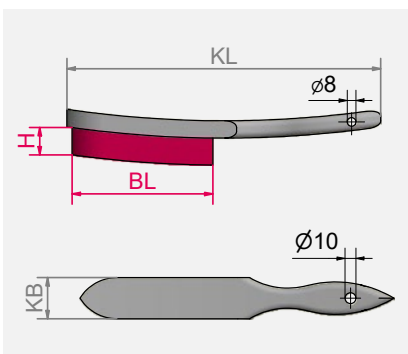
	KL mm   <i>inch</i>	KB mm   <i>inch</i>	H mm   <i>inch</i>	Rows	BL mm   <i>inch</i>	Scraper	Pack.	ROF 0.35 Art.-Nr.
<b>1</b>	290   11 <sup>3</sup> / <sub>8</sub>	33   1 <sup>1</sup> / <sub>4</sub>	25   1	4	130   5 <sup>1</sup> / <sub>8</sub>	flat	6	<b>120.413</b>
<b>2</b>	290   11 <sup>3</sup> / <sub>8</sub>	33   1 <sup>1</sup> / <sub>4</sub>	25   1	4	130   5 <sup>1</sup> / <sub>8</sub>	round	8	<b>120.423</b>

### curved Duty, dense filament, with scraper

	KL mm   <i>inch</i>	KB mm   <i>inch</i>	H mm   <i>inch</i>	Rows	BL mm   <i>inch</i>	Scraper	Pack.	ROF 0.20 Art.-Nr.
<b>3</b>	250   10	25   1	23   7/8	3	90   3 <sup>1</sup> / <sub>2</sub>	round	12	<b>120.433</b>
<b>4</b>	250   10	38   1 <sup>1</sup> / <sub>2</sub>	23   7/8	4	90   3 <sup>1</sup> / <sub>2</sub>	round	8	<b>120.443</b>

### straight Duty, with scraper

	KL mm   <i>inch</i>	KB mm   <i>inch</i>	H mm   <i>inch</i>	Rows	BL mm   <i>inch</i>	Scraper	Pack.	ROF 0.30 Art.-Nr.
<b>5</b>	290   11 <sup>3</sup> / <sub>8</sub>	33   1 <sup>1</sup> / <sub>4</sub>	20   3/4	5	90   3 <sup>1</sup> / <sub>2</sub>	round	12	<b>135.455</b>
<b>6</b>	500   20	50   2	20   3/4	9	90   3 <sup>1</sup> / <sub>2</sub>	round	9	<b>138.469</b>



Item Nos. in bold are available ex stock.  
Consider our minimum order value for *italic printed*  
article numbers (see page 184).

ROF = stainless steel wire



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# Special Models



## Hand Brushes Rectangular and Violin

There are many filling wires in these stable universal brushes.

## Hand Brushes with Bracket

The wooden body is pointed to the front end, the plastic bracket is nailed on. The model 140.901 has an adjustable stock board which enables an adjustment to brush firmness.

These special models are mainly ordered by our export customers.

## Brushes for removing wet storage stain

Zinc coated surfaces are needed for corrosion protection. Often after the zinc coating of work parts, under wet conditions chemical reactions occur which cause wet storage stain. The special bronze wire allows the effective removal of white rust without smashing the zinc coating which has to be treated.

## Radiator Brushes

This narrow, long shaped brush is ideal for hard to reach areas on heaters and radiators. The model 121.211 has a straight body, the other models have a curved body.

## Staining Brushes

The treated wood is prepared with these staining brushes. By using fibre and bronze wire the brushes are insensitive against all normal chemical based solutions. The model 144.211 has an adjustable stock board which enables an adjustment to brush firmness. With the staining brush 144.701 the surface after the staining process is polished by the leather insert strips. Any standing wood fibre is also smoothed.

## File Cleaners

The brushes for cleaning wood and metal files are available in different sizes and with different file card. The file card is glued on to the wooden body.

## File Card in Rolls

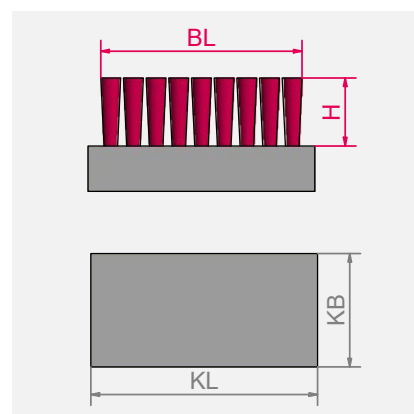
Various roughing-up tools can be manufactured with this material, which is also available in different sizes and filling materials. Available in meters or if required in single pieces.

## Bricklayer's Brushes

For pre and retreatment of brickwork for painters and bricklayers. All models have a jute or plastic strap.

## Plasterer's Brushes

These are for roughening and structuring of plaster. Body is made of beech wood, the steel pins are hardened.



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

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**STA** = steel wire

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**STM** = brass coated steel

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**BRO** = bronze wire

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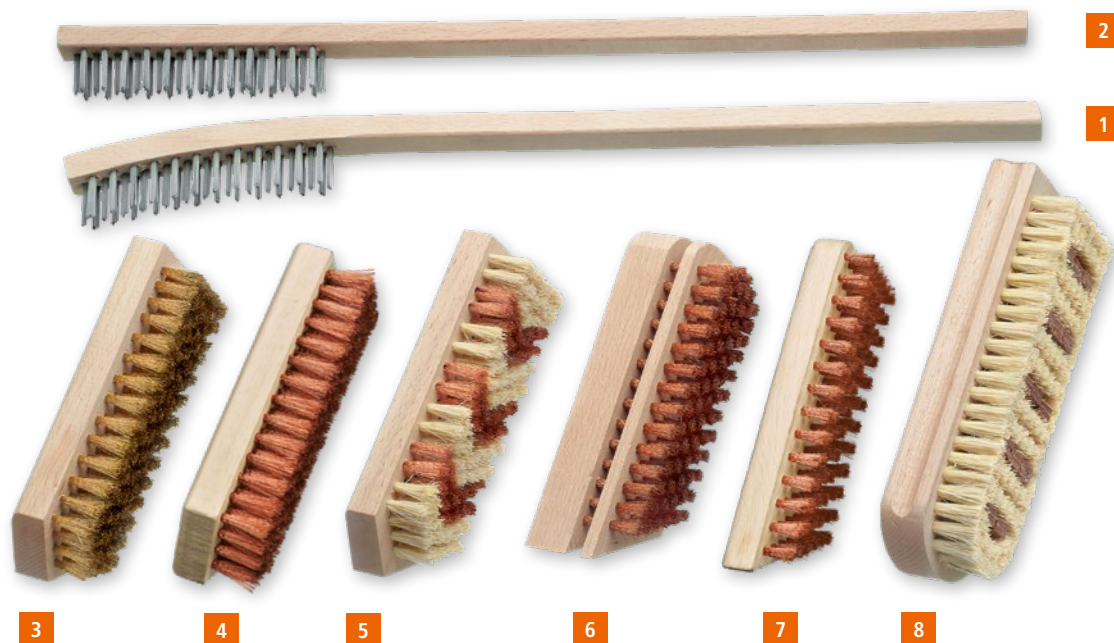
Special Hand Brushes								
	Filling	Rows	KL mm   inch	KB mm   inch	BL mm   inch	H mm   inch	Pack.	Art.-No.
<b>Hand Brushes Rectangular and Violin</b>								
1	STA straight 0.35   0.014"	6 x 19	185   7 1/4	57   2 1/4	175   7	30   1 1/4	12	140.201
2	STA straight 0.35   0.014"	5	200   8	60   2 3/8	190   7 1/2	35   1 1/2	16	141.231
3	STM straight 0.35   0.014"	5	200   8	55   2 1/4	170   6 5/8	40   1 3/8	36	140.641
<b>Hand Brushes with Bracket</b>								
4	STA straight ca. 0.35   0.014"	5	225   9	55   2 1/4	200   8	38   1 1/2	16	140.901*
5	STM crimped 0.35   0.014"	5	225   9	55   2 1/4	200   8	38   1 1/2	16	140.811
<b>Hand Brushes with Strap</b>								
6	STA straight 0.50   0.020"	7	200   8	70   2 3/4	185   7 1/4	35   1 1/2	12	141.421
<b>Hand Brushes for removing wet storage stain</b>								
7	BRO crimped 0.08   0.003"	11 x 18	120   4 3/4	70   2 3/4	110   4 3/8	14   4/7	4	152.811

\* with adjustable board



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# Special Models



## Radiator Brushes

	Filling	Rows	KL mm   inch	KB mm   inch	BL mm   inch	H mm   inch	Pack.	Art.-No.
<b>1</b>	STA straight 0.25   0.010"	3 x 13	420   16 1/2	20   3/4	115   4 1/2	20   3/4	12	121.111*
<b>2</b>	STA straight 0.25   0.010"	3 x 13	420   16 1/2	20   3/4	115   4 1/2	20   3/4	12	<b>121.211**</b>

\* Wooden body curved | \*\* Wooden body straight

## Staining Brushes

	Filling	Rows	KL mm   inch	KB mm   inch	BL mm   inch	H mm   inch	Pack.	Art.-No.
<b>3</b>	MES crimped 0.15   0.006"	7	150   6	50   2	140   5 1/2	20   3/4	12	<b>144.001</b>
<b>4</b>	BRO crimped 0.15   0.006"	7	150   6	50   2	140   5 1/2	20   3/4	12	<b>144.011</b>
<b>5</b>	BRO 0.15   0.006" / FIB	7	150   6	50   2	140   5 1/2	20   3/4	12	<b>144.021</b>
<b>6</b>	BRO crimped 0.15   0.006"	7	180   7	60   2 3/8	170   6 5/8	20   3/4	12	<b>144.111</b>
<b>6</b>	BRO crimped 0.15   0.006"	6	150   6	50   2	130   5 1/8	20   3/4	12	<b>144.211***</b>
<b>7</b>	BRO crimped 0.15   0.006"	6	180   7	60   2 3/8	160   6 3/8	15   5/8	12	<b>144.411</b>

\*\*\* with adjustable board

## Wax Polishing Brush

	Filling	Rows	KL mm   inch	KB mm   inch	BL mm   inch	H mm   inch	Pack.	Art.-No.
<b>8</b>	Leather + FIB	3/7	175   6 7/8	60   2 3/8	160   6 3/8	20   3/4	12	<b>144.701</b>

Item Nos. in **bold** are available ex stock.  
Consider our minimum order value for *italic printed* article numbers (see page 184).

STA = steel wire

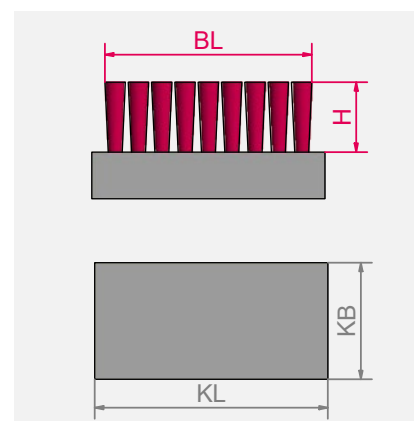
ROF = stainless steel wire

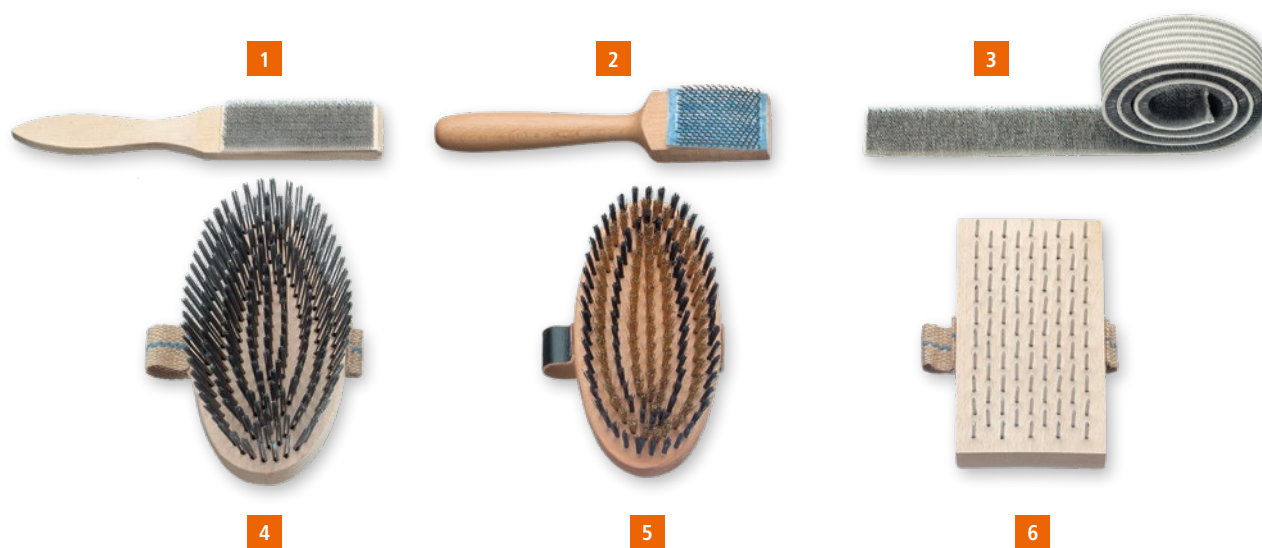
MES = brass wire

BRO = bronze wire

FIB = fibre

PVC = polyvinylchloride





**File Cleaners / Roughening Brushes**

	File Cards	KL mm   <i>inch</i>	KB mm   <i>inch</i>	BL mm   <i>inch</i>	Pack.	Art.-No.
1	STA 0.30   0.012"	210   8 1/4	25   1	100   4	12	037.101
	STA 0.30   0.012"	250   10	40   1 3/8	115   4 1/2	12	037.201
	STA 0.30   0.012"	250   10	40   1 3/8	115   4 1/2	100	037.200
	ROF 0.30   0.012"	250   10	40   1 3/8	115   4 1/2	12	037.221
2	ROF 0.60	170   6 3/4	30   1 1/4	24   1	20	037.710

**3 File Cards**

Filling, without interval	STA 0.30 width 25 Art.-No.	STA 0.30 width 38 Art.-No.	STA 0.30 width 51 Art.-No.	ROF 0.30 width 38 Art.-No.
	000.311*	000.321*	000.331*	000.323*

**Bricklayer's Brushes with Strap**

Filling	Rows	KL mm   <i>inch</i>	KB mm   <i>inch</i>	BL mm   <i>inch</i>	H mm   <i>inch</i>	Pack.	Art.-No.
4 STA straight 0.25   0.010"	9	210   8 1/4	100   4	200   8	35   1 1/2	12	142.101
5 MES crimped 0.20   0.008" / PVC	9	210   8 1/4	95   3 3/4	200   8	20   3/4	12	142.211**

\* Please indicate length. | \*\* Wooden body varnished

**Plasterer's Brushes**

Filling	KL mm   <i>inch</i>	KB mm   <i>inch</i>	BL mm   <i>inch</i>	H mm   <i>inch</i>	Pack.	Art.-No.
6 86 steel Pins hardend	190   7 1/2	97   3 3/4	165   6 1/2	16   5/8	12	061.101

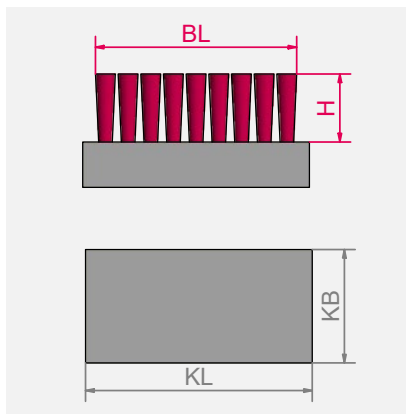
# Brooms, Scrubs and Dusters



## Brooms and Scrubs

Brooms and Scrubs for the use in all industrial companies and craftsman's establishments.

The shown brooms and scrubs are the best selling models.



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

**STA** = steel wire

**ROF** = stainless steel wire

**MES** = brass wire

**PP** = polypropylene

**ROS** = horse hair

**BRO** = bronze wire

## Dusters

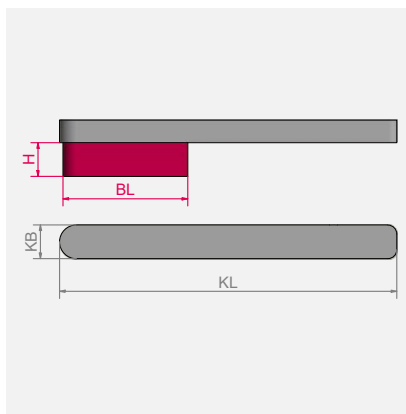
Depending on the surrounding and application area, dusters are available in various models and with various filling materials. For coarse and light adherent dirt, dusters with wire filament are ideal.

The duster with polypropylene filament (straight plastic fibre) can be cleaned easily and therefore other surfaces do not get dirty. Since the water absorption of polypropylene is very low, the duster can be used also under wet conditions.

Further models in special execution with different filling materials and trim length available.

## Dusters custom-made

Beside the mentioned models we provide special models with filling material and trim length according to your requirements.







## 1 Brooms Flat Wooden Stock, with Handle Hole Ø 23 mm

Filling	Rows	KL mm   inch	KB mm   inch	BL mm   inch	H mm   inch	Pack.	Art.-No.
<b>STA</b> straight 0.50   0.020"	6 x 20/21	300   12	70   2 <sup>3/4</sup>	330   13	70   2 <sup>3/4</sup>	12	<b>147.201</b>
<b>ROF</b> straight 0.50   0.020"	6 x 20	300   12	70   2 <sup>3/4</sup>	330   13	70   2 <sup>3/4</sup>	12	147.261

## Brooms Raised Wooden Stock, with Handle Hole Ø 23 mm

Filling	Rows	KL mm   inch	KB mm   inch	BL mm   inch	H mm   inch	Pack.	Art.-No.
<b>2 STA</b> straight 0.50   0.020"	6 x 20/21	300   12	70   2 <sup>3/4</sup>	330   13	70   2 <sup>3/4</sup>	12	<b>146.201</b>
<b>3 BRO</b> straight 0.40   0.016"	6 x 20/21	300   12	70   2 <sup>3/4</sup>	320   12 <sup>51/64</sup>	55   2 <sup>1/8</sup>	12	146.270

## Scrubbers, with Handle Hole Ø 23 mm

Filling	Rows	KL mm   inch	KB mm   inch	BL mm   inch	H mm   inch	Pack.	Art.-No.
<b>4 STA</b> straight 0.35   0.014"	6 x 16/17	220   8 <sup>5/8</sup>	60   2 <sup>3/8</sup>	225   9	35   1 <sup>1/2</sup>	12	<b>148.101</b>
<b>ROF</b> straight 0.35   0.014"	6 x 16/17	220   8 <sup>5/8</sup>	60   2 <sup>3/8</sup>	225   9	35   1 <sup>1/2</sup>	12	<b>148.161</b>
<b>MES</b> crimped 0.25   0.010"	6 x 16/17	220   8 <sup>5/8</sup>	60   2 <sup>3/8</sup>	225   9	25   1	12	<b>148.141</b>
<b>5 BRO</b> straight 0.40   0.016"	6 x 16/17	220   8 <sup>5/8</sup>	60   2 <sup>3/8</sup>	225   9	40   1	12	148.170

## Dusters

Filling	Rows	KL mm   inch	KB mm   inch	BL mm   inch	H mm   inch	Pack.	Art.-No.
<b>6 Artificial COCO</b> Long Duty	4	430   17	40   1 <sup>3/8</sup>	165   6 <sup>1/2</sup>	70   2 <sup>3/4</sup>	20	<b>124.402</b>
<b>7 MES</b> crimped 0.25   0.010"	4	320   12 <sup>1/2</sup>	35   1 <sup>1/2</sup>	180   7	40   1 <sup>3/8</sup>	12	<b>124.121</b>
<b>8 BRO</b> crimped 0.30   0.012"	4	320   12 <sup>1/2</sup>	35   1 <sup>1/2</sup>	170   6 <sup>3/4</sup>	40   1 <sup>3/8</sup>	12	124.181
<b>9 STA</b> straight 0.25   0.010"	4	320   12 <sup>1/2</sup>	35   1 <sup>1/2</sup>	180   7	60   2 <sup>3/8</sup>	12	<b>124.101</b>
<b>10 ROS</b>	6	300   12	43   1 <sup>3/4</sup>	165   6 <sup>1/2</sup>	50   2	20	<b>124.301*</b>
<b>11 PP</b>	4	320   12 <sup>1/2</sup>	35   1 <sup>1/2</sup>	175   6 <sup>7/8</sup>	70   2 <sup>3/4</sup>	12	<b>124.801</b>
<b>12 PP</b> Long Duty	4	450   17 <sup>3/4</sup>	33   1 <sup>1/4</sup>	165   6 <sup>1/2</sup>	70   2 <sup>3/4</sup>	12	<b>124.841</b>

\* Wooden body varnished

# Weed Brushes and Weed Brooms

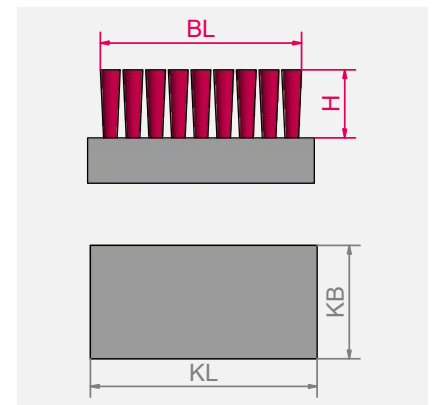


## Lawn Mower Brush

Use this brush to effortlessly clean the underbody and blades of your lawn mower after use. The practical plastic scraper on the top removes stuck grass clippings without blunting the blades. You can then sweep the remaining grass out of the housing effortlessly with the PVC filling.

## Weed Brush

This brush with V shaped filling material is ideal for the removal of moss and weeds in joints and edges on pavements, courtyards or cobbled areas.



Due to the long handle an ergonomic and effective working is possible. Without stooping, your back is preserved, though it is possible to remove weeds aggressively and precisely.

The brush with set filling material allows a cleaning of edges and joints which are hard to reach.

All standard hand brushes have a bar code stamp and LESSMANN-imprint.

## Weed Broom

As well as the weed brush, the weed broom is a brush for outdoors.

Ideally moss and weeds can be removed from terrace boards or cobblestones. An easy and clean working without stooping makes the brush to an effective broom with depth effects. High quality, with brass coated steel wires guarantee a long lifetime of the brush in the well known LESSMANN quality „Made in Germany“.

**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

**STA** = steel wire

**STM** = brass coated steel

**PVC** = polyvinylchloride



## 1 Lawn mower brush

Filling	Rows	KL mm   inch	KB mm   inch	BL mm   inch	H mm   inch	Pack.	Art.-No.
PVC straight 0.70 mm   0.027"	4+1 x 10	290   11 3/8	38   1 1/2	150   13	50   6	8	120.451

IIIIII  
EAN

## Weed Brushes, with Handle Hole Ø 23 mm

	Filling	KL mm   inch	KB mm   inch	H mm   inch	Rows	Pack.	Art.-No.
<b>without handle</b>							
2	STM 0.35   0.014" Filling set in working direction	100   4	35   1 1/2	36   1 1/2	3	25	151.511
3	STA 0.35   0.014" with scraper	100   4	35   1 1/2	42   1 5/8	3	25	151.109
<b>with handle, 1400 mm long, Ø 28 mm</b>							
4	STA 0.35   0.014" with scraper	100   4	35   1 1/2	36   1 1/2	3	24	151.992.07*
	STM 0.35   0.014" Filling set in working direction	100   4	35   1 1/2	36   1 1/2	3	30	151.995.07*

IIIIII  
EAN

## Weed Broom, with Handle Hole Ø 23 mm

	Filling	KL mm   inch	KB mm   inch	H mm   inch	Rows	Pack.	Art.-No.
<b>without handle</b>							
5	STM 0.50   0.020"	140   5 1/2	60   2 3/8	70/60   2 3/4 / 2 3/8	10/9	16	152.510
<b>with handle, 1400 mm long, Ø 28 mm</b>							
	STM 0.50   0.020"	140   5 1/2	60   2 3/8	70/60   2 3/4 / 2 3/8	10/9	12	152.995.07*

\* Delivery only in full packaging units.

# LESSMANN®

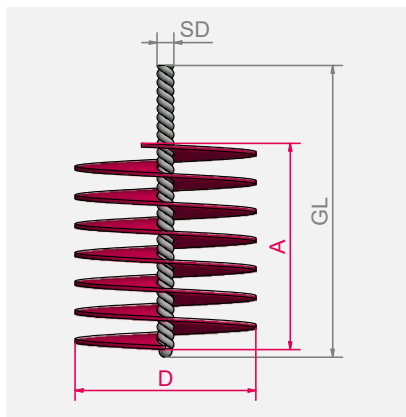
THE GERMAN BRUSH COMPANY



# INTERIOR BRUSHES



# Microabrasive Interior Brushes



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

**AO** = aluminium oxide bristles

**KK** = ceramic grit

## Interior brushes with zinc coated twisted wire and single spiral

Due to the filling of aluminium oxide or silicon carbide their usage is more flexible than with conventional interior brushes.

Interior brushes with abrasive filaments are usually used for deburring bores, cross bores, o-ring recesses and for polishing and cleaning small bores.

Due to the flexible surface of the bristles the interior brushes suit to the contour of the bore and areas which are hard to reach can be treated. Abrasive bristles also have grinding effects on the side. That allows a rounding of the edges also on cross bores.

Also brushes with **diamond** filling are available, that causes an even more aggressive surface of the brush.

## Interior Brushes, Steel Wire

Interior brushes with steel wire are used for descaling, deburring or cleaning:

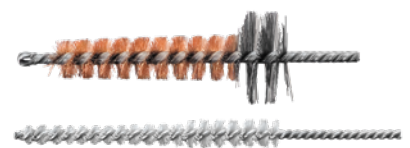
- Cross holes
- Slots
- Blind holes
- Through holes

The brushes can be used either manually or mechanically.

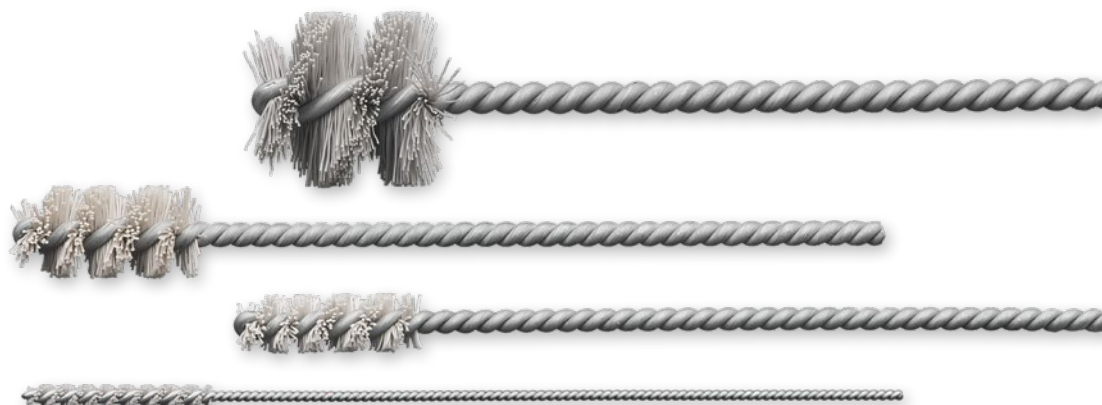
Please do not hesitate to contact us, we will also find for special applications a compatible solution. Due to a fully automated production, LESSMANN offers high quality to reasonable prices.

## Mechanical Application

Only use the brush with the indicated maximal peripheral speed (RPM max.). The max. RPM only is allowed when the brush is clamped min. for 10 mm into the tool. When the brush is inserted into the suitable work piece, higher RPMs are possible. **Only use the brush right rotating.**



Interior Brushes are also available with special contours, e.g. **layered cut.**



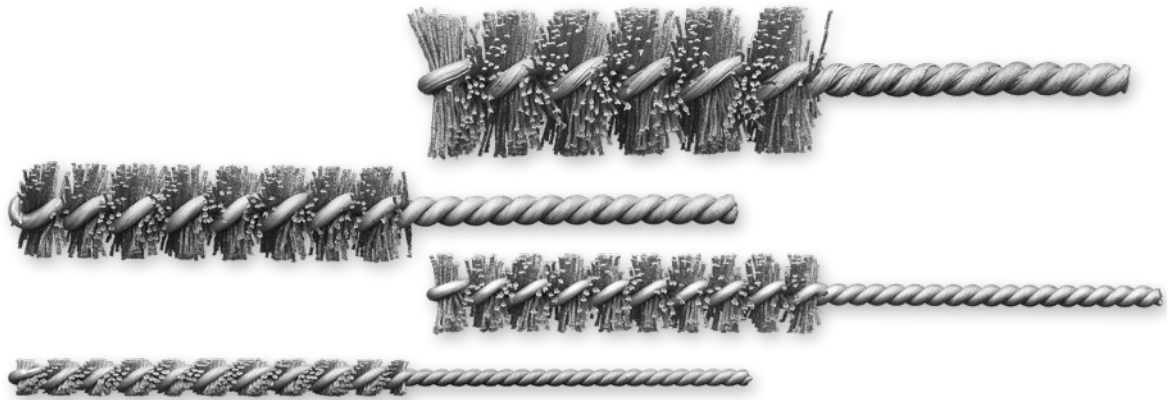
Microabrasive Interior Brushes IBE, Aluminum Oxide Bristles

D	GL	A	SD	RPM	Pack.	AO 600/0.30	AO 1000/0.25
mm   inch	mm   inch	mm   inch	mm   inch	max.		Art.-No.	Art.-No.
3.2   1/8	125   5	25   1	1.5   1/16	800	10	541.084	540.067
4.2   11/64	125   5	25   1	2.2   3/32	1,000	10	541.045	540.068
4.8   3/16	125   5	25   1	2.2   3/32	1,000	10	541.083	540.069
5.5   7/32	125   5	25   1	2.2   3/32	1,000	10	541.079	540.070
6.6   17/64	125   5	25   1	2.5   3/32	1,000	10	541.037	540.071
8.2   21/64	125   5	25   1	3.2   1/8	2,000	10	541.076	540.072
9.8   25/64	125   5	25   1	3.2   1/8	2,000	10	541.077	540.073
11.5   29/64	125   5	25   1	3.7   5/32	2,000	10	541.085	540.074
13   33/64	125   5	25   1	3.7   5/32	2,000	10	541.087	540.075
16   5/8	125   5	25   1	3.7   5/32	2,000	10	541.089	540.076
17.5   11/16	125   5	25   1	4.7   3/16	2,000	10	541.039	
20   51/64	125   5	25   1	4.7   3/16	2,000	10	541.093	540.077
25   1	125   5	25   1	4.7   3/16	2,000	10	541.095	540.078



You can find our **Enquiry Forms** in the respective category under:  
[www.lessmann.com/index.php/en/content/view/full/61](http://www.lessmann.com/index.php/en/content/view/full/61) or in the catalog from page 179

# Microabrasive Interior Brushes



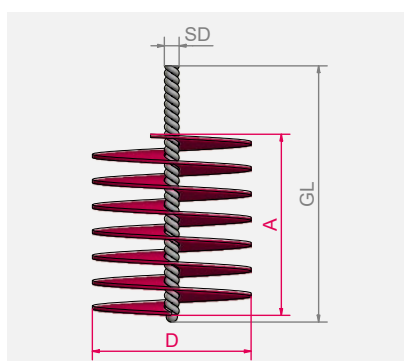
Microabrasive Interior Brushes IBE, Silicon Carbide Bristles

D	GL	A	SD	RPM	Pack.	SIC 120/0.6	SIC 320/0.6/**0.3	SIC 1000/0.25
mm   inch	mm   inch	mm   inch	mm   inch	max.		Art.-No.	Art.-No.	Art.-No.
1.2   3/64	100   4	12   15/32	0.7   1/32	500	10			<b>545.200.12*</b>
1.9   5/64	100   4	18   45/64	0.7   1/32	500	10			<b>545.200.19</b>
2.2   3/32	100   4	18   45/64	0.7   1/32	1,000	10			<b>545.200.22</b>
2.2   3/32	100   4	18   45/64	1.0   3/64	1,000	10		543.200.22**	
2.6   7/64	100   4	25   1	1.0   3/64	1,000	10		543.200.26**	<b>545.200.26</b>
3.2   1/8	100   4	25   1	1.7   1/16	1,000	10		543.200.32**	<b>545.200.32</b>
4.2   11/64	125   5	25   1	2.2   3/32	1,000	10	541.200.42	543.200.42**	<b>545.200.42</b>
5.5   7/32	125   5	25   1	2.2   3/32	1,000	10	541.200.55	543.200.55**	<b>545.200.55</b>
6   15/64	125   5	65   2 9/16	3.0   1/8	1,500	10	<b>541.200.60</b>	<b>543.200.60</b>	545.200.60
8   5/16	125   5	65   2 9/16	3.0   1/8	1,500	10	<b>541.200.80</b>	<b>543.200.80</b>	545.200.80
10   25/64	125   5	65   2 9/16	3.7   9/64	2,000	10	<b>541.201.00</b>	<b>543.201.00</b>	545.201.00
13   33/64	125   5	65   2 9/16	3.7   9/64	2,000	10	<b>541.201.30</b>	<b>543.201.30</b>	545.201.30
16   5/8	125   5	65   2 9/16	5.2   13/64	2,000	10	<b>541.201.60</b>	<b>543.201.60</b>	545.201.60
19   3/4	125   5	65   2 9/16	5.2   13/64	2,000	10	<b>541.201.90</b>	<b>543.201.90</b>	545.201.90
20   51/64	125   5	65   2 9/16	5.7   7/32	2,000	10	<b>541.202.00</b>	<b>543.202.00</b>	
22   7/8	125   5	65   2 9/16	5.7   7/32	2,000	10	<b>541.202.20</b>	<b>543.202.20</b>	545.202.20
25   1	125   5	65   2 9/16	5.7   7/32	2,000	10	<b>541.202.50</b>	<b>543.202.50</b>	545.202.50
28   1 7/64	125   5	65   2 9/16	5.7   7/32	2,000	10	<b>541.202.80</b>	<b>543.202.80</b>	545.202.80
30   1 3/16	125   5	65   2 9/16	5.7   7/32	2,000	10	<b>541.203.00</b>	<b>543.203.00</b>	545.203.00
32   1 17/64	125   5	65   2 9/16	5.7   7/32	2,000	10	<b>541.203.20</b>	543.203.20	545.203.20
38   1 1/2	125   5	65   2 9/16	5.7   7/32	2,000	10	<b>541.203.80</b>		

\* Type IB: with straight / clipped off point

## Mechanical Application

Only use the brush with the indicated maximal peripheral speed (RPM max.). The max. RPM only is allowed when the brush is clamped min. for 10 mm into the tool. When the brush is inserted into the suitable work piece, higher RPMs are possible. **Only use the brush right rotating.**



Item Nos. in bold are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

STH = steel wire, high tensile, straight

ROH = stainless steel wire, high tensile

MES = brass wire

PA = polyamide

SIC = silicon carbide bristles





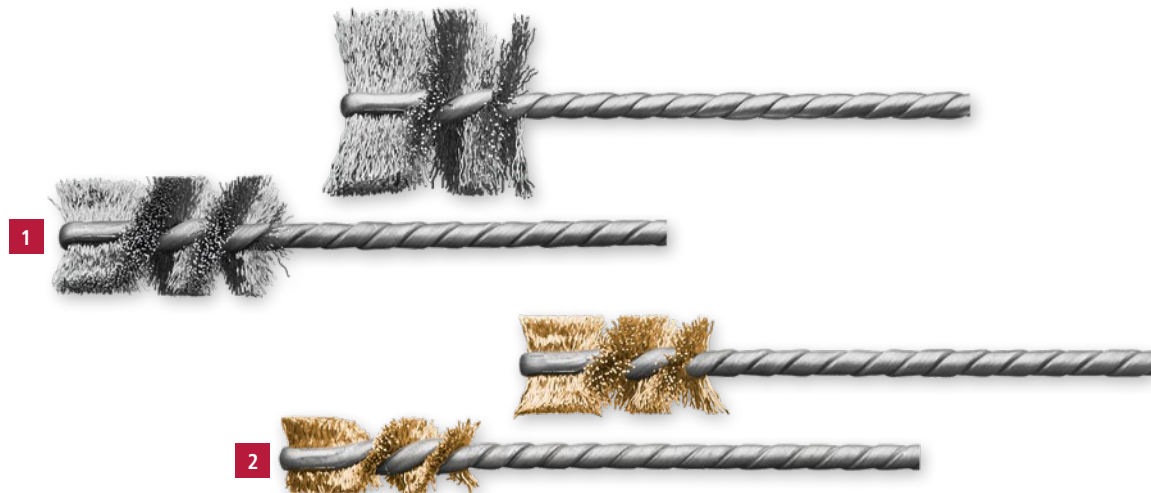
**1 Microabrasive Interior Brushes IBE, Ceramic Grit**

D	GL	A	SD	RPM	Pack.	KK 120/0,60	KK 320/0,60
mm   inch	mm   inch	mm   inch	mm   inch	max.		Art.-Nr.	Art.-Nr.
10   13/32	125   5	65   2 9/16	3.7   5/32	2,000	10	<b>541.2C1.00</b>	<b>543.2C1.00</b>
13   1/2	125   5	65   2 9/16	3.7   5/32	2,000	10	<b>541.2C1.30</b>	<b>543.2C1.30</b>
16   5/8	125   5	65   2 9/16	5.2   13/64	2,000	10	<b>541.2C1.60</b>	<b>543.2C1.60</b>
20   25/32	125   5	65   2 9/16	5.7   7/32	2,000	10	<b>541.2C2.00</b>	<b>543.2C2.00</b>
25   1	125   5	65   2 9/16	5.7   7/32	2,000	10	<b>541.2C2.50</b>	<b>543.2C2.50</b>

**2 Interior Brushes IBE, Encapsulated**

D	GL	A	SD	RPM max.	Pack.	STA 0,15   0.006"
mm   inch	mm   inch	mm   inch	mm	min <sup>-1</sup>		Art.-Nr.
7   1/4	125   5	65   2 1/2	2,8	1.000	10	<b>548.304.KG</b>
9   3/8	125   5	65   2 1/2	2,8	900	10	<b>548.305.KG</b>
13   33/64	125   5	65   2 1/2	2,8	900	10	available on demand
15   19/32	125   5	65   2 1/2	2,8	900	10	available on demand

# Interior Brushes



## 1 Interior Brushes IBH, Steel Wire, Stainless Steel Wire

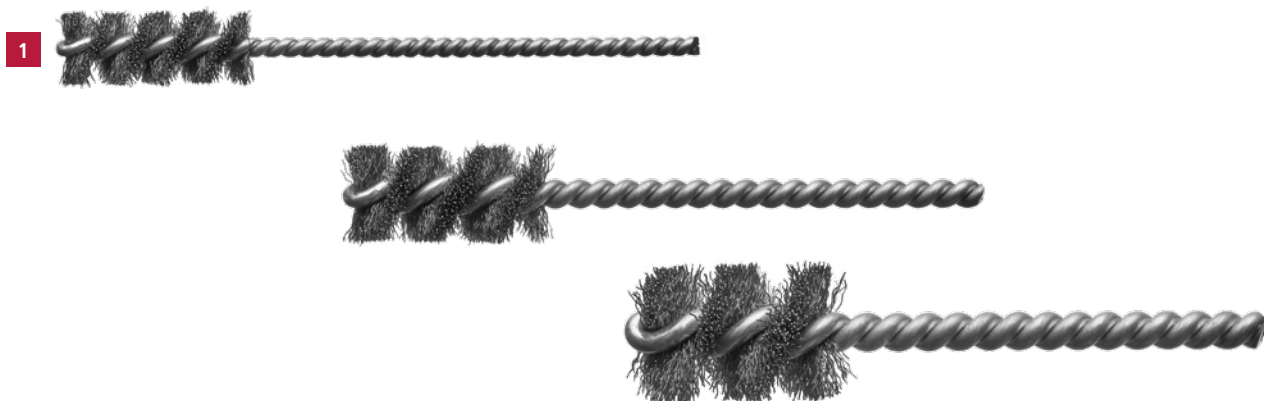
D	GL	A	SD	RPM	Pack.	STH 0.12   0.005"	STH 0.20   0.008"	ROH 0.12   0.005"	ROH 0.20   0.008"
mm   inch	mm   inch	mm   inch	mm   inch	max.		Art.-No.	Art.-No.	Art.-No.	Art.-No.
6   15/64	90   3 1/2	25   1	3.0   1/8	3,500	10	<b>564.220.60</b>			
8   5/16	90   3 1/2	25   1	3.3   1/8	3,500	10	<b>564.220.80</b>			
10   25/64	90   3 1/2	25   1	3.8   5/32	3,500	10	<b>565.321.00</b>	<b>565.341.00</b>	<b>565.521.00</b>	
13   33/64	90   3 1/2	25   1	3.8   5/32	3,500	10	<b>565.321.30</b>	<b>565.341.30</b>	<b>565.521.30</b>	
16   5/8	90   3 1/2	25   1	3.8   5/32	3,000	10	<b>565.321.60</b>	<b>565.341.60</b>	<b>565.521.60</b>	565.541.60
19   3/4	90   3 1/2	25   1	3.8   5/32	3,000	10	<b>565.321.90</b>	<b>565.341.90</b>	565.521.90	565.541.90
20   51/64	90   3 1/2	25   1	3.8   5/32	3,000	10		<b>565.342.00</b>		<b>565.542.00</b>
21   53/64	90   3 1/2	25   1	3.8   5/32	3,000	10	565.322.10	565.342.10		
24   15/16	90   3 1/2	25   1	3.8   5/32	3,000	10	565.322.40			
25   1	90   3 1/2	25   1	3.8   5/32	3,000	10	<b>565.322.50</b>	<b>565.342.50</b>	565.522.50	<b>565.542.50</b>
29   1 9/64	90   3 1/2	25   1	3.8   5/32	3,000	10	565.322.90	565.342.90		565.542.90
32   1 17/64	90   3 1/2	25   1	3.8   5/32	3,000	10	<b>565.323.20</b>	<b>565.343.20</b>		565.543.20

## 2 Interior Brushes IBH, Brass Wire and Polyamide

D	GL	A	SD	RPM	Pack.	MES 0.15   0.006"	MES 0.20   0.008"	PA 0.30   0.012"
mm   inch	mm   inch	mm   inch	mm   inch	max.		Art.-No.	Art.-No.	Art.-No.
8   5/16	90   3 1/2	25   1	3.2   1/8	3,500	10		565.730.80	
10   25/64	90   3 1/2	25   1	3.8   5/32	3,500	10	<b>565.731.00</b>		<b>565.061.00</b>
13   33/64	90   3 1/2	25   1	3.8   5/32	3,500	10	<b>565.731.30</b>		<b>565.061.30</b>
16   5/8	90   3 1/2	25   1	3.8   5/32	3,000	10	<b>565.731.60</b>		<b>565.061.60</b>
20   51/64	90   3 1/2	25   1	3.8   5/32	3,000	10		<b>565.742.00</b>	<b>565.062.00</b>
25   1	90   3 1/2	25   1	3.8   5/32	3,000	10		<b>565.742.50</b>	<b>565.062.50</b>

### Stainless Steel Brushes

Information on working on stainless steel you find at [www.lessmann.com](http://www.lessmann.com)



1 Interior Brushes IBE, Steel Wire							STH 0.12   0.005"	STH 0.20   0.008"
D	GL	A	SD	RPM	Pack.		Art.-Nr.	Art.-Nr.
mm   inch	mm   inch	mm   inch	mm	max.				
10   <i>25/64</i>	90   <i>3 1/2</i>	25   <i>1</i>	1.6	2,500	10	<b>569.321.00</b>		
13   <i>33/64</i>	90   <i>3 1/2</i>	25   <i>1</i>	2.2	2,500	10	<b>569.321.30</b>		
16   <i>5/8</i>	90   <i>3 1/2</i>	25   <i>1</i>	2.5	2,500	10	<b>569.321.60</b>		
19   <i>3/4</i>	90   <i>3 1/2</i>	25   <i>1</i>	3.0	2,500	10		<b>569.341.90</b>	
25   <i>1</i>	90   <i>3 1/2</i>	25   <i>1</i>	3.0	2,500	10		<b>569.342.50</b>	
32   <i>1 1/4</i>	90   <i>3 1/2</i>	25   <i>1</i>	3.0	2,500	10		<b>569.343.20</b>	

**Item Nos. in bold** are available ex stock.  
Consider our minimum order value for *italic printed* article numbers (see page 184).

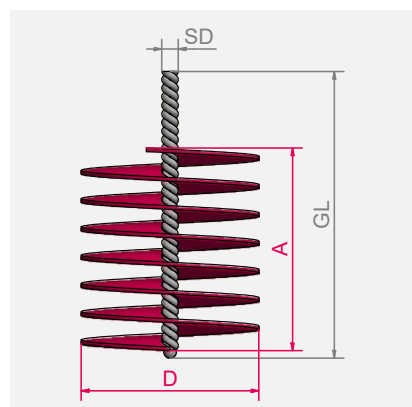
**STH** = steel wire, high tensile, straight

**ROH** = stainless steel wire, high tensile

**MES** = brass wire

**PA** = polyamide

**SIC** = silicon carbide bristles



# Flexible Hone-Brushes

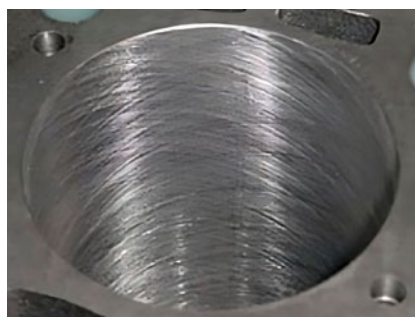


## Flexible Hone-Brushes

Lessmann Hone-Brushes are used to improve the inner surface of tubes, bores and cylinder walls. They are equally suitable for burr removal, cleaning and surface finishing.

Thanks to the elasticity and flexibility of the filling, they can also deburr cross bores, openings and channels in the same operation.

At the same time, the use of honing brushes produces a so-called cross cut, which is created by the simultaneous rotation during back and forth movements of the brush while processing. This structure ensures less friction and more even distribution of oil on the surface.



Example of the cross cut produced during honing.

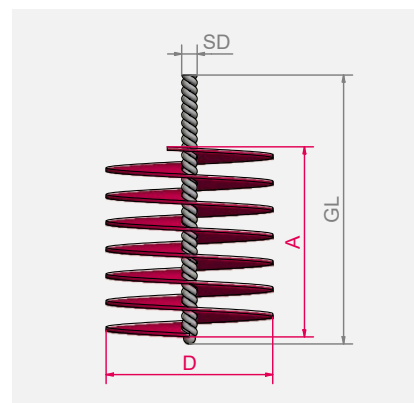
## Mechanical Application

Only use the brush with the indicated maximal peripheral speed (RPM max.). The max. RPM only is allowed when the brush is clamped min. for 10 mm into the tool. When the brush is inserted into the suitable work piece, higher RPMs are possible. **Only use the brush right rotating.**



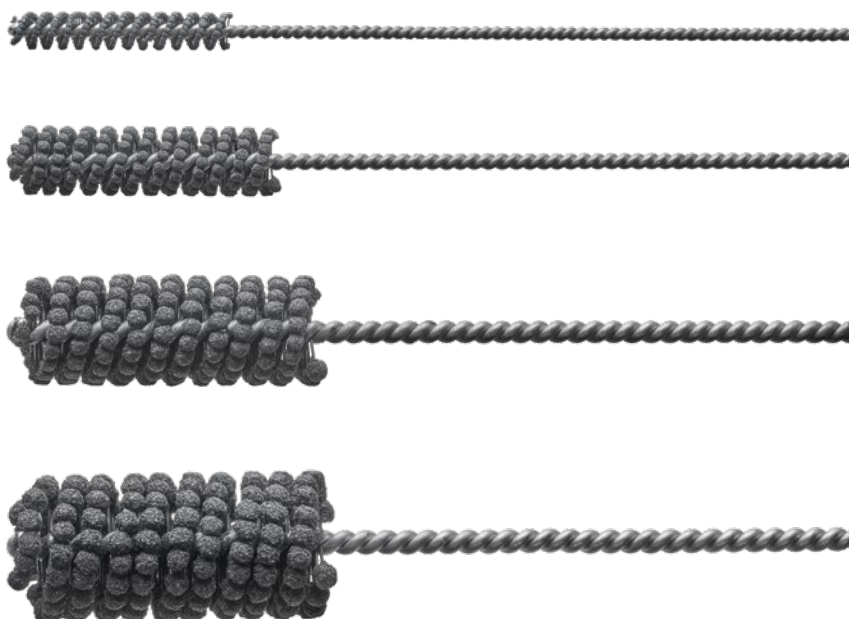
### Attention!

When using hone-brushes, we recommend to always use a suitable lubricant (oil or drilling emulsion).



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

**SIC** = silicon carbide bristles



Flexible Hone-Brushes IBFH, abrasive silicon carbide bristles

D	max. pipe Ø	GL	A	SD	RPM	Pack.	SIC K120	SIC K180
mm   inch	mm   inch	mm   inch	mm   inch	mm	max.		Art.-Nr.	Art.-Nr.
5,5   3/16	5   3/16	200   8	40   1 9/16	2,1	1.200	1		591.310.55
6,5   1/4	5,5   3/16	200   8	40   1 9/16	2,5	1.200	1	591.210.65	591.310.65
7   1/4	6   1/4	200   8	40   1 9/16	2,5	1.200	1	591.210.70	591.310.70
8   5/16	7   1/4	200   8	50   2	3,6	1.200	1	591.210.80	591.310.80
9   3/8	8   5/16	200   8	50   2	3,6	1.200	1	591.210.90	591.310.90
10   3/8	9   3/8	200   8	50   2	3,6	1.200	1	591.211.00	591.311.00
11   7/16	10   3/8	200   8	60   2 3/8	3,6	1.200	1	591.211.10	591.311.10
12   1/2	11   7/16	200   8	60   2 3/8	3,6	1.200	1	591.211.20	591.311.20
13   1/2	12   1/2	200   8	60   2 3/8	3,6	1.200	1	591.211.30	591.311.30
15,5   5/8	13   1/2	200   8	60   2 3/8	3,6	1.200	1	591.211.55	591.311.55
18   11/16	16   5/8	200   8	60   2 3/8	4,6	1.200	1	591.211.80	591.311.80
20   13/16	18   11/16	200   8	60   2 3/8	4,6	1.200	1	591.212.00	591.312.00
22   7/8	20   13/16	200   8	70   2 3/4	4,6	1.200	1	591.212.20	591.312.20
25   1	22   7/8	200   8	70   2 3/4	4,6	1.200	1	591.212.50	591.312.50
27   1 1/16	24   15/16	200   8	70   2 3/4	5,1	1.200	1	591.212.70	591.312.70
28   1 1/8	25   1	200   8	70   2 3/4	5,1	1.200	1	591.212.80	591.312.80
30   1 3/16	27   1 1/16	200   8	70   2 3/4	5,1	1.200	1	591.213.00	591.313.00
32   1 1/4	29   1 1/8	200   8	70   2 3/4	5,1	1.200	1	591.213.20	591.313.20
35   1 3/8	32   1 1/4	200   8	70   2 3/4	5,7	1.200	1	591.213.50	591.313.50
38   1 1/2	35   1 3/8	200   8	70   2 3/4	5,7	1.200	1	591.213.80	591.313.80
41   1 5/8	38   1 1/2	200   8	70   2 3/4	5,7	800	1	591.214.10	591.314.10
45   1 3/4	41   1 5/8	200   8	70   2 3/4	5,7	800	1	591.214.50	591.314.50
48   1 7/8	45   1 3/4	200   8	70   2 3/4	5,7	800	1	591.214.80	591.314.80
51   2	48   1 7/8	200   8	70   2 3/4	6,5	800	1	591.215.10	591.315.10
54   2 1/8	51   2	200   8	70   2 3/4	6,5	800	1	591.215.40	591.315.40
57   2 1/4	54   2 1/8	200   8	70   2 3/4	7,3	800	1	591.215.70	591.315.70
60   2 3/8	57   2 1/4	200   8	70   2 3/4	7,3	800	1	591.216.00	591.316.00
64   2 1/2	60   2 3/8	200   8	70   2 3/4	7,3	800	1	591.216.40	591.316.40

# Cylinder Brushes

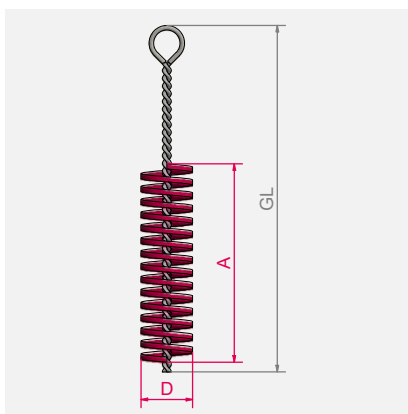


## Cylinder Brushes

For manual cleaning and deburring of tubes, bores etc. Cylinder brushes are also available in other dimensions and materials. When ordering special sizes please mention full specification: total length, filling length, filling material, diameter and quantity.

### Cylinder brushes, flat filament

These flat brushes with fine, crimped steel wire are ideal for cleaning areas which are hard to reach. A typical application is removing isolation rests in channels of stators or electric motors.



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

**STA** = steel wire

**ROF** = stainless steel wire

**MES** = brass wire

**PA** = polyamide

## Stainless Steel Brushes

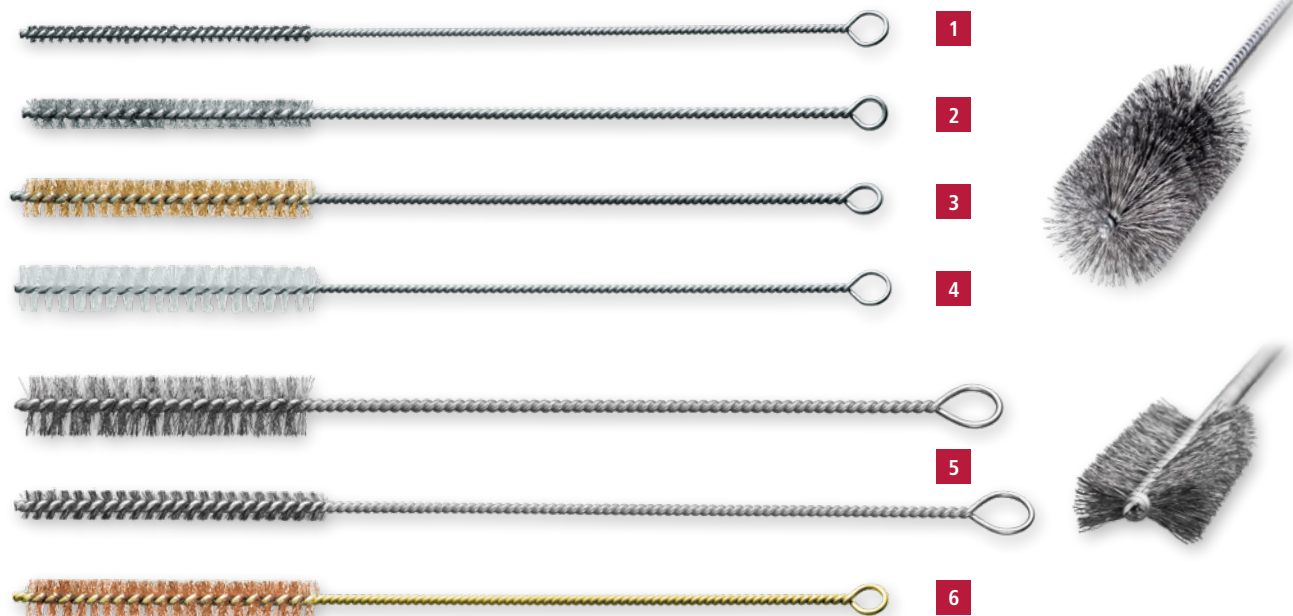
Information on working on stainless steel you find at [www.lessmann.com](http://www.lessmann.com)

### 5 Cylinder brushes, flat filament with Loop IBZ

D mm   inch	GL mm   inch	A mm   inch	Pack.	<b>STA 0,15</b> Art.-No.	<b>STA 0,20</b> Art.-No.
4 x 10   5/32 x 25/64	350   14	100   4	10	<b>559.810</b>	
7 x 10   9/32 x 25/64	350   14	100   4	10	<b>559.806</b>	
8 x 12   5/16 x 15/32	350   14	100   4	10		<b>559.802</b>
8 x 15   5/16 x 19/32	350   14	100   4	10		<b>559.803</b>
10 x 18   25/64 x 45/64	350   14	100   4	10		<b>559.804</b>
10 x 22   25/64 x 7/8	350   14	100   4	10		<b>559.805</b>
12 x 26   15/32 x 1 1/32	350   14	100   4	10		<b>559.807</b>

### 6 Cylinder brushes, with Loop IBZ, Bronze Wire, fittings brass (low-sparkling)

D mm   inch	GL mm   inch	A mm   inch	Pack.	<b>BRO 0,20</b> Art.-No.
10   25/64	330   13 <sup>3</sup> /16	100   4	10	<b>542.034</b>
20   51/64	330   13 <sup>3</sup> /16	100   4	10	<b>543.006</b>
35   1 3/8	330   13 <sup>3</sup> /16	100   4	10	<b>543.926</b>



**Cylinder Brushes with Loop IBZ**

				1	2	3	4
D	GL	A	Pack.	STA	ROF	MES	PA
mm   inch	mm   inch	mm   inch		Art.-No.	Art.-No.	Art.-No.	Art.-No.
3   1/8	300   12	100   4	10	542.381	542.541	542.741	542.881
4   5/32	300   12	100   4	10	542.351	542.508	542.740	542.823
5   13/64	300   12	100   4	10	542.347	542.538	542.739	542.822
6   15/64	300   12	100   4	10	542.301	542.501	542.701	542.801
8   5/16	300   12	100   4	10	542.302	542.502	542.702	542.802
10   25/64	300   12	100   4	10	542.303	542.503	542.703	542.803
12   15/32	300   12	100   4	10	542.304	542.504	542.704	542.804
13   33/64	300   12	100   4	10	542.305	542.505	542.705	available on demand
14   9/16	300   12	100   4	10	542.306	542.506	542.706	542.812
15   19/32	300   12	100   4	10	542.307	542.507	542.707	542.807
16   5/8	300   12	100   4	10	542.308	542.507	542.707	542.807
18   45/64	300   12	100   4	10	542.309	542.507	542.707	542.807
20   51/64	300   12	100   4	10	542.311	542.511	542.711	542.811
25   1	300   12	100   4	10	542.313	542.513	542.713	542.813
30   1 3/16	300   12	100   4	10	542.315	542.515	542.715	542.815
35   1 3/8	300   12	100   4	10	542.317	available on demand	542.717	available on demand
40   1 5/8	300   12	100   4	10	542.319	542.519	542.719	542.819
50   2	300   12	100   4	10	542.320	542.520	542.720	542.820

**Cylinder brushes (long version) with Loop IBZ**

				STA	ROF	MES	PA
D	GL	A	Pack.	Art.-No.	Art.-No.	Art.-No.	Art.-No.
mm   inch	mm   inch	mm   inch					
10   25/64	500   20	100   4	10	547.303	available on demand	547.703	547.803
15   19/32	500   20	100   4	10	547.307	available on demand	547.707	547.807
20   51/64	500   20	100   4	10	547.311	available on demand	547.711	547.811
25   1	500   20	100   4	10	547.313	available on demand	547.713	547.813
30   1 3/16	500   20	100   4	10	547.315	available on demand	547.715	547.815

# Hole Cleaning Brushes



## Hole cleaning Brushes with Wooden Handle IBM

						1	2	3
D	GL	A	Filling Dia. Pack.		STA	ROF	MES	
mm   inch	mm   inch	mm   inch			Art.-No.	Art.-No.	Art.-No.	
10   25/64	300   12	100   4	0.15	10	<b>560.310</b>	<b>560.510</b>	<b>560.710</b>	
15   19/32	300   12	100   4	0.20	10	<b>560.315</b>	<b>560.515</b>	<b>560.715</b>	
20   51/64	300   12	100   4	0.20	10	<b>560.320</b>	<b>560.520</b>	<b>560.720</b>	
25   1	300   12	100   4	0.25	10	<b>560.325</b>	<b>560.525</b>	<b>560.725</b>	
30   1 3/16	300   12	100   4	0.25	10	<b>560.330</b>	<b>560.530</b>	<b>560.730</b>	
<b>4</b> 10/18   25/64 / 45/64	200   8	70   2 3/4	0.15	10	<b>561.304*</b>			

\* conical filling

## 5 Cylinder Brushes with Shank 8 mm Ø IBG

D	GL	A	Filling Dia.	RPM	Pack.	STA
mm   inch	mm   inch	mm   inch		max.		Art.-No.
13   33/64	200   8	55   2 11/64	0.15	1.000	10	<b>503.311</b>
20   51/64	200   8	55   2 11/64	0.20	1.000	10	<b>503.313</b>
26   1 1/32	200   8	55   2 11/64	0.25	800	10	<b>503.314</b>
32   1 17/64	200   8	55   2 11/64	0.25	800	10	<b>503.316</b>
38   1 1/2	200   8	55   2 11/64	0.30	800	10	<b>503.318</b>

### Hole Cleaning Brushes

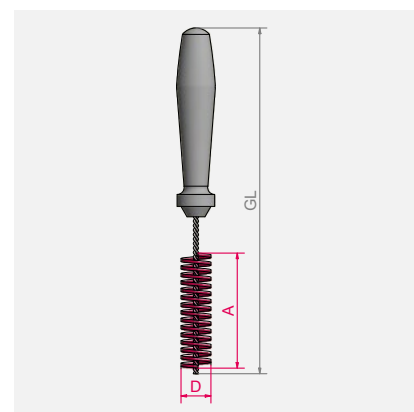
Those hole cleaning brushes have a wooden handle. Hence the brushes allow a very comfortable working in various application fields.

Typically the brushes are used in construction industry or handcraft business for cleaning bore holes or slots.

Besides, Hole Cleaning Brushes are ideal for cleaning threads or deburring cross holes.

### Mechanical Application

Only use the brush with the indicated maximal peripheral speed (RPM max.). The max. RPM only is allowed when the brush is clamped min. for 10 mm into the tool. When the brush is inserted into the suitable work piece, higher RPMs are possible. **Only use the brush right rotating.**





# Bore Hole Cleaning Brushes



## Interior Brushes for bore hole cleaning IBE, Steel, without Thread

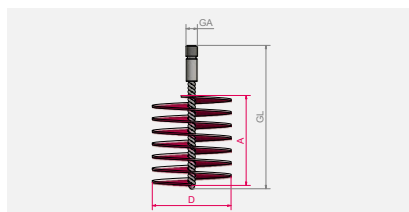
D	GL	A	Suitable for bore hole	RPM	Pack.	STA 0.10   0.004"	STA 0.15   0.006"	STA 0.20   0.008"
mm   inch	mm   inch	mm   inch	mm   inch	max.		Art.-No.	Art.-No.	Art.-No.
12   15/32	130   5 1/8	80   3	10   25/64	1,500	10	<b>504.301</b>		
14   9/16	140   5 1/2	80   3	12   15/32	1,500	10	<b>504.302</b>		
16   5/8	180   7	80   3	14   9/16	800	10		<b>504.333</b>	
20   51/64	200   8	100   4	18   45/64	800	10		<b>504.334</b>	
24   15/16	220   8 5/8	100   4	22   7/8	800	10		<b>504.335</b>	
26   1 1/32	250   10	100   4	24   15/16	500	10			<b>504.346</b>
28   1 7/64	290   11 3/8	100   4	26   1 1/32	500	10			<b>504.347</b>

## Bore Hole Cleaning Brushes IBG, Stainless Steel, with Thread

D	GL	A	Suitable for bore hole	GA	Pack.	ROF 0.12   0.004"	ROF 0.15   0.006"	ROF 0.20   0.008"
mm   inch	mm   inch	mm   inch	mm   inch			Art.-No.	Art.-No.	Art.-No.
12   15/32	130   5 1/8	80   3	10   25/64	M 6	10	<b>504.501.06</b>		
14   9/16	140   5 1/2	80   3	12   15/32	M 6	10	<b>504.502.06</b>		
16   5/8	180   7	80   3	14   9/16	M 6	10	<b>504.533.06</b>		
18   45/64	200   8	100   4	16   5/8	M 6	10		504.532.06	
20   51/64	200   8	100   4	18   45/64	M 6	10		<b>504.534.06</b>	
22   7/8	220   8 5/8	100   4	20   51/64	M 6	10		504.536.06	
24   15/16	220   8 5/8	100   4	22   7/8	M 6	10		<b>504.535.06</b>	
26   1 1/32	250   10	100   4	24   15/16	M 6	10			<b>504.546.06</b>
28   1 7/64	290   11 3/8	100   4	26   1 1/32	M 6	10			<b>504.547.06</b>
31   1 1/4	260   10 3/8	100   4	29   1 9/64	M 6	10			504.548.06
33   1 1/4	350   14	100   4	31   1 1/4	M 6	10			504.549.06
35   1 3/8	350   14	100   4	33   1 1/4	M 6	10			504.550.06
38   1 1/2	350   14	100   4	36   1 1/2	M 6	10			504.551.06
43   2	350   14	100   4	41   1 39/64	M 6	10			504.552.06

### Bore Hole Cleaning Brushes

These interior brushes are used in the mounting techniques. The brushes are ideal for cleaning bore holes in most different materials. Afterwards screws and anchors can be inserted easily in the bore hole.



Item Nos. in bold are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

STA = steel wire

ROF = stainless steel wire

MES = brass wire

# Tube and Sleeve Brushes



## Interior Brushes

These brushes are varied for many different uses: not only for cleaning of tubes, gratings, sleeves and cylinders. Interior brushes regulate current velocity in tubing systems. They are similar to the double spiral tube brushes for deburring cross drillings etc. On these pages are shown standard brushes, single spiral having two drilling wires and the double spiral having four.

## Sleeve Brushes

Sleeve brushes have a double spiral and are particularly stable types of tube brushes whose trimming is cut to a conical point. Used in machines they are beneficial for cleaning the sleeves (internal threads) of containers, e.g. after galvanisation.

## Mechanical Application

Only use the brush with the indicated maximal peripheral speed (RPM max.). The max. RPM only is allowed when the brush is clamped min. for 10 mm into the tool. When the brush is inserted into the suitable work piece, higher RPMs are possible. **Only use the brush right rotating.**

## Brushes with doublespiral

Brushes with a double spiral are mainly used for the treatment of larger diameters or for the treatment of hard materials. A double spiral is more stable and has a higher resistance against untwisting. Hence the brushes can be exposed to higher loads.

## Stainless Steel Brushes

Information on working on stainless steel you find at [www.lessmann.com](http://www.lessmann.com)



### Special diameters

Minimum order € 125.00  
 Extra charge: Gross per piece  
 10–49 pcs + 50 %  
 50–99 pcs + 25 %  
 100 pcs and more + 10 %

### Special threads under reserve

Extra charge: Gross per piece  
 10–19 pcs + € 5.00  
 20–49 pcs + € 4.00  
 50–99 pcs + € 3.00  
 100 pcs and more + € 2.00

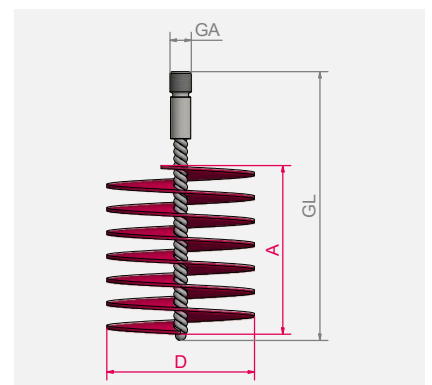
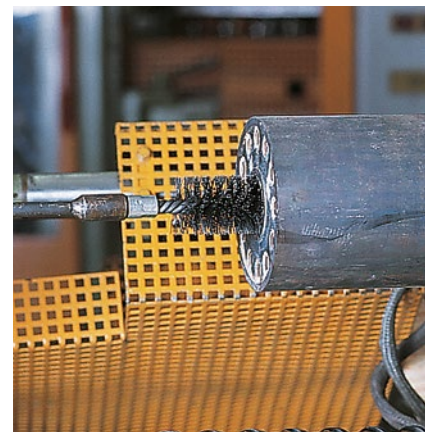
### Suitable thread adapter

see on page 131

### Handles and Extension Pieces

see on page 131

On request tube brushes are also available with other measurements, other filling materials or other threads.



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

**STA** = steel wire

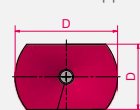
**ROF** = stainless steel wire

**MES** = brass wire

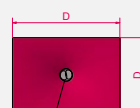
**PA** = polyamide

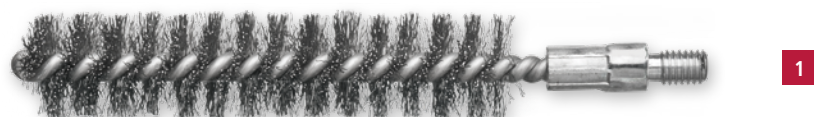
**SIC** = silicon carbide bristles

2-sided cropped

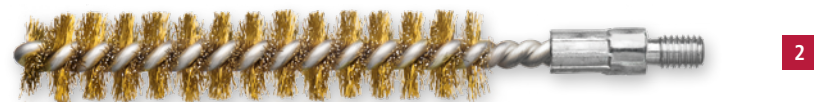


on request also 4-sided cropped





1



2



3



4



Matching handles can be found on page 131

### Tube Brushes with external Thread IBG

D	GL	A	GA	RPM	Pack.	1 STA crimped Art.-No.	2 ROF crimped Art.-No.	3 MES crimped Art.-No.	4 PA straight Art.-No.
<b>Single Spiral</b>									
mm   inch	mm   inch	mm   inch							
6   15/64	115   4 1/2	80   3	M 4	2,000	10	501.301	501.501	501.701	501.801
8   5/16	115   4 1/2	80   3	M 6	3,000	10	500.308	500.508	500.708	500.808
10   25/64	115   4 1/2	80   3	M 6	3,000	10	500.310	500.510	500.710	500.810
12   15/32	115   4 1/2	80   3	M 6	3,000	10	500.312	500.512	500.712	500.812
13   33/64	115   4 1/2	80   3	M 6	3,000	10	500.313	500.513	500.713	500.813
14   9/16	115   4 1/2	80   3	M 6	3,000	10	500.314	500.514	500.714	500.814
15   19/32	115   4 1/2	80   3	M 6	3,000	10	500.315	500.515	500.715	500.815
16   5/8	115   4 1/2	80   3	M 6	3,000	10	500.316	500.516	500.716	500.816
18   45/64	115   4 1/2	80   3	M 6	3,000	10	500.318	500.518	500.718	500.818
19   3/4	115   4 1/2	80   3	M 6	3,000	10	500.319	500.519	500.719	500.819
20   51/64	115   4 1/2	80   3	M 6	3,000	10	500.320	500.520	500.720	500.820

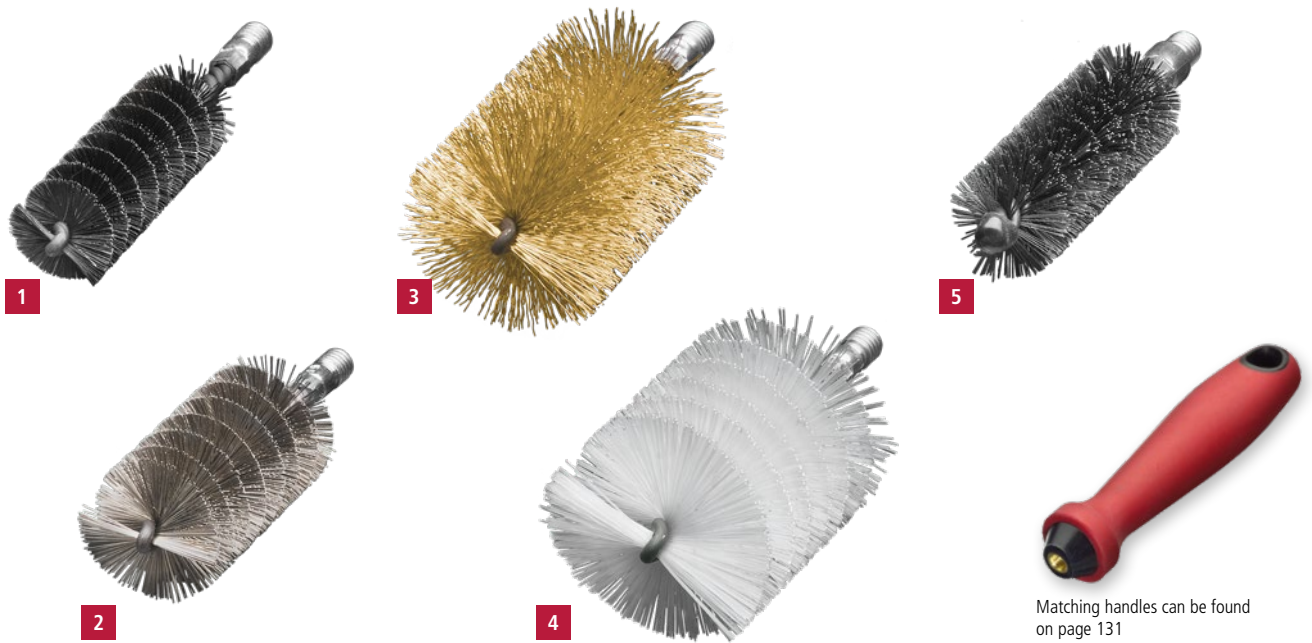
### 4 Interior Brushes with external thread IBG, Silicon Carbide Bristles

D	GL	A	GA	RPM	Pack.	SIC 180/1.0 Art.-No.
<b>Single Spiral</b>						
mm   inch	mm   inch	mm   inch				
10   25/64	115   4 1/2	80   3	M 6	4,000	10	500.010
16   5/8	115   4 1/2	80   3	M 6	4,000	10	500.016
20   51/64	150   6	100   4	W 1/2"	3,500	10	502.050.24
22   7/8	150   6	100   4	W 1/2"	3,500	10	502.052.24
25   1	150   6	100   4	W 1/2"	3,500	10	502.055.24
28   1 1/64	150   6	100   4	W 1/2"	3,500	10	502.058.24



For all brushes with thread M 6, M 10 and W 1/2" a practical hanger assembly is available for presenting the brushes individually. More information you find on page 141.

# Tube/Sleeve brushes



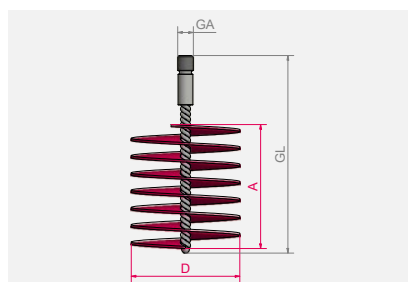
Matching handles can be found on page 131

## Tube Brushes with external Thread W 1/2"

				1	2	3	4	5			
				Single Spiral IBG				Double Spiral IBGD			
D	GL	A	Pack.	RPM	STA straight	ROF straight	MES crimped	PA straight	RPM	STA straight	
mm	mm	mm	mm	max.	Art.-No.	Art.-No.	Art.-No.	Art.-No.	max.	Art.-No.	
20	150	100	10	2,500	<b>502.120.24</b>	<b>502.420.24</b>	<b>502.720.24</b>	<b>502.820.24</b>	2,000	<b>522.120.24</b>	
22	150	100	10	2,500	<b>502.122.24</b>	<b>502.422.24</b>	<b>502.722.24</b>	<b>502.822.24</b>	2,000	<b>522.122.24</b>	
25	150	100	10	2,500	<b>502.125.24</b>	<b>502.425.24</b>	<b>502.725.24</b>	<b>502.825.24</b>	2,000	<b>522.125.24</b>	
28	150	100	10	2,500	<b>502.128.24</b>	<b>502.428.24</b>	<b>502.728.24</b>	<i>502.828.24</i>	2,000	<b>522.128.24</b>	
30	160	100	10	1,000	<b>506.130</b>	<b>506.430</b>	<b>506.730</b>	<b>506.830</b>	1,500	<b>526.130</b>	
32	160	100	10	1,000	<b>506.132</b>	<b>506.432</b>	<b>506.732</b>	<b>506.832</b>	1,500	<b>526.132</b>	
35	160	100	10	1,000	<b>506.135</b>	<b>506.435</b>	<b>506.735</b>	<b>506.835</b>	1,500	<b>526.135</b>	
38	160	100	10	1,000	<b>506.138</b>	<b>506.438</b>	<b>506.738</b>	<b>506.838</b>	1,500	<b>526.138</b>	
40	160	100	10	1,000	<b>506.140</b>	<b>506.440</b>	<b>506.740</b>	<b>506.840</b>	1,500	<b>526.140</b>	
44	160	100	5	1,000	<b>506.144</b>	<b>506.444</b>	<b>506.744</b>	<b>506.844</b>	1,500	<b>526.144</b>	
50	160	100	5	1,000	<b>506.150</b>	<b>506.450</b>	<b>506.750</b>	<b>506.850</b>	1,500	<b>526.150</b>	
57	160	100	5	1,000	<b>506.157</b>	<b>506.457</b>	<b>506.757</b>	<b>506.857</b>	1,500	<b>526.157</b>	
63	160	100	5	1,000	<b>506.163</b>	<b>506.463</b>	<b>506.763</b>	<b>506.863</b>	1,500	<b>526.163</b>	
69	160	100	5	1,000	<b>506.169</b>	<b>506.469</b>	<b>506.769</b>	<b>506.869</b>	1,500	<b>526.169</b>	
75	160	100	5	1,000	<b>506.175</b>	<b>506.475</b>	<b>506.775</b>	<b>506.875</b>	1,500	<b>526.175</b>	
82	160	100	5	1,000	<b>506.182</b>	<b>506.482</b>	<b>506.782</b>	<b>506.882</b>	1,500	<b>526.182</b>	
88	160	100	5	1,000	<b>506.188</b>	<i>506.488</i>	<i>506.788</i>	<b>506.888</b>	1,500	<b>526.188</b>	
94	160	100	5	1,000	<b>506.194</b>	<i>506.494</i>	<i>506.794</i>	<b>506.894</b>	1,500	<b>526.194</b>	
101	160	100	5	1,000	<b>506.101</b>	<b>506.401</b>	<b>506.701</b>	<b>506.801</b>	1,500	<b>526.101</b>	
125	160	100	5	1,000	<b>506.106</b>	<i>506.406</i>	<b>506.706</b>	<i>506.806</i>	1,500	<b>526.106</b>	
150	160	100	5	1,000	<b>506.211</b>	<i>506.411</i>	<b>506.711</b>	<b>506.811</b>	1,000	<i>526.111</i>	
200	160	100	5	1,000	<b>506.220</b>	available on demand	<i>506.720</i>	<b>506.820</b>	1,000	available on demand	

### Mechanical Application

Only use the brush with the indicated maximal peripheral speed (RPM max.). The max. RPM only is allowed when the brush is clamped min. for 10 mm into the tool. When the brush is inserted into the suitable work piece, higher RPMs are possible. **Only use the brush right rotating.**



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

STA = steel wire

ROF = stainless steel wire

MES = brass wire

PA = polyamide



**Tube Brushes with internal Thread / Boiler Brushes IBG**

	D mm   inch	Format	GL mm   inch	A mm   inch	GA	RPM max.	Pack.	STA straight Art.-No.	PA straight Art.-No.
<b>Single Spiral</b>									
1	30   1 3/16	⊙	160   6 1/4	100   4	M 10i	1,000	10	506.130.60	
	40   1 5/8	⊙	160   6 1/4	100   4	M 10i	1,000	10	506.140.60	
	50   2	⊙	160   6 1/4	100   4	M 10i	1,000	10	506.150.60	
	60   2 3/8	⊙	160   6 1/4	100   4	M 10i	1,000	10	506.160.60	
	80   3	⊙	160   6 1/4	100   4	M 10i	1,000	10	506.180.60	
	90   3 1/2	⊙	160   6 1/4	100   4	M 10i	1,000	10	<b>507.190</b>	
	101   4	⊙	160   6 1/4	100   4	M 10i	1,000	10	506.101.60	
	120   4 3/4	⊙	160   6 1/4	100   4	M 10i	1,000	10	<b>507.105</b>	506.805.60
2	20 x 30   51/64 x 1 3/16	⊖	140   5 1/2	80   3	M 10i		10	<b>533.405</b>	
	15 x 30   19/32 x 1 3/16	⊖	160   6 1/4	100   4	M 10i		10	533.408	
	30 x 50   1 3/16 x 2	⊖	160   6 1/4	100   4	M 10i		10	532.218.60	
	50 x 100   2 x 4	⊖	160   6 1/4	100   4	M 10i		10	532.303.60	

Suitable back board brushes you find at page 129.

⊙ round | ⊖ 2-sided cropped | on request also 4-sided cropped

**Sleeves Brushes Conical, without Thread**

	D mm   inch	GL mm   inch	A mm   inch	RPM max.	Pack.	Single Spirale IBE STA crimped Art.-No.	Double Spirale IBD STA straight Art.-No.
3	10-20   25/64 - 51/64	170   6 3/4	100   4	1,000	10	<b>541.372</b>	<b>549.101</b>
	15-25   19/32 - 1	170   6 3/4	100   4	1,000	10	<b>540.321</b>	<b>549.102</b>
	20-30   51/64 - 1 3/16	170   6 3/4	100   4	1,000	10	<b>541.373</b>	<b>549.103</b>
	25-35   1 - 1 3/8	170   6 3/4	100   4	1,000	10	<b>540.323</b>	<b>549.104</b>
	32-42   1 17/64 - 1 5/8	170   6 3/4	100   4	1,000	5	<b>540.324</b>	<b>549.105</b>
	40-50   1 5/8 - 2	170   6 3/4	100   4	1,000	5	<b>540.325</b>	<b>549.106</b>
	38-70   1 1/2 - 2 3/4	170   6 3/4	100   4	1,000	5	540.225	<b>549.107</b>
	60-95   2 3/8 - 3 3/4	170   6 3/4	100   4	1,000	5	<b>540.327</b>	<b>549.108</b>

On request also tube and sleeve brushes with crimped wire are available.

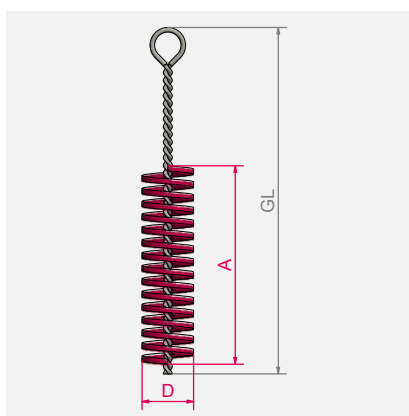
# Boiler Brushes / Stove Pipe Brushes



## Boiler Brushes

The systematic care of boilers and regular cleaning by brushing increases the boiler efficiency and reduces toxic emissions.

LESSMANN boiler brushes are of outstanding quality made using the best materials and precise manufacturing procedures. Our current programme includes brushes in standard dimensions and special executions. As OEM supplier to important boiler manufacturers we are able to produce large quantities in an efficient way. What is even more important is our know how in meeting the critical tolerances demanded by our customers.



## Stove Pipe Brushes

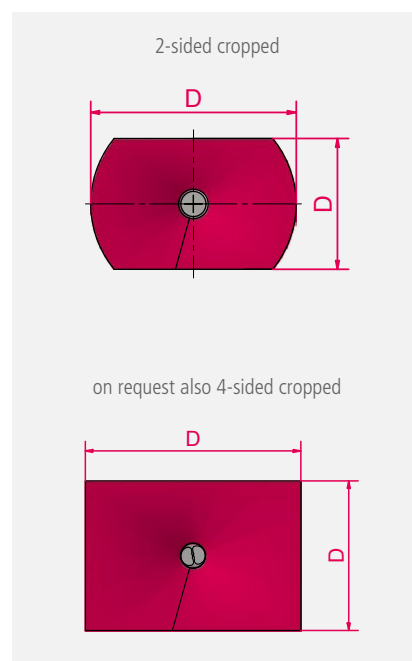
The stove pipe brushes are available in two different executions: with twisted handle (brush and handle one part) or with external thread, for screwing and lengthing by using a separate handle.

## Handles and Extension Pieces

For tube brushes, boiler brushes and stove pipe brushes, see pages 122 et seq. The twisted handles have an internal thread and a grip loop, the extension pieces have both an internal thread and an external thread.

## Suitable Thread Adapters

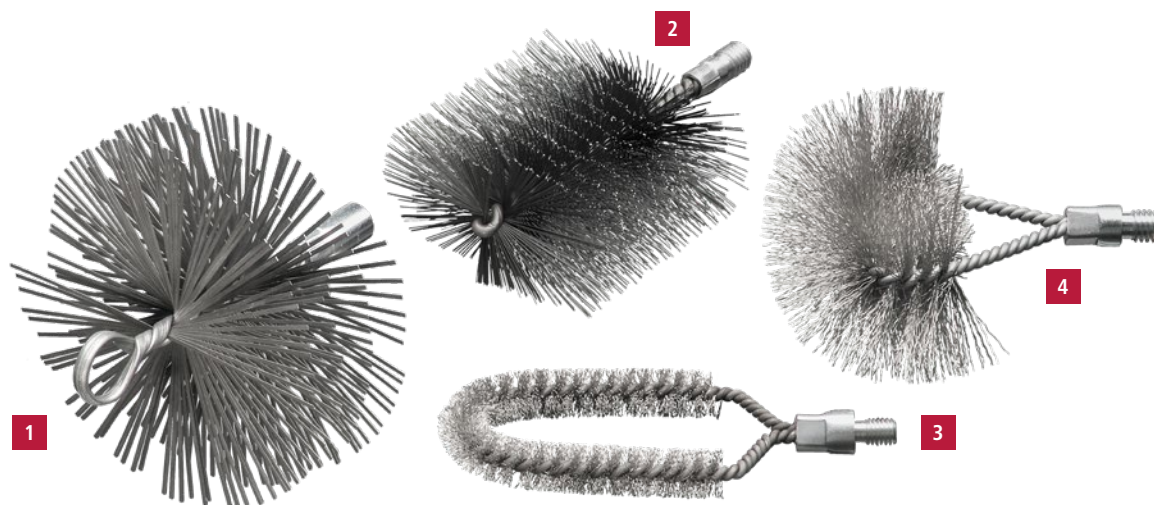
see page 131



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

**STA** = steel wire

**PA** = polyamide



**1 Chimney Brushes with Eye and internal Thread IBZG, Flat Wire 2.0 x 0.40**

Filling	D	GL	A	Internal Thread	Pack	Art.-No.	Filling	D	GL	A	Internal Thread	Pack	Art.-No.
STA flat	125	160	55	M 12 i	1	507.007	STA flat	250	160	55	M 12 i	1	507.004
STA flat	150	160	55	M 12 i	1	507.001	STA flat	300	160	55	M 12 i	1	507.005
STA flat	175	160	55	M 12 i	1	507.002	STA flat	350	160	55	M 12 i	1	507.006
STA flat	200	160	55	M 12 i	1	507.003							

**Boiler Brushes with external Thread IBG, Steel Wire, rectangular/curved**

Filling	D mm   inch	Format	GL mm   inch	A mm   inch	GA/GI	Pack.	Art.-No.
PA straight	30 x 50   1 3/16 x 2	⊖	160   6 3/8	100   4	W 1/2"	5	533.008.24
PA straight	50 x 100   2 x 4	⊖	160   6 3/8	100   4	W 1/2"	5	533.010.24
STA straight	30 x 50   1 3/16 x 2	⊖	160   6 3/8	100   4	W 1/2"	5	532.218
2 STA straight	30 x 80   1 3/16 x 3	⊖	160   6 3/8	100   4	W 1/2"	5	532.211
STA straight	40 x 80   1 5/8 x 3	⊖	160   6 3/8	100   4	W 1/2"	5	532.202
STA straight	50 x 100   2 x 4	⊖	160   6 3/8	100   4	W 1/2"	5	532.203
STA straight	50 x 120   2 x 4 3/4	⊖	160   6 3/8	100   4	W 1/2"	5	532.205
3 STA crimped	18 x 70   45/64 x 2 3/4	curved	160   6 3/8	100   4	W 1/2"	5	529.301.24
STA crimped	30 x 80   1 3/16 x 3	curved	175   6 7/8	120   4 3/4	W 1/2"	5	529.302
4 STA crimped	80 x 150   3 x 6	curved	150   6	120   4 3/4	W 1/2"	5	529.311
PA straight	80 x 150   3 x 6	curved	150   6	120   4 3/4	W 1/2"	5	529.811
STA crimped	80 x 150   3 x 6	curved	150   6	120   4 3/4	M 10i	5	529.311.60

⊖ 2-sided cropped  
on request also 4-sided cropped

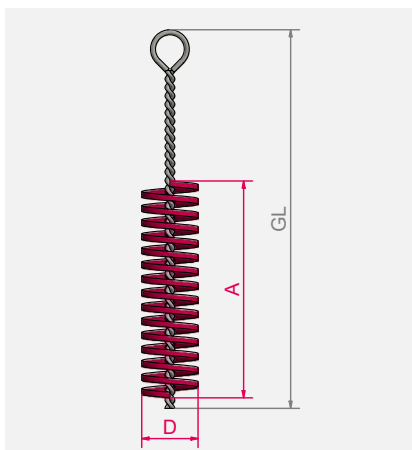
# Boiler Brushes



Boiler Brushes with Handle IBZ							
	Filling	D mm   <i>inch</i>	Format	GL mm   <i>inch</i>	A mm   <i>inch</i>	Pack.	Art.-No.
<b>1</b>	PA straight	20   <i>51/64</i>	⊙	600   <i>23 5/8</i>	100   <i>4</i>	10	<b>544.804</b>
	STA crimped	50   <i>2</i>	⊙	700   <i>27 1/2</i>	100   <i>4</i>	10	<b>544.301</b>
	STA crimped	90   <i>3 1/2</i>	⊙	600   <i>23 5/8</i>	100   <i>4</i>	10	<i>544.302</i>
	STA crimped	10   <i>25/64</i>	⊙	850   <i>33 1/2</i>	100   <i>4</i>	10	<b>545.320</b>
<b>2</b>	STA crimped	15   <i>19/32</i>	⊙	850   <i>33 1/2</i>	100   <i>4</i>	10	<i>545.321</i>
	STA crimped	20   <i>51/64</i>	⊙	850   <i>33 1/2</i>	100   <i>4</i>	10	<b>545.322</b>
	STA crimped	25   <i>1</i>	⊙	850   <i>33 1/2</i>	100   <i>4</i>	10	<b>545.307</b>
	STA crimped	35   <i>1 3/8</i>	⊙	850   <i>33 1/2</i>	100   <i>4</i>	10	<b>545.311</b>
	STA crimped	50   <i>2</i>	⊙	850   <i>33 1/2</i>	100   <i>4</i>	10	<b>545.312</b>
	STA crimped	60   <i>2 3/8</i>	⊙	850   <i>33 1/2</i>	100   <i>4</i>	10	<b>545.338</b>
	PA straight	12 x 14   <i>15/32 x 9/16</i>	⊙	600   <i>23 5/8</i>	150   <i>6</i>	10	<b>554.903</b>
	STA straight	17 x 50   <i>43/64 x 2</i>	⊙	960   <i>38</i>	60   <i>2 3/8</i>	10	<b>564.101*</b>
<b>3</b>	STA crimped	30 x 50   <i>1 3/16 x 2</i>	⊙	800   <i>31 1/2</i>	100   <i>4</i>	10	<b>551.801</b>
	STA crimped	40 x 50   <i>1 5/8 x 2</i>	⊙	1,000   <i>39 3/8</i>	80   <i>3</i>	10	<b>553.711</b>
	STA straight	40 x 80   <i>1 5/8 x 3</i>	⊙	1,000   <i>39 3/8</i>	100   <i>4</i>	10	<b>552.404</b>
	STA straight	50 x 100   <i>2 x 4</i>	⊙	1,000   <i>39 3/8</i>	100   <i>4</i>	10	<b>552.403</b>

\* with scooped scratcher in the handle

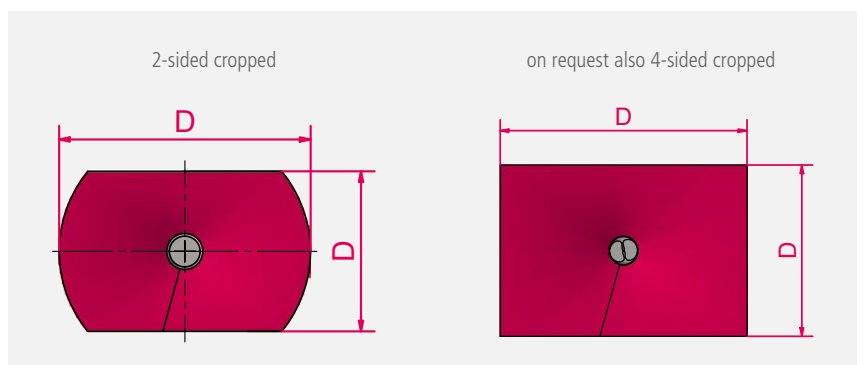
- ⊖ 2-sided cropped | on request also 4-sided cropped
- ⊙ round



**Item Nos. in bold** are available ex stock.  
Consider our minimum order value for *italic printed* article numbers (see page 184).

STA = steel wire

PA = polyamide





# Boiler Brushes-Sets



## 1 Brush Set, 5 pieces

Content: 1 piece each	A	Format	Set with handle, big edition, steel wire			Set with handle, small edition, steel wire				
			Art.-No.	D	GL	Art.-No. Set	Art.-No.	D	GL	Art.-No. Set
Cylinder Brush	100	⊙	545.303	38	1.000	<b>599.921</b>	544.307	15	600	<b>599.931</b>
Cylinder Brush	100	⊙	545.331	100	1.000		544.361	25	800	
Boiler Brush	100	⊖	552.811	30 x 70	1.000		559.831	31 x 20	600	
Boiler Brush	100	⊖	552.816	50 x 100	1.000		551.811	30 x 20	500	
Boiler Brush	100	flat filament	559.713	75 x 30	1.000		551.812	50 x 40	700	

## 2 Brush Set, Steel Wire, external Thread W 1/2", crimped, 9 pieces

Content: 1 piece each		D mm   inch	GL mm   inch	A mm   inch	Format	Art.-No. Set
506.330	Interior Brushes	30   1 3/16	160   6 1/4	100   4	⊙	<b>599.962</b>
506.340	Interior Brushes	40   1 5/8	160   6 1/4	100   4	⊙	
506.363	Interior Brushes	63   2 1/2	160   6 1/4	100   4	⊙	
532.718	Boiler Brush	30 x 50   1 3/16 x 2	160   6 1/4	100   4	⊖	
532.716	Boiler Brush	30 x 90   1 3/16 x 3 1/2	160   6 1/4	100   4	⊖	
532.703	Boiler Brush	50 x 100   2 x 4	160   6 1/4	100   4	⊖	
529.311	Back board brush	80 x 150   3 x 6	150   6			
567.671	Handle with Eye		500   20			
567.771	Extension		500   20			

## Brush Set, Polyamide Bristles, external Thread W 1/2", crimped, 9 pieces

Content: 1 piece each		D mm   inch	GL mm   inch	A mm   inch	Format	Art.-No. Set
506.838	Interior Brushes	38   1 1/2	160   6 1/4	100   4	⊙	<b>599.991</b>
506.855	Interior Brushes	55   2 1/4	160   6 1/4	100   4	⊙	
506.860	Interior Brushes	60   2 3/8	160   6 1/4	100   4	⊙	
533.008.24	Boiler Brush	30 x 50   1 3/16 x 2	160   6 1/4	100   4	⊖	
533.009.24	Boiler Brush	30 x 90   1 3/16 x 3 1/2	160   6 1/4	100   4	⊖	
533.010.24	Boiler Brush	50 x 100   2 x 4	160   6 1/4	100   4	⊖	
529.811	Back board brush	80 x 150   3 x 6	150   6			
567.671	Handle with Eye		500   20			
567.771	Extension		500   20			

# Stove Pipe Brushes



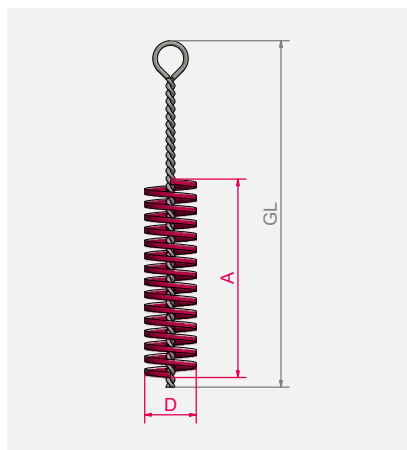
## Stove Pipe Brushes with Twisted Handle IBZ

	Filling	D mm   <i>inch</i>	GL mm   <i>inch</i>	A mm   <i>inch</i>	Pack.	Art.-No.
<b>1</b>	STM	130   5 1/8	2,000   78 3/4	200   8	10	<b>546.302</b>
	STM	150   6	2,000   78 3/4	200   8	10	<b>546.306</b>
	STM	180   7	2,000   78 3/4	200   8	10	546.314
	STM	200   8	2,000   78 3/4	200   8	10	546.318
<b>2</b>	BAS	150   6	2,000   78 3/4	200   8	10	546.906

Delivery only in noted packaging unit. If you need smaller quantities, please order stove pipe brushes with separate handle.

## **3** Stove Pipe Brushes with external thread, separate Handle IBZG

	Filling	D mm   <i>inch</i>	GL mm   <i>inch</i>	A mm   <i>inch</i>	GA	Pack.	Art.-No.
	STM	80   3	275   10 7/8	200   8	M 10	5	<b>507.307</b>
	STM	100   4	275   10 7/8	200   8	M 10	5	<b>507.308</b>
	STM	130   5 1/8	275   10 7/8	200   8	M 10	5	<b>507.301</b>
	STM	150   6	275   10 7/8	200   8	M 10	5	<b>507.302</b>
	STM	160   6 3/8	275   10 7/8	200   8	M 10	5	<b>507.303</b>
	STM	180   7	275   10 7/8	200   8	M 10	5	<b>507.304</b>
	STM	200   8	275   10 7/8	200   8	M 10	5	<b>507.305</b>
	BAS	150   6	275   10 7/8	200   8	M 10	5	<b>507.959</b>



Item Nos. in bold are available ex stock.  
Consider our minimum order value for *italic printed* article numbers (see page 184).

STM = brass coated steel

BAS = bassine black

# Accessories



## Handle with Eye

	GL mm   inch	GI/GA	Format	Pack.	Art.-No.
<b>1</b>	400   16	External M 10	round steel, straight	1	<b>568.805</b>
	800   31 1/2	External M 10	round steel, straight	1	<b>568.802</b>
	1,000   40	External M 10	round steel, straight	1	<b>568.806</b>
<b>2</b>	1,000   40	Internal M 4	twisted wire	1	<b>566.603</b>
	1,000   40	Internal M 6	twisted wire	1	<b>566.601</b>
	1,000   40	Internal M 10	twisted wire	1	<b>566.602</b>
	1,000   40	External M 12	twisted wire	1	<b>567.201</b>
	500   20	Internal W 1/2"	twisted wire	1	<b>567.671</b>
	1,000   40	Internal W 1/2"	twisted wire	1	<b>567.601</b>

## 3 Extension

	GL mm   inch	GI/GA	Format	Pack.	Art.-No.
	1,000   40	Internal / External M 4	twisted wire	1	<b>566.703</b>
	200   8	Internal / External M 6	twisted wire	1	<b>566.707.01</b>
	1,000   40	Internal / External M 6	twisted wire	1	<b>566.701</b>
	1,000   40	Internal / External M 10	twisted wire	1	<b>566.702</b>
	1,000   40	Internal / External M 12	twisted wire	1	<b>567.731</b>
	500   20	Internal / External W 1/2"	twisted wire	1	<b>567.771</b>
	1,000   40	Internal / External W 1/2"	twisted wire	1	<b>567.701</b>

## Adapter Threads

		GL mm   inch	Pack.	Art.-No.
<b>4</b>	Internal W 1/2"	Internal M 12	40   1 3/8	<b>001.211</b>
	Internal W 1/2"	Internal M 10	40   1 3/8	<b>001.212</b>
	Internal W 3/8"	Internal M 10	40   1 3/8	<b>001.215</b>
	External M 10	Internal W 1/2"	40   1 3/8	<b>001.222</b>
	External M 10	Internal W 3/8"	40   1 3/8	<b>001.225</b>
<b>5</b>	Internal W 1/2"	Shank Ø 6 mm	50   2	<b>000.071</b>
	Internal M 6	Shank Ø 6 mm	50   2	<b>000.072</b>
<b>6</b>	Internal W 1/2"		155   6	<b>599.002</b>
	Internal M 6		130   5 1/8	<b>599.001</b>

# Fitting Brushes



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EAN

## Interior Fitting Brushes IBM

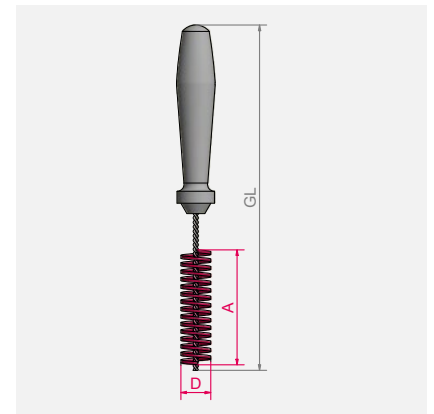
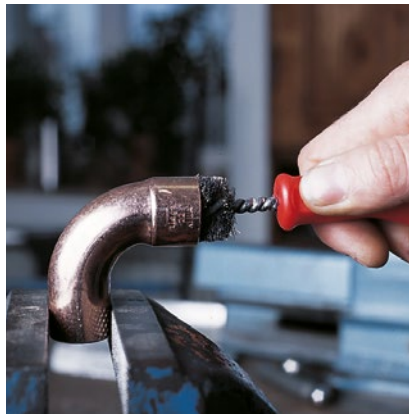
D mm   inch	GL	A	Filling Material	Pack.	Art.-No.
8   5/16	185	12	<b>ROF</b> 0.10   0.004"	10	<b>562.508</b>
10   25/64	185	12	<b>ROF</b> 0.10   0.004"	10	<b>562.510</b>
12   15/32	185	15	<b>ROF</b> 0.10   0.004"	10	<b>562.512</b>
15   19/32	185	20	<b>ROF</b> 0.15   0.006"	10	<b>562.515</b>
18   45/64	185	20	<b>ROF</b> 0.15   0.006"	10	<b>562.518</b>
22   7/8	185	25	<b>ROF</b> 0.20   0.008"	10	<b>562.522</b>
28   1 7/64	185	25	<b>ROF</b> 0.20   0.008"	10	<b>562.528</b>
35   1 3/8	185	25	<b>ROF</b> 0.20   0.008"	10	<b>562.535</b>

### Fitting Brushes

#### With designed two-components handle

For the inner cleaning in tubes in gas, water and climatic conditions. We use only stainless steel wire as the filling material for these brushes. This prevents long-term damage by material deposit in tubes.

**Recommendation for users:** When using interior fitting brushes, please only use brushes with stainless steel wire. This will avoid pitting by the use of rusting wire parts.



**Item Nos. in bold** are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 184).

**STA** = steel wire

**ROF** = stainless steel wire

**PP** = polypropylene

# Brushes and Scratcher



## 1 Battery Terminal Brushes

Filling Material	D mm   inch	GL mm   inch	A mm   inch	Pack.	Art.-No.
STA	17+24   43/64+15/16	120/180   4 <sup>3/4</sup> / 7	50   2	12	563.301*

## 2 Soluble Oil Brushes

Filling Material	Ø Bundle mm   inch	GL mm   inch	H mm   inch	Pack.	Art.-No.
mixed hair	7   9/32	150   6	40   1 <sup>5/8</sup>	100	570.907
mixed hair	10   25/64	240   9 <sup>1/2</sup>	55   2 <sup>1/4</sup>	100	570.910

## 3 Soldering Fluid Brushes

Filling Material	D mm   inch	GL mm   inch	H mm   inch	Pack.	Art.-No.
bristles	10   25/64	123   4 <sup>7/8</sup>	20   51/64	100	045.910
bristles	15   19/32	140   5 <sup>1/2</sup>	25   1	100	045.915

## 4 Rust Scratcher

Filling Material	D mm   inch	GL mm   inch	H mm   inch	Pack.	Art.-No.
STA straight 0.23	5/8   13/64 / 5/16	100   4	6   15/64	180	184.101
STA Straight 0.23   0.009" + PP 0.15   0.006"	5/8   13/64 / 5/16	100   4	6 + 15   15/64 + 19/32	180	184.104

\* conical filling

## 5 End Brush mutual filled

	D mm   inch	GL mm   inch	H mm   inch	Pack.	Art.-No.
ROF straight 0.30 + spring steel strip 6.4 x 0.8	15   19/32	180   7	22/25   7/8/1	100	184.412

### Battery Terminal Brushes

For cleaning of battery terminals. The twisted brush is conical filled for cleaning connection terminals of the battery cable. To clean the battery terminals use the ringshaped filed cards stuck in the handle.

### Soluble Oil Brushes

With twisted wire handle for workshop use.

### Soldering Fluid Brushes

The handle is made of tinned metal.

### End brush with double-sided filling

End brushes with double-sided filling can be used for the manual removal of zinc ash without harming the zinc surface. Zinc ash is the result of oxidation on the surface of zinc baths. This happens usually on the edges of

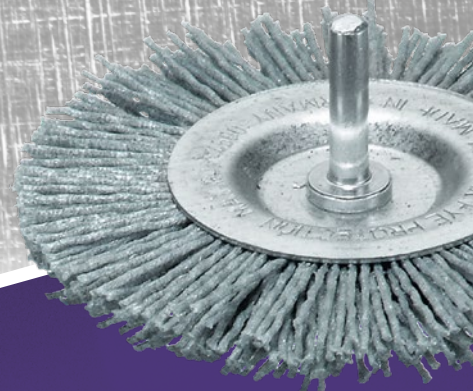
steelgirders with head and base plates. The spring steel strip on the one end of the end brush is used to remove more solid parts of dirt, whereas the with stainless steel wire filled other side of the brush can be used to remove the remaining dirt.

# LESSMANN®

THE GERMAN BRUSH COMPANY



# DIY BRUSHES AND SALES PROMOTION



# Do It Yourself Brushes



## D.I.Y Brushes with Shank

Do It Yourself brushes are an excellent alternative to the professional tools previously shown in this catalogue. Available are cup brushes from diameter 50–75 mm, wheel brushes diameter 50–100 mm, end brushes and cylinder brushes.

## Stainless Steel Brushes

Information on working on stainless steel you find at [www.lessmann.com](http://www.lessmann.com)

## Attractive assortment

Coarse and fine steel wire, brass wire and abrasive filaments are available as filling materials.

The brushes are packed in small display cartons, 10 pieces per carton.

We offer different packaging to present these and other common brushes with shanks in specialist shops.

**Item Nos. in bold** are available ex stock.

Consider our minimum order value for *italic printed* article numbers (see page 184).

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**STA** = steel wire, crimped

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**ROF** = stainless steel wire

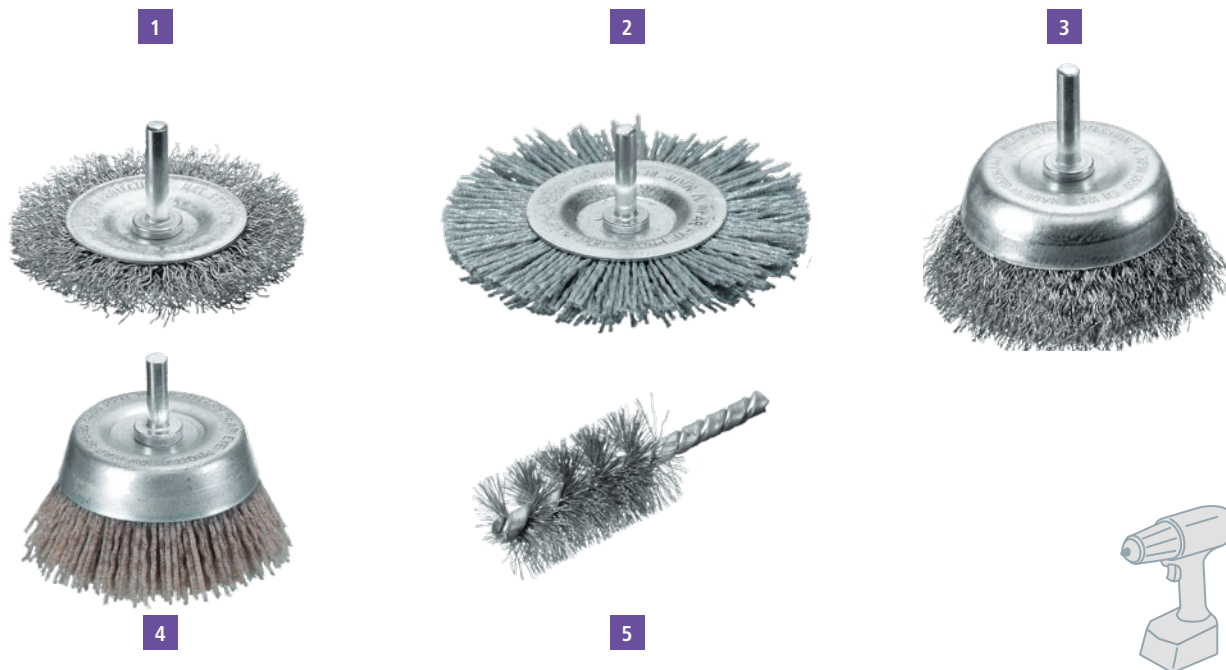
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**MES** = brass wire, crimped

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**SIC** = silicon carbide bristles





**1 Wheel Brushes with Shank Ø 6 mm**

D mm   inch	A mm   inch	RPM max.	Pack.	STA 0.25   0.010"	STA 0.35   0.014"	ROF 0.20   0.008" Art.-No.	ROF 0.30   0.012" Art.-No.
50   2	7   1/4	15,000	10	<b>410.122*</b>	<b>410.123**</b>		
75   3	8   3/8	4,500	10	<b>410.132</b>	<b>410.133</b>	<b>410.134</b>	<b>410.135</b>
75   3	12   1/2	4,500	10		<b>410.173</b>		
100   4	10   3/8	4,500	10	<b>410.152</b>	<b>410.153</b>	<b>410.154</b>	<b>410.155</b>
100   4	15   5/8	4,500	10		<b>410.183</b>		<b>410.185</b>

D mm   inch	A mm   inch	RPM max.	Pack.	MES 0.20   0.008" Art.-No.	MES 0.25   0.010" Art.-No.	SIC 80/1.2 Art.-No.	SIC 180/0.9 Art.-No.
75   3	8   3/8	4,500	10		<b>410.136</b>	<b>410.138</b>	
100   4	10   3/8	4,500	10	<b>410.156</b>		<b>410.158</b>	<i>410.159</i>

\* filament for this article with diameter 0.20 mm / 0.008"  
 \*\* filament for this article with diameter 0.30 mm / 0.012"

**3 Cup Brushes with Shank Ø 6 mm**

D mm   inch	RPM max.	Pack.	STA 0.20   0.008" Art.-No.	STA 0.30   0.012" Art.-No.	ROF 0.20   0.008" Art.-No.	ROF 0.30   0.012" Art.-No.
50   2	4,500	10	<b>430.122</b>	<b>430.123</b>	<b>430.124</b>	<b>430.125</b>
75   3	4,500	10	<b>430.132</b>	<b>430.133</b>	<b>430.134</b>	<b>430.135</b>

D mm   inch	RPM max.	Pack.	MES 0.30   0.012" Art.-No.	SIC 80/1.2 Art.-No.	SIC 320/0.6 Art.-No.
50   2	4,500	10	<b>430.126</b>	<b>430.128</b>	<b>430.129</b>
75   3	4,500	10	<b>430.136</b>	<b>430.138</b>	<b>430.139</b>

**5 Cylinder Brushes with Shank Ø 6 mm**

D mm   inch	RPM max.	Pack.	STA 0.30   0.012" Art.-No.
28   1	1,500	10	<b>541.301</b>

# Presentation „Cut Case“ Carton



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EAN

## Brushes in Cut Cases

Description	Filling material		Pack.	Carton size	Art.-No.
File Cleaner	STA straight 0.30	250 x 40	10	1	037.201.CC
Hand Brush	STA straight 0.35	2 Rows	10	1	100.021.CC
Hand Brush	STA straight 0.35	3 Rows	10	1	100.031.CC
Hand Brush	STA straight 0.35	4 Rows	10	1	100.041.CC
Hand Brush	STA straight 0.35	5 Rows	8	1	100.051.CC
Hand Brush	STA straight 0.35	6 Rows	8	1	100.061.CC
Hand Brush	ROF crimped 0.35	3 Rows	10	1	104.631.CC
Hand Brush	ROF crimped 0.35	4 Rows	10	1	104.641.CC
Hand Brush	MES crimped 0.35	3 Rows	10	1	107.631.CC
Hand Brush	MES crimped 0.35	4 Rows	10	1	107.641.CC
Hand Brush	STA straight 0.35	4 Rows	8	1	120.401.CC
Rivet Brush	STA straight 0.35	3 Rows	8	1	120.801.CC
Rivet Brush	ROF straight 0.35	3 Rows	8	1	120.811.CC
Duster	PP straight 0.40	4 Rows	6	2	124.801.CC
Spark Plug Brush	MES crimped 0.15	3 Rows	25	1	125.211.CC
Fine Scratch Brush	MES crimped 0.15	4 Rows	15	1	126.411.CC
Fine Scratch Brush	PA straight 0.30	4 Rows	15	1	126.451.CC
Staining Brush	MES crimped 0.15	7 Rows	6	1	144.001.CC
Staining Brush	Leather/Fibre	3/7 Rows	4	1	144.701.CC
Professional Hand Brush	STA straight 0.35	2 Rows	2 Components Handle	10	182.401.CC
Professional Hand Brush	ROF straight 0.35	2 Rows	2 Components Handle	10	182.421.CC
Professional Hand Brush	MES crimped 0.25	2 Rows	2 Components Handle	10	182.451.CC

Measurement in mm: Carton Size 1: 300 x 100 x 130 | Carton Size 2: 300 x 200 x 130

### Cut Cases for presenting the products

Cut Cases are a simple alternative for presenting brushes in large quantities. The Products can be inserted in the self-service wall modularly.



## Brushes in Cut Cases

Description	Filling material			Pack.	Carton size	Art.-No.
Wheel Brush with Plastic Body	<b>SIC</b> 80 / 1.2	7 Rows	Thread M 14	2	1	<b>402.880.CC</b>
Disc Brush with Plastic Body	<b>SIC</b> 80 / 1.2	4 Rows	Thread M 14	2	1	<b>405.845.CC</b>
Wheel Brush with Shank	<b>STA</b> gewellt 0,25	DRM 75	Shank 6 mm	25	1	<b>410.132.CC</b>
Wheel Brush with Shank	<b>STA</b> gewellt 0,35	DRM 100	Shank 6 mm	15	1	<b>410.153.CC</b>
Cup Brush	<b>STA</b> crimped 0.35	DIA 65	Thread M 14	15	1	<i>421.167.CC</i>
Cup Brush	<b>ROF</b> crimped 0.35	DIA 65	Thread M 14	15	1	<i>421.367.CC</i>
Cup Brush with Shank	<b>STA</b> gewellt 0,30	DRM 50	Shank 6 mm	15	1	<b>430.123.CC</b>
Cup Brush with Shank	<b>STA</b> gewellt 0,30	DRM 75	Shank 6 mm	15	1	<b>430.133.CC</b>
Knot Conical Brush	<b>STH</b> straight 0.50	DIA 100	Thread M 14	5	1	<i>471.257.CC</i>
Knot Wheel Brush	<b>STH</b> straight 0.50	DIA 115	Bore 22.2	6	1	<i>472.211.CC</i>
Knot Cup Brush	<b>STH</b> straight 0.50	DIA 65	Thread M 14	12	1	<i>482.217.CC</i>
Knot Cup Brush	<b>STH</b> straight 0.50	DIA 90	Thread M 14	8	1	<i>485.237.CC</i>
Cylinder Brush	<b>STA</b> gewellt 0,30	DRM 100	Shank 6 mm	20	1	<b>541.301.CC</b>

Measurement in mm: Carton Size 1: 300 x 100 x 130 | Carton Size 2: 300 x 200 x 130

**Item Nos. in bold** are available ex stock.  
Consider our minimum order value for *italic printed* article numbers (see page 184).

**STA** = steel wire, crimped

**STH** = steel wire, high tensile, straight

**ROF** = stainless steel wire

**ROH** = stainless steel wire, high tensile, straight

**MES** = brass wire

**PA** = polyamide

**PP** = polypropylene

**SIC** = silicon carbide bristles

# Packing and Sales Promotion



## Brushes with blister packing

All standard brushes for drilling machines and angle grinders are available with blister packing. The blister packing is available with attractive labels with information about technical data and EAN-bar code. The clam shells emphasize the brushes' value, protect them and provide good visible presentation.

On request we can arrange your individual private label solution.



**Please note:**  
We will soon be replacing all plastic blister packs with sustainable cardboard packaging.



Technical data on front, details and EAN on back of the Blister Packing

|||||  
EAN

### Brushes for Angle Grinders in Blister Packaging

	D mm   inch	Thread mm   inch	STH 0.35   0.014" Art.-No.	STH 0.50   0.020" Art.-No.	ROF 0.35   0.012" Art.-No.	ROH 0.50   0.020" Art.-No.	STA 0.35   0.014" Art.-No.
Knot Cup Brushes	65   2 1/2	M 14	482.117.09	482.217.09		482.817.09	
	65   2 1/2	M 10		482.214.09			
Knot Wheel Brushes	115   4 1/2	Bo. 22.2   7/8		472.211.09		472.811.09	
	115   4 1/2	M 14		472.217.09			
Knot Bevel Brushes	100   4	M 14		471.257.09			
	115   4 1/2	M 14		472.257.09		472.857.09	
Cup Brushes crimped	60   2 3/8	M 14			421.367.09		421.167.09
	60   2 3/8	M 10					421.164.09
	75   3	M 14					423.167.09
Conical Brushes crimped	100   4	M 14					422.177.09

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EAN

### Brushes for Grinders and Drilling Machines with Shank Ø 6 mm in Blister Packaging

	D mm   inch	STH 0.35   0.014" Art.-No.	STH 0.50   0.020" Art.-No.	RO4 0.35   0.014" Art.-No.
Knot End Brushes	19   3/4	453.278.09		
	22   7/8			454.378.09
Knot Wheel Brushes	75   3		417.198.09	

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EAN

### D.I.Y. Brushes for Grinders and Drilling Machines with Shank Ø 6 mm in Blister Packaging

	D mm   inch	STA 0.25   0.010" Art.-No.	STA 0.30   0.012" 0.35   0.014" Art.-No.	ROF 0.30   0.012" Art.-No.	MES 0.25   0.010" Art.-No.	SIC 80/1.2 Art.-No.
Wheel Brushes	50   2		410.123.09			
	75   3		410.133.09	410.135.09	410.136.09	410.138.09
	100   4		410.153.09			410.158.09
Cup Brushes	50   2	430.122.09	430.123.09		430.126.09	430.128.09
	75   3		430.133.09			430.138.09
Cylinder Brushes	28   1		541.301.09			

# Sales Promotion Hangers / Card



## Presentation for tube brushes

With this practical hanger assembly from now on also tube brushes with thread can be presented on self-service walls in the retail market.

The hangers are available in M 6, M 10 and W 1/2". All hangers are with a eurohole.

A label can be fixed at the front of the hanger.

**Item Nos. in bold** are available ex stock.

Consider our minimum order value for *italic printed* article numbers (see page 184).

**STA** = steel wire, crimped

**STH** = steel wire, high tensile, straight

**MES** = brass wire, crimped

**SIC** = silicon carbide bristles

### 1 Hanger assembly for tube brushes, PP black, with euro hole

Interior Thread	Total length mm   inch	Width mm   inch	Height mm   inch	Pack.	Art.-No.
M 6	135   5	42   1 5/8	2   5/64	10	<b>000.501</b>
M 10	135   5	42   1 5/8	2   5/64	10	<b>000.503</b>
W 1/2"	135   5	42   1 5/8	2   5/64	10	<b>000.507</b>

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EAN

### 2 Brushes with thread, incl. hanger assembly

	Diameter Brush mm   inch	Total length Brush mm   inch	Total length Brush mm   inch	Thread Brush	Pack.	STA Art.-No.
Tube Brushes	20   3/4	150   6	100   4	W 1/2"	10	502.120.03
	30   1 1/4	160   6 1/4	100   4	W 1/2"	10	<b>506.130.03</b>
	35   1 1/2	160   6 1/4	100   4	W 1/2"	10	506.135.03
	40   1 3/8	160   6 1/4	100   4	W 1/2"	10	<b>506.140.03</b>
	50   2	160   6 1/4	100   4	W 1/2"	10	<b>506.150.03</b>
	63   2 1/2	160   6 1/4	100   4	W 1/2"	10	506.163.03
	75   3	160   6 1/4	100   4	W 1/2"	10	<b>506.175.03</b>
Boiler Brushes	101   4	160   6 1/4	100   4	W 1/2"	10	<b>506.101.03</b>
	40 x 80   1 3/8 / 3	160   6 1/4	100   4	W 1/2"	10	<b>532.202.03</b>
	50 x 100   2 / 4	160   6 1/4	100   4	W 1/2"	10	<b>532.203.03</b>

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EAN

### 3 Brushes with Shank Ø 6 mm on Card

Description and technical data please see pages 75 and 137.

	D mm   inch	Pack.	STA 0.30   0.012" 0.35   0.014"	MES 0.25   0.010" 0.30   0.012"	SIC 80 Art.-No.	STH knotted 0.50   0.020"
Wheel Brushes	50   2	10	<b>410.123.07</b>			
	75   3	10	<b>410.133.07</b>	<b>410.136.07</b>	410.138.07	<b>417.198.07</b>
	100   4	10	<b>410.153.07</b>		<b>410.158.07</b>	
Cup Brushes	50   2	10	<b>430.123.07</b>	<b>430.126.07</b>	<b>430.128.07</b>	
	75   3	10	<b>430.133.07</b>		<b>430.138.07</b>	
Cylinder Brushes	28   1	10	<b>541.301.07</b>			

# Sales Promotion

## Professionalism, service, quality...

The LESSMANN Display units will make a good impression on your customers. They are not only good for your image but will also have a positive effect on promoting and increasing your brush sales. The comprehensive and at the same time clear presentation makes the customers choice much easier.

Take advantage of our experience and use this possibility that will lead to successful increased sales. Beside your special demands the most important thing to know is the branch where your most important customers come from and what their demands are. We have tried and tested variations of assortments for different kind of constellation. Please do not hesitate to contact us and we will arrange your individual programme. Because the production of high quality brushes is as important as having success with our products!

## 1 | Self-service Wall 100 x 220 cm

The most effective sales promotion for your LESSMANN brush assortment. Available with LESSMANN logo or Brush-Know-how label.

## 2 | Individual mix for Success

Products that fit in with the wishes of your (most important) customers and their main demand, arranged together with you and your customers. Your assortment can mainly consist of technical brushes or hand brushes.

## 3 | Carton Packing

All brushes for angle grinders in sales promoting single packing – stable and safe.

## 4 | Hand Brushes with EAN Code

All standard hand brushes (article no. 10x.xxx) with EAN code. Without extra charges for you!

## 5 | Display boxes for Shank Brushes

Available as a standard for all shank wheel brushes, cup brushes and end brushes with shank.

## 6 | Brush-Know-how Flyer

The most important brush applications of our brush assortment in length DIN with technical information and hints!

## 7 | Hanger Assembly for tube brushes

With this hanger with euro hole, brushes with thread can be presented.

## 8 | Cut Cases

Cut Cases for an easy solution of presenting products in large quantities.

## We will help you with the right choice of shelf

On request we can arrange the right shelf solution for presenting your brushes!

## Small self-service wall

A suitable alternative solution: A practical self-service wall with the measurements 67 x 180 cm.



## Private Label

A good idea with different solution possibilities. Ask for your own brand!

## Sales promoting blister packing

For all drilling machines and angle grinders.

## Take a look at quality

All technical data and safety information as well as observation windows for recognising the brushes (e.g. green marking for stainless steel brushes).

## Please note:

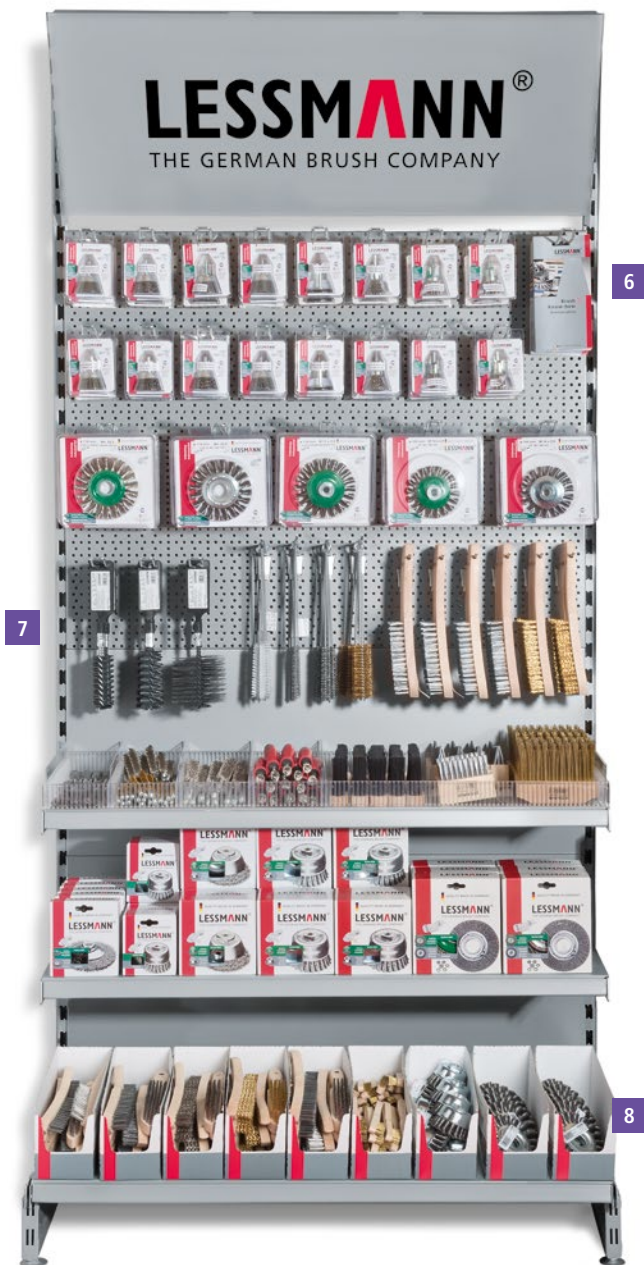
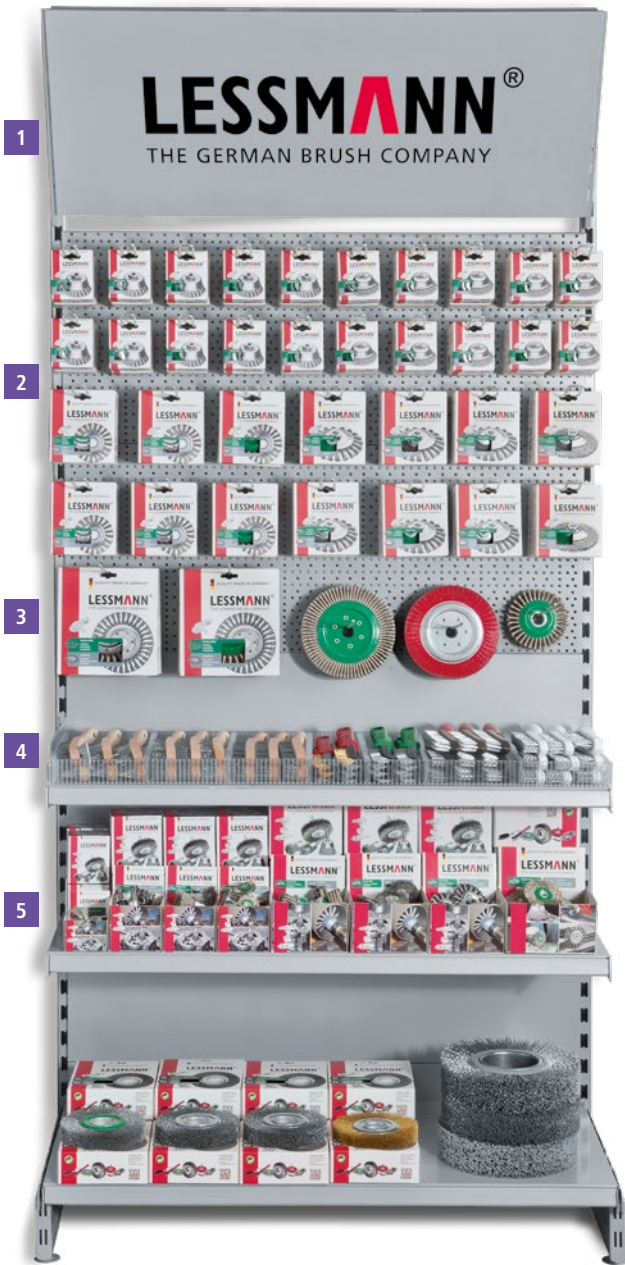
We will soon be replacing all plastic blister packs with sustainable cardboard packaging.



## Stainless Steel Marking

LESSMANN brushes with stainless steel wire can easily be recognised by green cups or side plates.





**Brush-Know-how flyer**  
The most important brush application of our brush assortment in length DIN with technical information and hints!

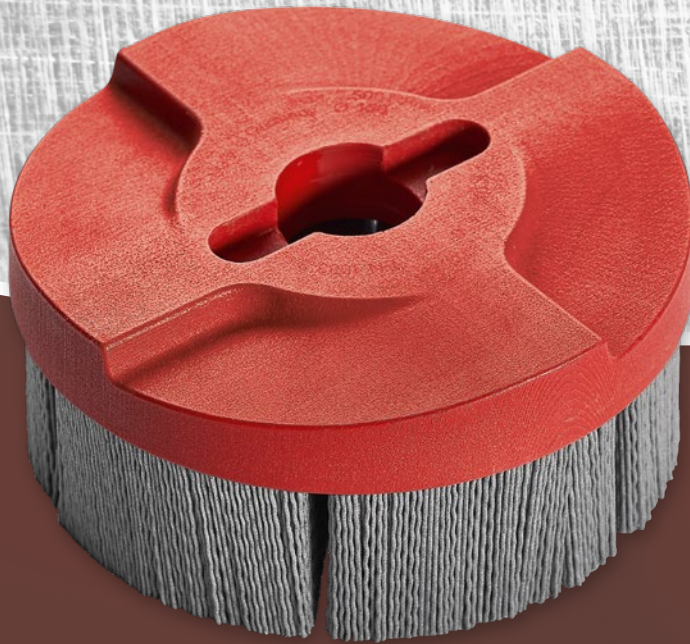
Order now:  
German version: Art.-No. 99BKHDEU  
English version: Art.-No. 99BKHENG



**Cut Cases**  
Cut Cases for an easy solution of presenting products in large quantities.

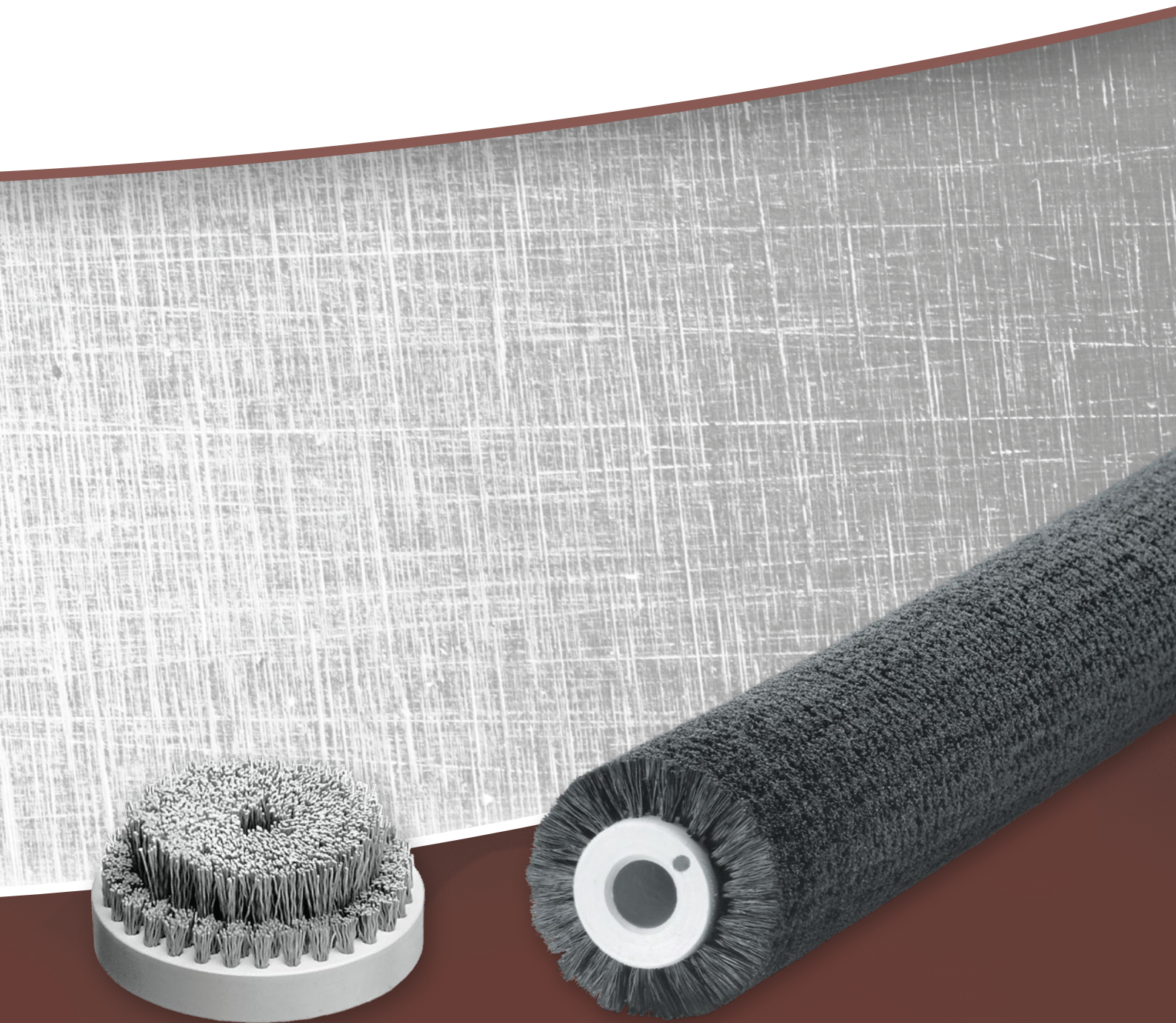
# LESSMANN®

THE GERMAN BRUSH COMPANY





# INDUSTRIAL BRUSHES



# Brushes with carbon fibre



## Brushes with carbon fibre for electrochemical cleaning

### To use in machines for cleaning weld seams

Due to oxidation on stainless steel surfaces temper colour is a result from heating. Hence often a post-treatment of the surface is necessary to reestablish the original character. End brushes with carbon fibres are used in special machines for cleaning weld seams. The typical electrochemical jobs are the following:

#### Cleaning

To remove tepering colour and scales on stainless steel surfaces, e.g. on weld seams.

#### Polishing

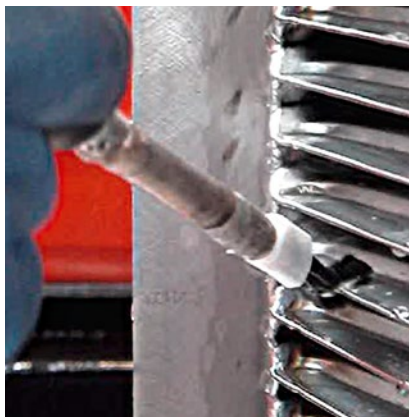
For polishing stainless steel surfaces. Residues can be removed with end brushes.

#### Marking

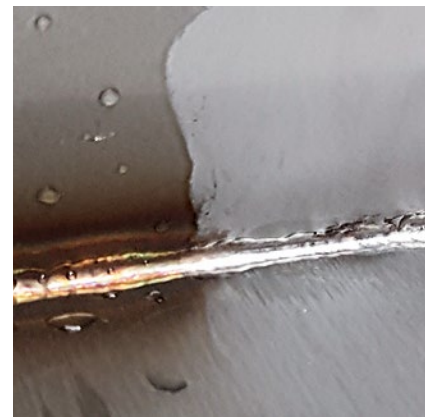
With special patterns surfaces can be marked permanently by the electrochemical process.

#### Electroplating / Surfacing

Due to the use of the end brushes, different coatings can be put on the surfaces or they can be refined.



Cleaning of areas which are hard to reach



Before the treatment | After the treatment  
Cleaning of weld seams

#### End brushes for standard machines

For many customary available machines for weld seam treatment LESSMANN offers the suitable end brushes.

Depending on the customers' demands the end brushes are available with different adapters, e.g. interior / exterior threads.

#### Time-saving and effective

Unlike other processes, working with special machines for weld seam cleaning are environmentally friendly and by using it correctly no toxic vapours are generated.

Due to the high flexibility of the filament also areas which are hard to reach can be treated easily.

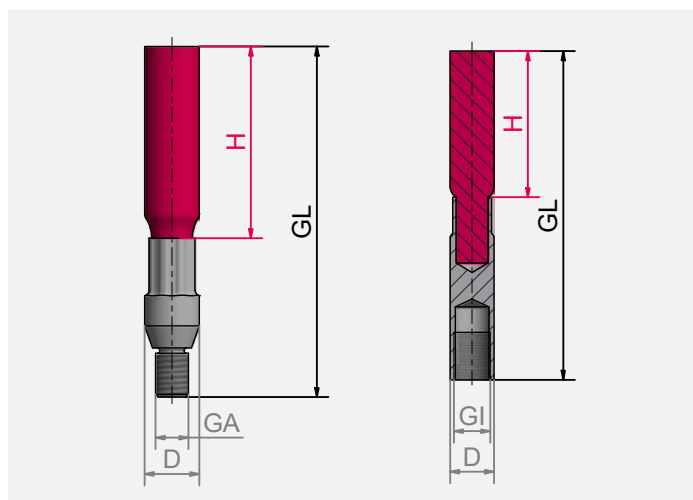
By using LESSMANN brushes within a short time a clean result is achieved. Weld seams are treated without any residues and surfaces are treated without being damaged.



## Brushes with carbon fibre

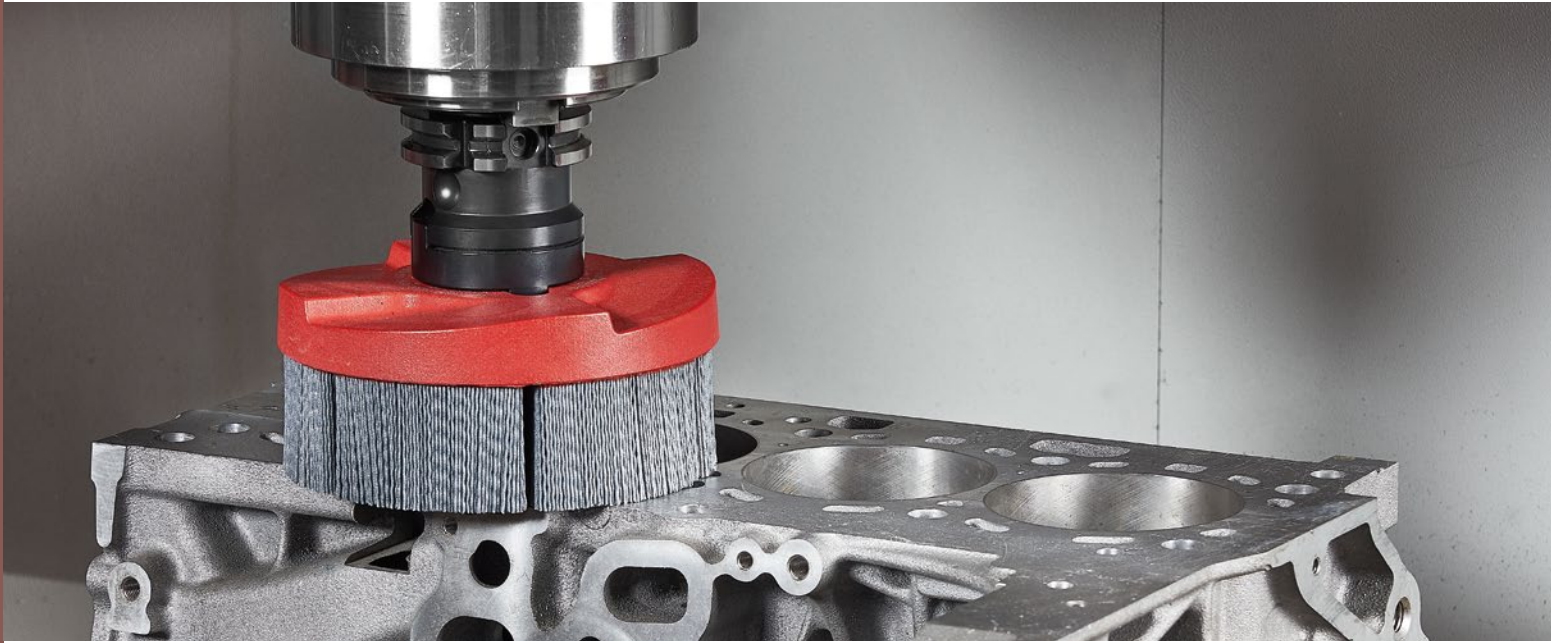
	Sleeve	D	GL	H	Shape of thread	GA/GI	Presentation	Pack.	Art.-No.
		mm   inch	mm   inch	mm   inch					
<b>1</b>	Copper	10   25/64	65   2 3/8	30   1 3/16	outside	M6		10	<b>047.700</b>
<b>2</b>	Copper	12   15/32	90   3 1/2	40   1 5/8	inside	M10 x 0.75	Plastic coating	10	<b>047.705</b>
	Copper	12   15/32	90   3 1/2	40   1 5/8	inside	M10 x 1.0	Plastic coating + side thread M4	10	<b>047.707</b>
	Copper	10   25/64	80   3 1/4	30   1 3/16	inside	M8 x 1.0	Plastic coating	10	<b>047.708</b>
<b>3</b>	Stainless Steel	8   5/16	50   2	30   1 3/16	outside	M6 x 1.0	Teflon sleeve (DRM 12 mm)	10	<b>047.750</b>
	Stainless Steel	8   5/16	50   2	30   1 3/16	outside	M6 x 1.0		10	<b>047.755</b>
<b>4</b>	Stainless Steel	8   5/16	72   2 53/64	42   1 21/32	outside	M6 x 0.75	Plastic coating	10	<b>047.754</b>
<b>5</b>	Stainless Steel	12   15/32	75   3	40   1 5/8	inside	M10		10	<b>047.757</b>
<b>6</b>	Stainless Steel	10   25/64	130   5 1/8	60   2 3/8	outside	M6 x 0.75	Plastic coating + external thread M12	10	<i>047.763*</i>
	Stainless Steel	10.5   13/32	130   5 1/8	60   2 3/8	outside	M6 x 0.75	Plastic coating + external thread M14	10	<i>047.764*</i>
<b>7</b>	Brass	12   15/32	75   3	40   1 5/8	inside	M10		10	<b>047.801</b>

\* Teflon protective sleeve on request



Item Nos. in bold are available ex stock.  
Consider our minimum order value for *italic printed* article numbers (see page 184).

# High Performance Filament Brushes



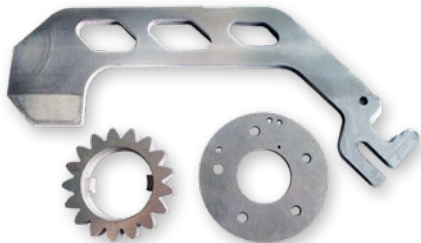
## HFB Disc Brushes

LESSMANN high performance surface finishing tools achieve excellent deburrings and edge radiusing on exterior and interior areas of work pieces. Next to the applications in machining centers, especially in linear deburring and finishing lines with planetary brush systems HFB brushes obtain high efficiency.

They are used for e.g. for the deburring of

- blanked parts
- sintered parts
- hydraulic and pneumatic work pieces
- aluminium work pieces
- and many more

Also work pieces which are exposed to high pressures demand precise edge radiuses. LESSMANN HFB brushes are ideal tools which achieve these requirements outstandingly.



Typical work pieces which are treated with LESSMANN HFB brushes.

## Filling material

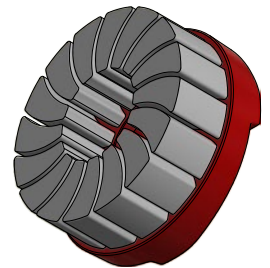
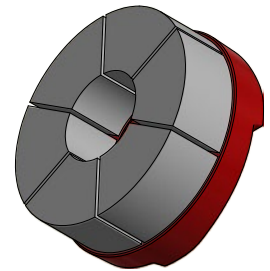
In a special production process LESSMANN HFB brushes are manufactured with a very high filling density. Available are high abrasive nylons with silicon carbide, ceramic or diamond grit. Standard in LESSMANN HFB Brushes high quality filling material is used (PA 6.12). It is very bending resistant and abrasion-resistant.

Due to the application orientated selection of the filling materials an excellent deburring and constant edge radiusing in a short working time is achieved.

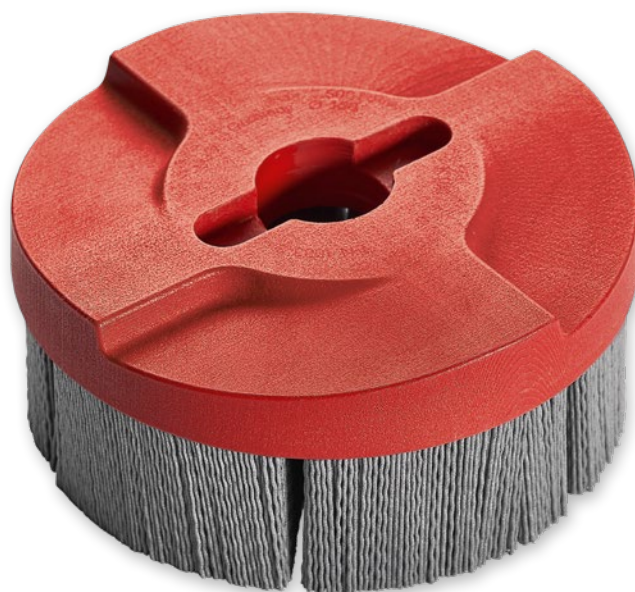
Depending on the HFB application the brushes can be used under dry condition or with addition of coolants.

## Arrangement filling material

Depending on the requirements, the brushes can be manufactured with individual filling fields. For example, full filament is possible, but also the division of the abrasive bristles into defined fields or deviation of the bristles. Depending on the direction of rotation, more effective processing is possible, for example due to the optimum removal of cooling water.



Examples arrangement filling material



#### Revised clamping system

LESSMANN manufactures brush types for all common brands of machines and drilling patterns according to customer specifications. Our basic versions, suitable for the common machines with cutter head holder (DIN 6357) or combi-milling arbor holder (DIN 6358), as well as special models are available short-term. LESSMANN HFB brushes are also suitable for accessories for working under wet conditions, e.g. clamping screws with coolant holes.

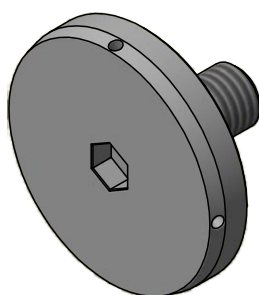
On request we can deliver the brushes with bore according to your special requirements.

#### Revised design

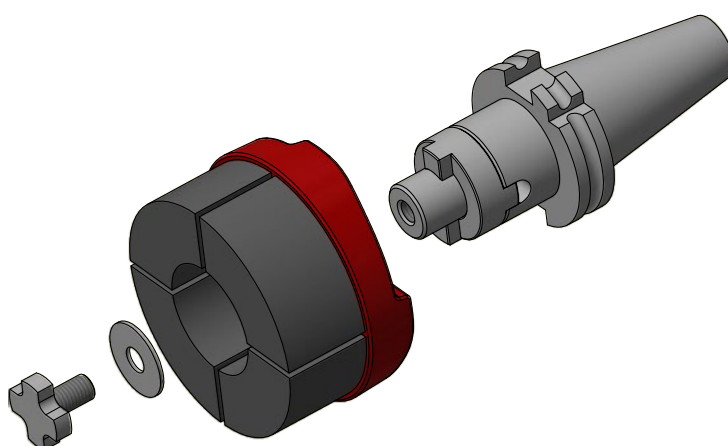
LESSMANN HFB brushes are constantly being further developed to meet the latest technical requirements. The latest adaptation is the revised design of the brush plate, which has been given a curved shape. Thus the brush can be used more flexible and the brush body is even more stable. The resulting dynamic rotation gives the brush optimum conditions for precise work. In addition, less chips and oil are trapped in the brush during machining, which leads to less abrasive wear.

#### User tips

- The optimum speed is usually clearly below the maximum speed. Please note the information on the brush body. See page 12 for details.
- The feed rate of the brush depends on the desired brush result and must be determined individually.
- When using the brush, make sure that all edges and surfaces to be machined are reached. In order to ensure uniform processing, it is important that the brush is not removed from the workpiece prematurely, especially during start-up and run-out.



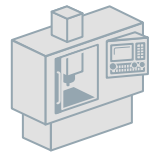
Clamping screw with coolant holes



Common combi arbor holder for HFB brushes.

Contact us for further information and a nonbinding consultation!

# High Performance Filament Brushes



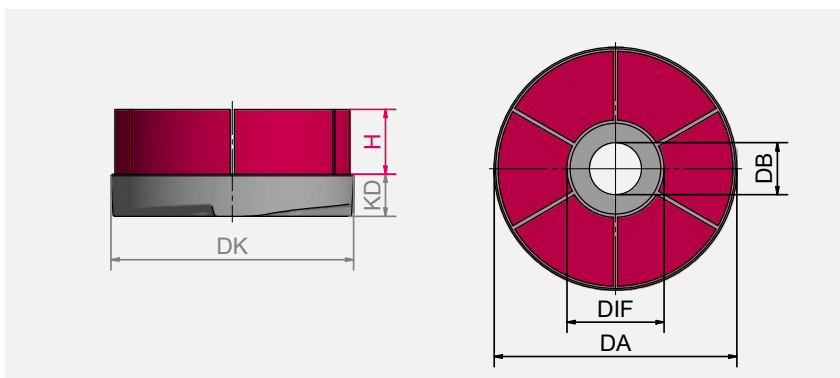
## 1 HFB Disc Brushes, full body, silicon carbide bristles

Body Ø DK	Filling Ø DA	Open Space DIF	Filling Length H	Bore DB	Body Thickness KD	RPM max.	Pack.	SIC 80/1,2 Art.-Nr.	SIC 120/1,1 Art.-Nr.	SIC 180/1,0 Art.-Nr.
50   2	45   2	25   1	35   1 <sup>3/8</sup>	16 DKN	18   5/8	4,500	1	<b>601.204.20</b>	<b>601.304.20</b>	<b>601.404.20</b>
75   3	70   2 <sup>3/4</sup>	34   1 <sup>1/4</sup>	35   1 <sup>3/8</sup>	22 DKN	20   3/4	4,500	1	<b>602.214.20</b>	<b>602.314.20</b>	<b>602.414.20</b>
100   4	95   3 <sup>1/2</sup>	45   2	35   1 <sup>3/8</sup>	22 DKN	20   3/4	3,600	1	<b>603.214.20</b>	<b>603.314.20</b>	<b>603.414.20</b>
125   5	120   4 <sup>3/4</sup>	55   2 <sup>3/4</sup>	40   1 <sup>5/8</sup>	27 DKN	22   7/8	3,000	1	<b>604.225.20</b>	<b>604.325.20</b>	<b>604.425.20</b>
150   6	145   5 <sup>7/100</sup>	60   2 <sup>3/8</sup>	40   1 <sup>5/8</sup>	32 DKN	25   1	2,500	1	<b>605.265.20</b>	<b>605.365.20</b>	<b>605.465.20</b>

## 2 HFB Disc Brushes, full body, ceramic grit

Body Ø DK	Filling Ø DA	Open Space DIF	Filling Length H	Bore DB	Body Thickness KD	RPM max.	Pack.	KK 80/1,2 Art.-Nr.	KK 120/1,1 Art.-Nr.
50   2	45   2	25   1	35   1 <sup>3/8</sup>	16 DKN	18   5/8	4,500	1	<b>601.204.30</b>	<b>601.304.30</b>
75   3	70   2 <sup>3/4</sup>	34   1 <sup>1/4</sup>	35   1 <sup>3/8</sup>	22 DKN	20   3/4	4,500	1	<b>602.214.30</b>	<b>602.314.30</b>
100   4	95   3 <sup>1/2</sup>	45   2	35   1 <sup>3/8</sup>	22 DKN	20   3/4	3,600	1	<b>603.214.30</b>	<b>603.314.30</b>
125   5	120   4 <sup>3/4</sup>	55   2 <sup>3/4</sup>	40   1 <sup>5/8</sup>	27 DKN	22   7/8	3,000	1	<b>604.225.30</b>	<b>604.325.30</b>
150   6	145   5 <sup>7/100</sup>	60   2 <sup>3/8</sup>	40   1 <sup>5/8</sup>	32 DKN	25   1	2,500	1	<b>605.265.30</b>	<b>605.365.30</b>

DKN = double keyway



Item Nos. in bold are available ex stock.  
Consider our minimum order value for *italic printed* article numbers (see page 184).

SIC = silicon carbide bristles

KK = ceramic grit

# Enquiry for High Performance Filament Brushes

**Drawing / description of application**

Grid area for drawing or description of application.

Piece number \_\_\_\_\_

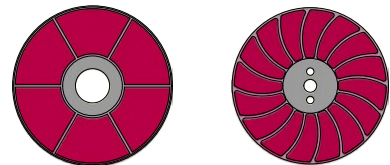
**Brush Application**  dry  wet  
 deburring  
 others \_\_\_\_\_

**Material to be treated** \_\_\_\_\_ °C Temperature  
 steel  
 aluminium  
 stainless steel  
 others \_\_\_\_\_

**Filling material**  
 silicon carbide bristles (SIC)  
 aluminium oxide bristles (AO)  
 ceramic grit (KK)  
 diamond grit (DIA)

**Diameter of filling material** \_\_\_\_\_

**filling placement**



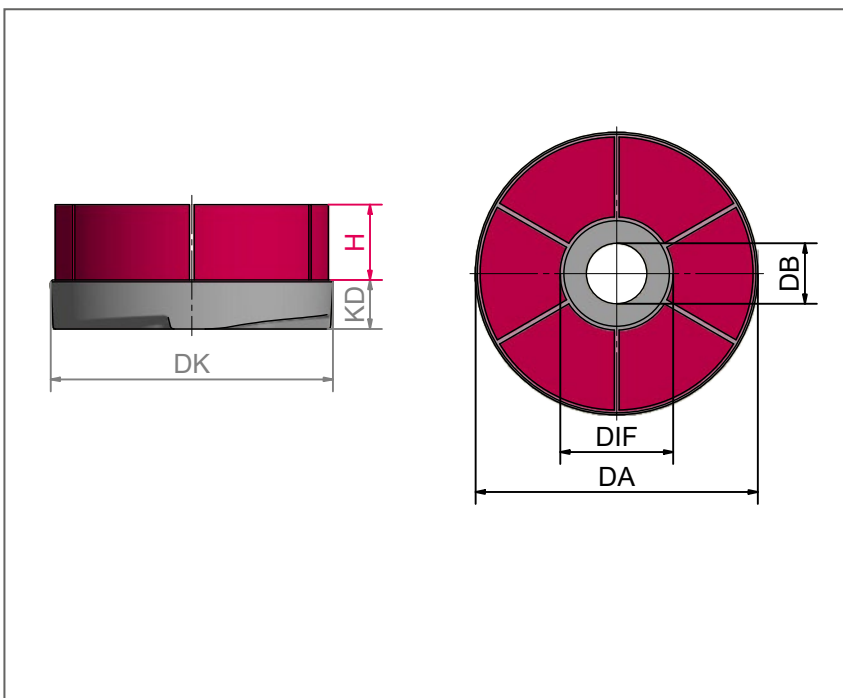
full-body  turbo

**turbo right / left** (standard right) \_\_\_\_\_

**Please indicate the dimensions according to the technical drawing (mm):**

DK body diameter \_\_\_\_\_ mm  
 DA Dia filament outside \_\_\_\_\_ mm  
 DIF Dia filament inside \_\_\_\_\_ mm  
 H Filling height \_\_\_\_\_ mm  
 Deviation of the bristles \_\_\_\_\_ °

Standard bore  
 (adapted to body diameter, see table on left page)  
 Special bore \_\_\_\_\_



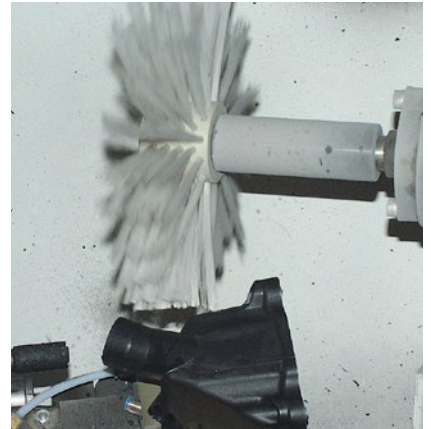
**Sender:** company, contact person

**Inquiries and Infos:**

Phone: +49 9082 707-0 info@lessmann.com  
 Fax: +49 9082 707-76 www.lessmann.com



# Staple Set Brushes



## Staple Set Brushes

For applications with little mechanic load, brushes in a staple set edition are produced. Typical applications for staple set Wheel Brushes and Wide Face Brushes, Disc Brushes or Lath Brushes are for example cleaning, deburring, surface finishing, structurizing, smoothing, transporting, sorting or moistening.

Depending on the requirements, the filling material can be fixed individually into the body. The distance of the bundles are variable and comply with the application.

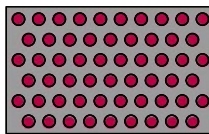
As filling material next to different wires also fibres are available. Also mixed filament in various mixing proportions are possible.

Disc Brushes usually are delivered with thread or bore. Staple set wheel and roller brushes are produced with bore or arbour absorption, depending on the customers' specification.

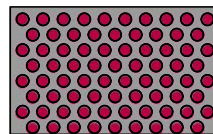
Please inform yourself on the following pages and do not hesitate to contact us for personal advice!

## Possible desities of brush filling material

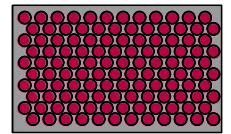
for Wheel Brushes and Wide Face Brushes, Disc Brushes and Lath Brushes



thin filling material



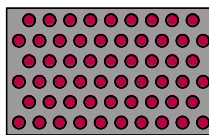
mean desity of filling material



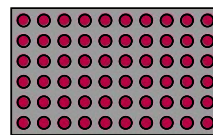
dense filling material

## Possible placement of brush filling material

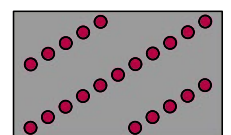
for Wheel Brushes and Wide Face Brushes, Disc Brushes and Lath Brushes



staggered filling material



straight filling material



spiral filling material



# Disc Brushes



Disc Brushes – Measurements							
DA	KD	H		DB/GI	Body	Trim	Trim
External diameter	Body height	Trim height	Deviation	Thread	Material	Material	Density
mm	mm	mm	of the Bristles				
10–800	10–100	8–95 steel 8–135 Plastic	max. 45°	freely selectable	PP, PE, PA, Wood, Plywood	STA, STM, MES, ROF, PP, PE, PA, FIB, ROS, SIC, AO	thin, mean, dense

### Disc Brushes – for cleaning and deburring

Disc Brushes are used for the treatment of plane surfaces on almost every material. The numerous variations of body and trimming materials and adapter systems make them for all purposes applicable.

For deburring working pieces, disc brushes can be inserted in individual equipments as well as in machining centres for removing secondary burrs.

### Disc Brushes for the wood machining industry

Disc brushes used for the wood machining industry have a very long filling material (SIC). Used on angle grinders, the disc brushes are ideal for maintaining, cleaning, structuring or polishing wood.

The brushes are very effective when working on large surfaces.

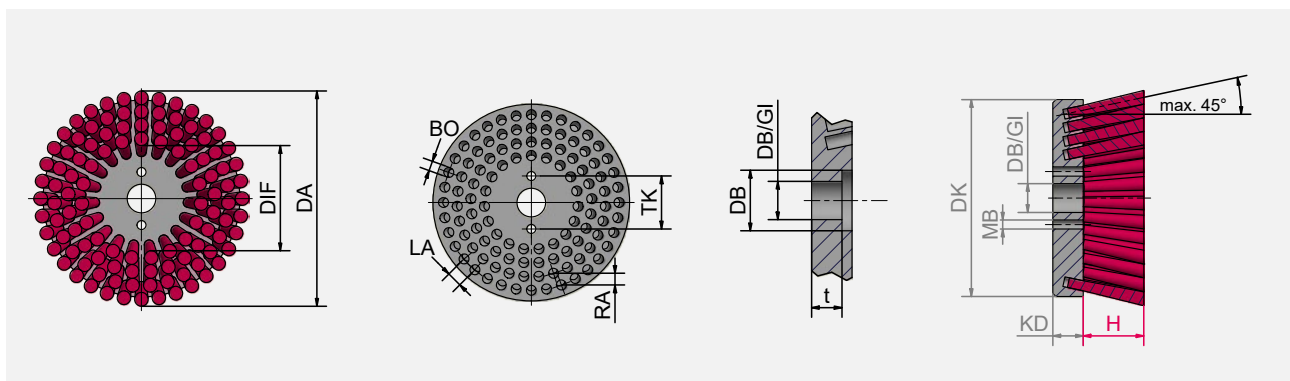
### Circular Discs – Standard Body

If your application allows the mentioned sizes, we recommend our standard bodies.

**Item Nos. in bold** are available ex stock.

Consider our minimum order value for *italic printed* article numbers (see page 184).

- STA** = steel wire
- STM** = brass coated steel
- ROF** = stainless steel wire
- MES** = brass wire
- PP** = polypropylene
- PA** = polyamide
- PE** = polyethylene
- FIB** = fibre
- ROS** = horse hair
- SIC** = silicon carbide bristles
- AO** = aluminium oxide bristles



# Disc Brushes



## Disc Brushes

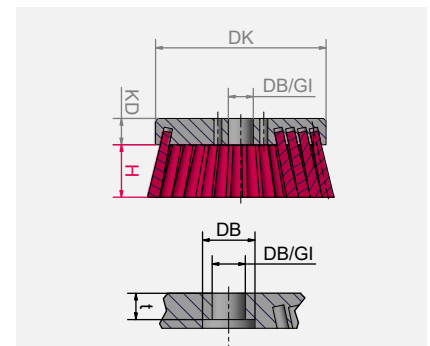
Filling	DK	H	DB/GI	KD	RPM	Pack.	Art.-No.
	mm   inch	mm   inch	mm   inch	mm   inch	max.		
<b>STA 0.20   0.008"</b>	150   6	25   1	M 14	25   1	2,500	1	<b>405.006</b>
<b>SIC 180/1.0</b>	125   5	25   1	22.2   7/8	25   1	3,000	5	405.854
<b>SIC 180/1.0</b>	150   6	20   3/4	25   1	25   1	2,500	25	405.835
<b>SIC 120/1.1</b>	150   6	25   1	25   1	25   1	2,500	4	405.864
<b>1 Mixed filament STA 0.30 / PA 0.35</b>	130   5 1/8	40   1 3/8	M 14	25   1	2,500	10	405.908
<b>Mixed filament STA 0.30 / PA 0.35</b>	200   8	40   1 3/8	M 14	25   1	2,000	10	405.905

## 2 Disc Brushes for the wood machining

Filling	DK	H	DB/GI	KD	RPM max.	Pack.	Art.-No.
	mm   inch	mm   inch		mm   inch			
<b>SIC 46/1.6</b>	130   5 1/8	50   2	M 14	20   3/4	2,500	1	<b>405.843</b>
<b>SIC 60/1.5</b>	130   5 1/8	50   2	M 14	20   3/4	2,500	1	<b>405.844</b>
<b>SIC 80/1.2</b>	130   5 1/8	50   2	M 14	20   3/4	2,500	1	<b>405.845</b>

## Circular Discs – Standard Body Measurements (in Stock) Body Material PP (red)

DK	KD	DB	DB/GI	t	Other
mm   inch	mm   inch	mm   inch	mm   inch	mm   inch	
130   5 1/8	20   3/4	22.5   7/8	19   3/4	12   1/2	M14 possible
150   6	25   1	12   1/2			
150   6	25   1	35   1 3/8	25   1	15.1   5/8	mounting hole 2 x Ø 11 mm, TK 56
165   8 1/2	25   1	20   3/4	30   1 3/16	11.5   1/2	mounting hole 1 x Ø 7 mm, TK 48
180   7	18   3/4		M12		
180   7	18   3/4		M12 left		
200   8	25   1	12   1/2			
200   8	25   1	35   1 3/8	25   1	15.1   5/8	mounting hole 2 x Ø 11 mm, TK 56
220   8 5/8	20   3/4	40   1 5/8			



The standard bodies can be adapted on demand (dress to size, drill) for receiving other measurements.

## 3 Brush intake with shank

D	KL	Art.-No.
mm   inch	mm   inch	
16   5/8	81   3 3/16	Bore 35/25   1 3/8/1
		000.051

# Enquiry for Disc Brushes

**Drawing / description of application**

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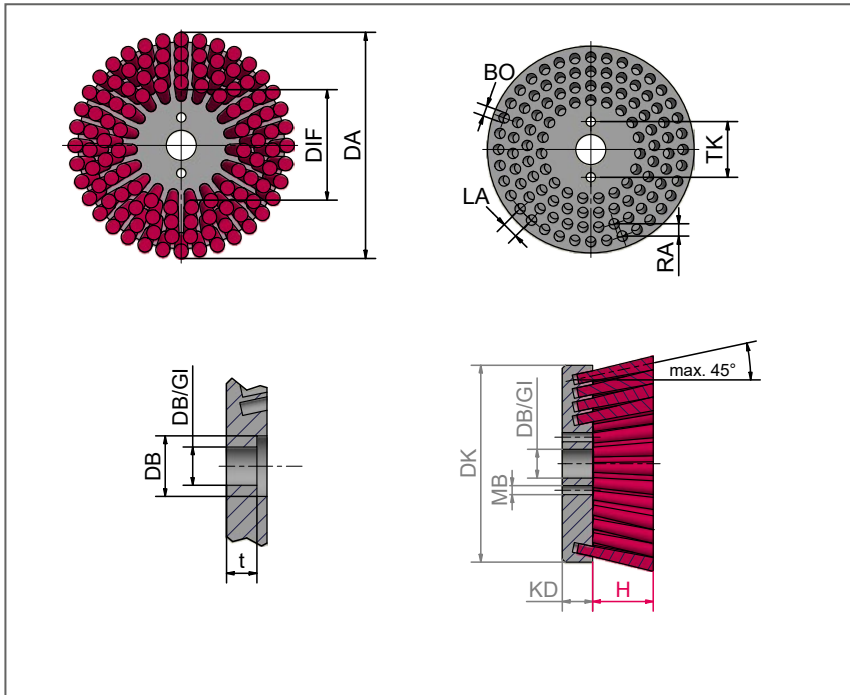
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**Circular Discs – Standard Body Measurements (in Stock) Body Material PP (red)**

DK	KD	DB	DB/GI	t	Other
mm   inch	mm   inch	mm   inch	mm   inch	mm   inch	
130   5 1/8	20   3/4	22.5   7/8	19   3/4	12   1/2	M14 possible
150   6	25   1	12   1/2			
150   6	25   1	35   1 3/8	25   1	15.1   5/8	mounting hole 2 x Ø 11 mm, TK 56
165   8 1/2	25   1	20   3/4	30   1 3/16	11.5   1/2	mounting hole 1 x Ø 7 mm, TK 48
180   7	18   3/4		M12		
180   7	18   3/4		M12 left		
200   8	25   1	12   1/2			
200   8	25   1	35   1 3/8	25   1	15.1   5/8	mounting hole 2 x Ø 11 mm, TK 56
220   8 5/8	20   3/4	40   1 5/8			



**Sender:** company, contact person

.....

**Inquiries and Infos:**  
 Phone: +49 9082 707-0 info@lessmann.com  
 Fax: +49 9082 707-76 www.lessmann.com

Piece number: .....

**Brush Application**  dry  wet

deburring  
 cleaning  
 surface treatment  
 others .....

**Material to be treated** .....°C Temperature

steel  
 aluminium  
 wood  
 stainless steel  
 plastic  
 others .....

**Filling material**

steel  
 brass coated steel  
 brass  
 stainless steel  
 polypropylene  
 polyethylene  
 polyamide  
 silicon carbide bristles (SIC)  
 aluminium oxide bristles (AO)  
 fibre  
 horse hair  
 other .....

**Diameter of filling material** .....

**Filling density**

light  medium  close

**Filling placement**

full seat  block fill  dynamic fill

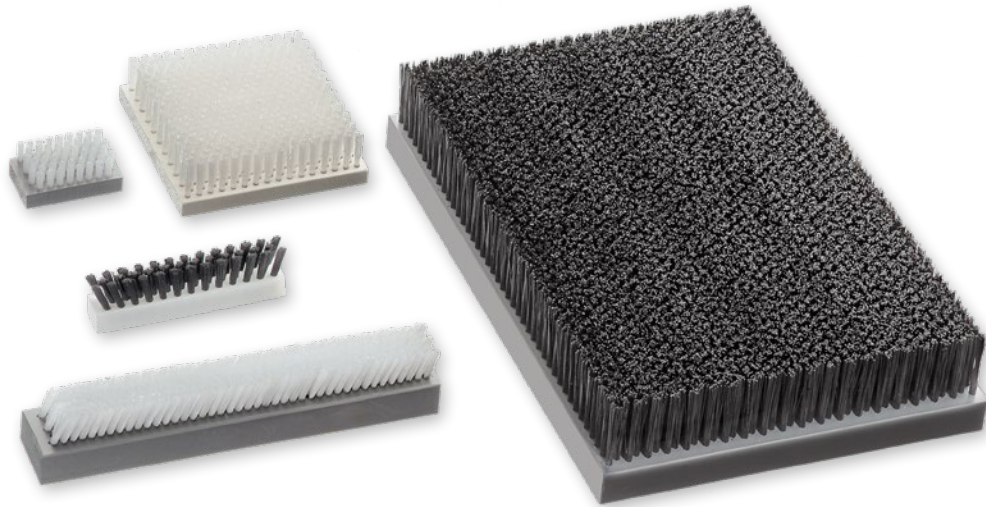
**Please mention measurements according to drawing (mm)**

DK body diameter .....mm  
 DA outer diameter .....mm  
 DIF inner diameter .....mm  
 KD body thickness .....mm  
 DB/GI bore .....mm  
 DB diameter counterbore .....mm  
 TK pitch circle drive bore .....mm  
 MB diameter drive bore .....mm  
 H trim height .....mm  
 Stocking skew .....°

**Body material**

polypropylene (standard)  
 other .....

# Lath Brushes



**Lath Brushes – Measurements**

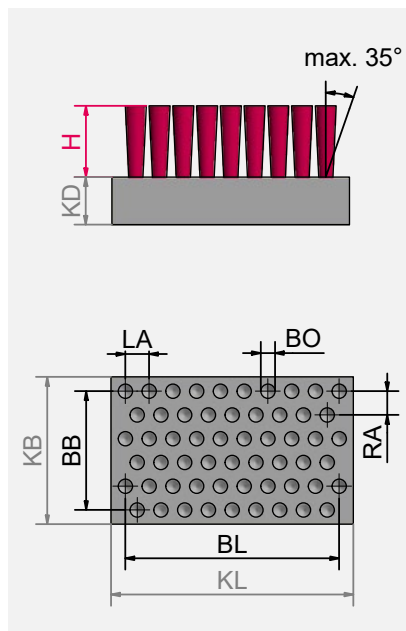
KB mm	KL mm	KD mm	H mm	Deviation of the Bristles	Body Material	Filling Material	Filling Density
8–750	8–2400	10–100	8–95 Steel 8–135 Plastic	max. 35°	PP, PE, PA, Wood, Stack wood	STA, STM, MES, ROF, PP, PE, PA, FIB, ROS, SIC, AO	thin, mean, dense

## Lath Brushes

Lath Brushes work in machines and are used for clearing, cleaning, insulating and discharging electric charges etc. Various body materials are possible: including wood and plastic.

The filling material can be manifold and goes from fine horsehair to firm steel wire. Through the deviation of the bristles until 35° the lath brushes are very flexible in their applications.

As required the stocked standard bodies could be reworked (turned, drilled out) to get further dimensions



**Item Nos. in bold** are available ex stock.

Consider our minimum order value for *italic printed* article numbers (see page 184).

**STA** = steel wire

**STM** = brass coated steel

**ROF** = stainless steel wire

**MES** = brass wire

**PP** = polypropylene

**PA** = polyamide

**PE** = polyethylene

**FIB** = fibre

**ROS** = horse hair

**SIC** = silicon carbide bristles

**AO** = aluminium oxide bristles

# Enquiry for Lath Brushes

Drawing / description of application

Grid area for drawing or description of application.

Piece number \_\_\_\_\_

Brush Application  dry  wet

- caulk
- cleaning
- fix
- transporting
- others \_\_\_\_\_

Material to be treated \_\_\_\_\_ °C Temperature




- steel
- aluminium
- wood
- stainless steel
- plastic
- others \_\_\_\_\_

Filling material


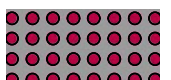
- steel
- brass coated steel
- brass
- stainless steel
- polypropylene
- polyethylene
- polyamide
- silicon carbide bristles (SIC)
- aluminium oxide bristles (AO)
- fibre
- horse hair
- others \_\_\_\_\_

Diameter of filling material \_\_\_\_\_

Filling density

-   light   medium   close

Filling placement

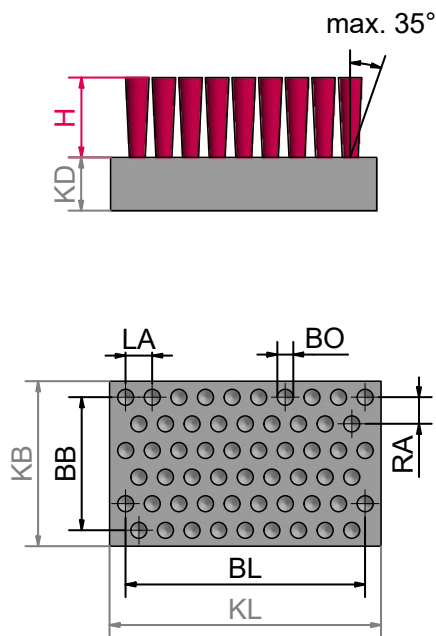
-   added   straight

Please mention measurements according to drawing (mm)

- KL total length \_\_\_\_\_ mm
- KB total width \_\_\_\_\_ mm
- KD body thickness \_\_\_\_\_ mm
- BL occupied length \_\_\_\_\_ mm
- BB occupied width \_\_\_\_\_ mm
- H trim height \_\_\_\_\_ mm
- Deviation of the Bristles \_\_\_\_\_ °

Body material

- polypropylene (standard)
- other \_\_\_\_\_



Sender: company, contact person

**Inquiries and Infos:**

Phone: +49 9082 707-0 info@lessmann.com  
Fax: +49 9082 707-76 www.lessmann.com



# Wheel Brushes and Wide Face Brushes



**Staple Set Wheel and Roller Brushes – Measurements**

D	KD	KL	A	d	Body Material	Filling Material	Filling Density
mm	mm	mm	mm	mm			
45–440 steel	25–250	5–800	3–780	freely selectable	PP, PE, PA, Wood	STA, STM, MES, ROF, PP, PE, PA, FIB, ROS, SIC, AO	thin, mean, dense

**Standard body diameter (on stock) in body material PP**

50, 80, 100, 140

## Staple Set Wheel and Roller Brushes

These brushes are used for cleaning, deburring, surface finishing, structurizing, smoothing and transporting.

The brush body is of wood or plastic. The filling material is determined by the brushes purpose. Please also consider temperature, chemical and mechanical characteristics during use. Filling length, filling material, filling diameter and filling density are significant for the mode of action of the brush.

The density of the filling material can be varied by the diameter and the distance of and from the hole.

The staple set wheel and roller brushes are available with bore or arbor absorption, depending on the customers' specification.

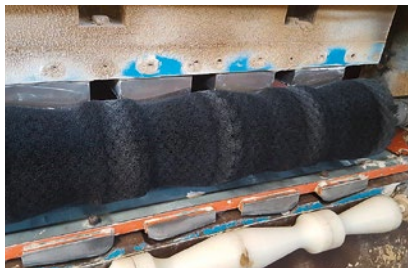
The mentioned data in the chart should support you defining the right brush for your application.

For further information or support do not hesitate to contact us by e-mail, phone or fax. We will be very pleased to support you.



### Note:

For applications which have a high mechanical load on the brushes we advise our wheel and roller brushes with crimped or knotted wire (chapters „Wheel Brushes“ & „Deburring Brushes“ in this catalogue).



As required the stocked standard bodies could be reworked (turned, drilled out) to et further dimensions

**Item Nos. in bold** are available ex stock.

Consider our minimum order value for *italic printed* article numbers (see page 184).

**STA** = steel wire

**STM** = brass coated steel

**ROF** = stainless steel wire

**MES** = brass wire

**PP** = polypropylene

**PA** = polyamide

**PE** = polyethylene

**FIB** = fibre

**ROS** = horse hair

**SIC** = silicon carbide bristles

**AO** = aluminium oxide bristles

# Enquiry for punched Wheel and Wide Face Brushes

Drawing / description of application

Grid area for drawing or description of application.

Piece number \_\_\_\_\_

Brush Application  dry  wet

- deburring
- cleaning
- roughening / structuring
- transporting
- others \_\_\_\_\_

Material to be treated \_\_\_\_\_ °C Temperature

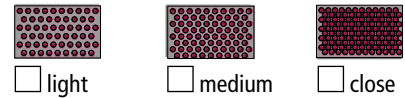
- steel
- aluminium
- wood
- stainless steel
- plastic
- others \_\_\_\_\_

Filling material

- steel
- brass coated steel
- brass
- stainless steel
- polypropylene
- polyethylene
- polyamide
- silicon carbide bristles (SIC)
- aluminium oxide bristles (AO)
- fibre
- horse hair
- others \_\_\_\_\_

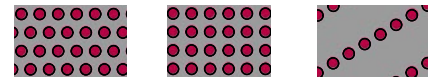
Diameter of filling material \_\_\_\_\_

Filling density



light  medium  close

Filling design



added  straight  spirally

Please mention measurements according to drawing (mm)

D outer diameter \_\_\_\_\_ mm

KD body diameter \_\_\_\_\_ mm

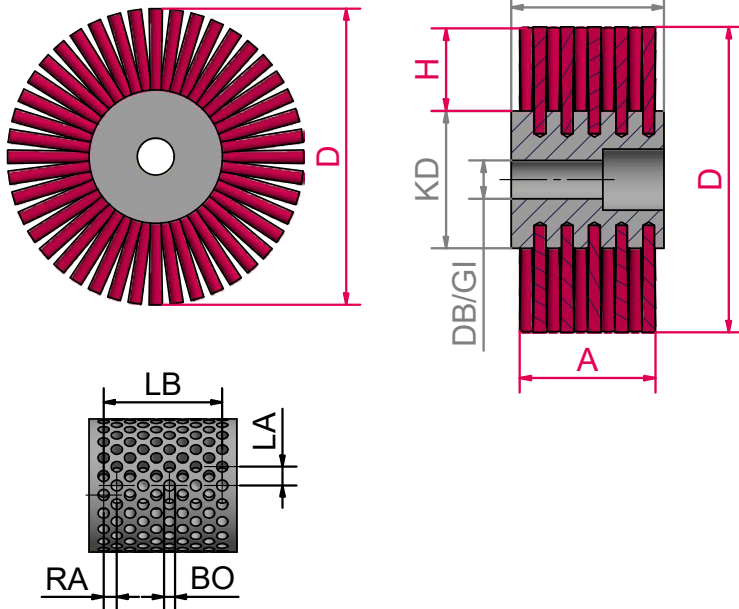
KL body length \_\_\_\_\_ mm

A occupied width \_\_\_\_\_ mm

DB/GI bore \_\_\_\_\_ mm

Body material

- polypropylene (standard)
- other \_\_\_\_\_



Sender: company, contact person

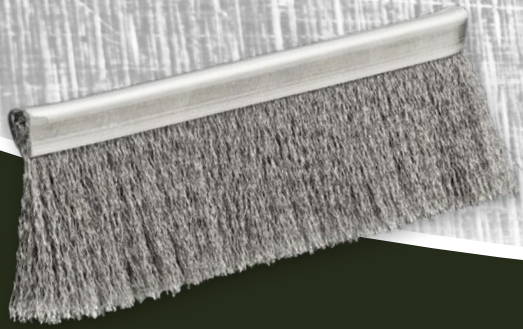
**Inquiries and Infos:**

Phone: +49 9082 707-0 info@lessmann.com  
 Fax: +49 9082 707-76 www.lessmann.com



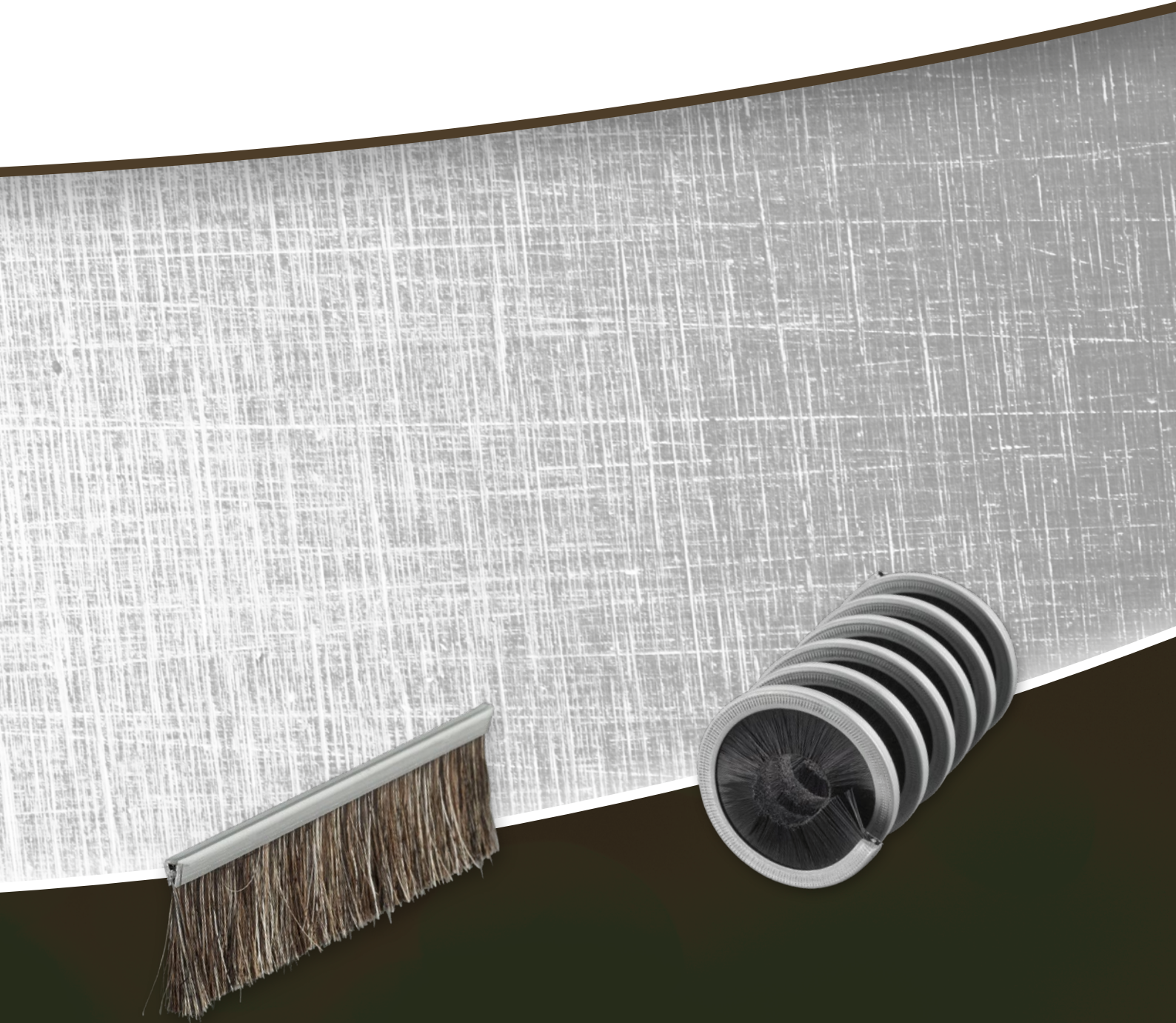
# LESSMANN<sup>®</sup>

THE GERMAN BRUSH COMPANY





# STRIP BRUSHES



# Strip Brushes

## Strip brushes

Strip brushes can be used in many ways. Strip brushes have very dense and close fillings and thus they can help to save energy with long lifetime.

They seal gates and doors and prevent of infiltration, cold, humidity, leaves and dirt.

They also protect moving parts (installation in machines and systems) from dust and other undesirable particles. Strip brushes also can be used for transport, guiding and securing of sensitive objects. Strip brushes from Lessmann are available in different shapes and with different adapters and filling materials.

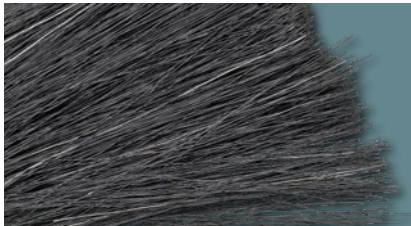


## Filling materials

All LESSMANN strip brushes are available with the following filling materials:

### Natural hair:

Horse hair, grey and black



Highly effective and the most used material of filling for sealing gates and both hinged doors and sliding doors. This type of filling can be used in wet and dry areas and even at high temperatures (up to 150 °C). Their static charge is low. As standard, we use a mixture of 70 % horsehair and 30 % polyethylene.

The color specification „grey“ (top) refers to light horsehair, „black“ (bottom) refers to dark horsehair. However, since it is a natural material, color variations may occur.

## Synthetic filaments:

- Polypropylene PP, Ø 0.15 – 3 mm, white and black.

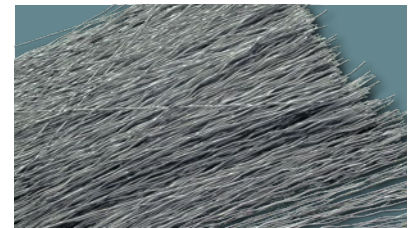


Inexpensive bristle for many uses, does not absorb water, retains initial rigidity in wet environments, low bend recovery.

- Polyamide PA, Ø 0.08 – 3 mm, white and black. Available in all grades. Good heat and wear resistance, good bend recovery. PA 6.6: Good bend recovery, good abrasion resistance, water absorption up to max. 10%. PA 6.12 (ideally suited for use in wet environments): Flexible and excellent bend recovery, high abrasion resistance, water absorption up to max. 3%.
- Polyester (PBT), Ø 0.08 – 3 mm, black, white, transparent. Lower water absorption than PA 6.12, very good bend recovery, good chemical resistance.

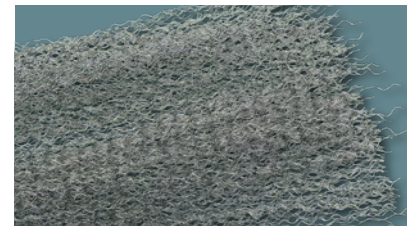
## Wires:

- Steel wire



Good mechanical properties, good wear resistance, temperature resistance (up to approx. 300 °C). Suitable for deburring, derusting, roughening and paint removal.

- Stainless steel wire

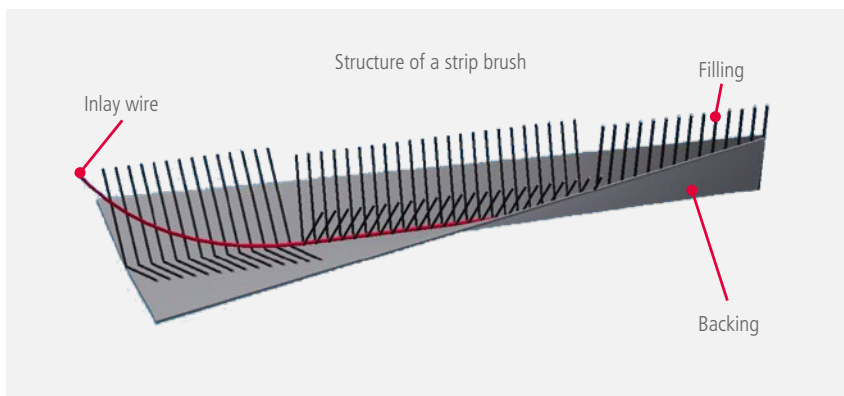


Usable in high-temperature range (up to approx. 400 °C), corrosion-resistant.

- Brass wire



Softer, therefore very suitable for working on soft woods and sensitive metal surfaces, temperature resistant (up to approx. 200 °C).



**Standard backing**

The filling materials of strip brushes will be bound in a U-shaped metal strip.

We offer following backings:

- Zinc-plated steel plate



- Stainless steel plate



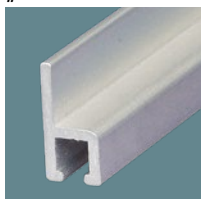
- Brass strip (only for selected brush types, please inquire)



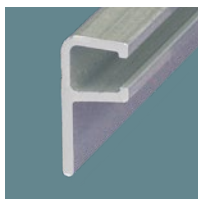
- Other backing materials available on request.

**Profiles**

In general, we supply our strip brushes in holding profiles made of high-quality, untreated aluminum, both type „h“ / A and type „F“ / AG.



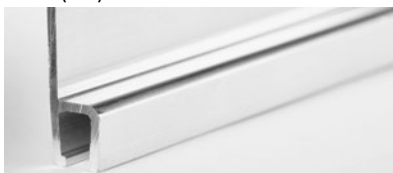
h Profile / Type A



F Profile / Type AG

On request, the profiles are also available with anodizing and colored coatings:

- Silver (C-0)



- Black (C-35)



- Powder coated profiles in different colours

Other natural hair, bristles, fibers, plant fibers, plastic bristles and wires in different variants available on request.

The length of profiles and brushes is limited to max. 3 500 mm due to shipping restrictions.



**Ordering information**

For all strip brushes, please **always indicate in addition** to the article number

- the desired trim height (BH)
- the total length (GL)

We will automatically select the optimum filament diameter for you based on the fill height.

The given article numbers always refer to a brush without a frame coating.

For all other versions, please use the inquiry form on pages 177/178.



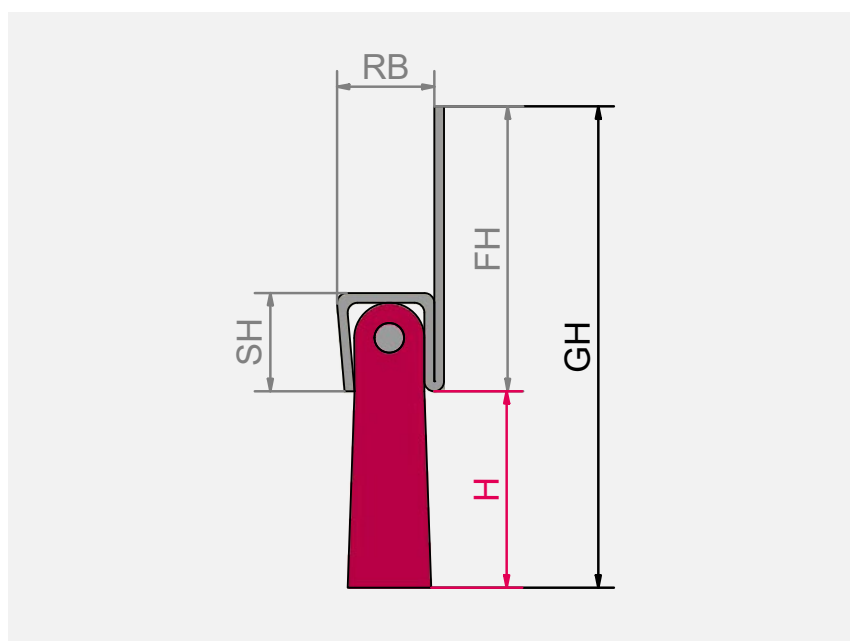
You can also find our **enquiry forms** in the respective category at: [www.lessmann.com/en/Products](http://www.lessmann.com/en/Products)

# Sealing brushes straight fittings



Sealing brushes straight						ROS grey		ROS black		PA 6.6 black				
Type	RB	SH	FH	H	GH	Backing STV	Backing ROF	Backing STV	Backing ROF	Backing STV	Backing ROF	Filament Ø		
	mm	mm	mm	mm	mm	Art. No.	Art. No.	Art. No.	Art. No.	Art. No.	Art. No.	mm		
FH 17	6	7	17	8–19	max. 36	220.353.10	230.453.10	220.353.00	230.453.00	220.323.00	230.423.00	0.15		
				20–39	max. 56					220.326.00	230.426.00	0.25		
				40–79	max. 96					220.329.00	230.429.00	0.40		
				80–100	max. 117					–	–	220.32C.00	230.42C.00	0.50
FH 22	6	7	22	8–19	max. 41	221.353.10	231.453.10	221.353.00	231.453.00	221.323.00	231.423.00	0.15		
				20–39	max. 61					221.326.00	231.426.00	0.25		
				40–79	max. 101					221.329.00	231.429.00	0.40		
				80–100	max. 122					–	–	221.32C.00	231.42C.00	0.50
FH 25	6	7	25	8–19	max. 44	222.353.10	232.453.10	222.353.00	232.453.00	222.323.00	232.423.00	0.15		
				20–39	max. 64					222.326.00	232.426.00	0.25		
				40–79	max. 104					222.329.00	232.429.00	0.40		
				80–100	max. 125					–	–	222.32C.00	232.42C.00	0.50
FH 30	6	7	30	8–19	max. 49	223.353.10	233.453.10	223.353.00	233.453.00	223.323.00	233.423.00	0.15		
				20–39	max. 69					223.326.00	233.426.00	0.25		
				40–79	max. 109					223.329.00	233.429.00	0.40		
				80–100	max. 130					–	–	223.32C.00	233.42C.00	0.50
FH 40	6	7	40	8–19	max. 59	224.353.10	234.453.10	224.353.00	234.453.00	224.323.00	234.423.00	0.15		
				20–39	max. 79					224.326.00	234.426.00	0.25		
				40–79	max. 119					224.329.00	234.429.00	0.40		
				80–100	max. 140					–	–	224.32C.00	234.42C.00	0.50
FH 40/D	9	10	40	30–99	max. 139	225.553.10	235.653.10	225.553.00	235.653.00	225.529.00	235.629.00	0.40		
				100–149	max. 189					225.52E.00	235.62E.00	0.60		
				150–300	max. 340					–	–	225.52I.00	235.62I.00	0.80
				301–500	max. 540					–	–	on demand*	on demand*	–
FH 50/D	9	10	50	30–99	max. 149	226.553.10	236.653.10	226.553.00	236.653.00	226.529.00	236.629.00	0.40		
				100–149	max. 199					226.52E.00	236.62E.00	0.60		
				150–300	max. 350					–	–	226.52I.00	236.62I.00	0.80
				301–500	max. 540					–	–	on demand*	on demand*	–

\* additional over-shearing of the bristles possible on request.



**Sealing brushes straight**

We offer sealing brushes in different sizes as well as different backing width and length of the legs. The sealing brushes can be mounted directly. Depending on the brush application we offer different filling materials.

On request we can produce the profiles with perforation or/and notches at the profile legs.

The brushes type „FH 40/D“ and „FH 50/D“ are produced with a thicker metal sheet and are therefore much more stable and resistant than the standard types.



**Ordering information**

For all strip brushes, please **always indicate in addition** to the article number

- the desired trim height (H)
- the total length (GL)

We will automatically select the optimum filament diameter for you based on the fill height.

The given article numbers always refer to a brush without a frame coating.

For all other versions, please use the inquiry form on page 177.

For *items printed in italics* consider our minimum order value (see page 184).

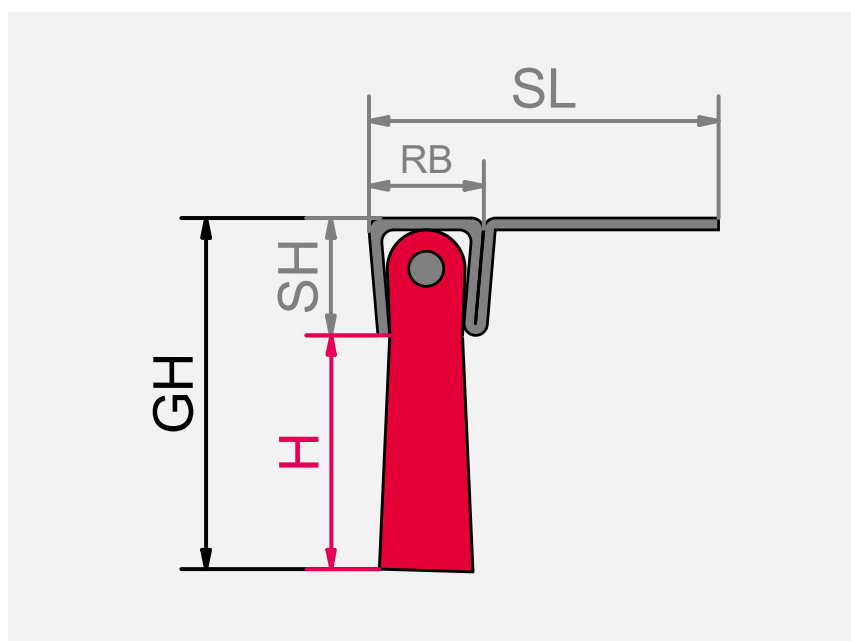
- PA = Polyamide
- ROS = Horse hair  
(mixed with 30% Polyethylene)
- STV = Zinc-plated steel
- ROF = Stainless steel

# Sealing brushes angled fittings



Sealing brushes angled						ROS grey		ROS black		PA 6.6 black				
Type	RB	SH	SL	H	GH	Backing STV	Backing ROF	Backing STV	Backing ROF	Backing STV	Backing ROF	Filament Ø		
	mm	mm	mm	mm	mm	Art. No.	Art. No.	Art. No.	Art. No.	Art. No.	Art. No.	mm		
SL 16	6	7	16	8–19	max. 26	240.353.10	250.453.10	240.353.00	250.453.00	240.323.00	250.423.00	0.15		
				20–39	max. 46					240.326.00	250.426.00	0.25		
				40–79	max. 86					240.329.00	250.429.00	0.40		
				80–100	max. 107					–	–	240.32C.00	250.42C.00	0.50
SL 21	6	7	21	8–19	max. 26	241.353.10	251.453.10	241.353.00	251.453.00	241.323.00	251.423.00	0.15		
				20–39	max. 46					241.326.00	251.426.00	0.25		
				40–79	max. 86					241.329.00	251.429.00	0.40		
				80–100	max. 107					–	–	241.32C.00	251.42C.00	0.50
SL 24	6	7	24	8–19	max. 26	242.353.10	252.453.10	242.353.00	252.453.00	242.323.00	252.423.00	0.15		
				20–39	max. 46					242.326.00	252.426.00	0.25		
				40–79	max. 86					242.329.00	252.429.00	0.40		
				80–100	max. 107					–	–	242.32C.00	252.42C.00	0.50
SL 29	6	7	29	8–19	max. 26	243.353.10	253.453.10	243.353.00	253.453.00	243.323.00	253.423.00	0.15		
				20–39	max. 46					243.326.00	253.426.00	0.25		
				40–79	max. 86					243.329.00	253.429.00	0.40		
				80–100	max. 107					–	–	243.32C.00	253.42C.00	0.50
SL 39	6	7	39	8–19	max. 26	244.353.10	254.453.10	244.353.00	254.453.00	244.323.00	254.423.00	0.15		
				20–39	max. 46					244.326.00	254.426.00	0.25		
				40–79	max. 86					244.329.00	254.429.00	0.40		
				80–100	max. 107					–	–	244.32C.00	254.42C.00	0.50
SL 39/D	9	10	39	30–99	max. 106	245.553.10	255.653.10	245.553.00	255.653.00	245.529.00	255.629.00	0.40		
				100–149	max. 156					245.52E.00	255.62E.00	0.60		
				150–300	max. 307					–	–	245.52I.00	255.62I.00	0.80
				301–500	max. 510					–	–	on demand*	on demand*	–
SL 49/D	9	10	49	30–99	max. 106	246.553.10	256.653.10	246.553.00	256.653.00	246.529.00	256.629.00	0.40		
				100–149	max. 156					246.52E.00	256.62E.00	0.60		
				150–300	max. 307					–	–	246.52I.00	256.62I.00	0.80
				301–500	max. 510					–	–	on demand*	on demand*	–

\* additional over-shearing of the bristles possible on request.



### Sealing brushes angled

We offer sealing brushes in different sizes as well as different backing width and length of the legs. The sealing brushes can be mounted directly. Depending on the brush application we offer different filling materials.

On request we can produce the profiles with perforation or/and notches at the profile legs.

The brushes type „SL 39/D“ and „SL 49/D“ are produced with a thicker metal sheet and are therefore much more stable and resistant than the standard types.



### Ordering information

For all strip brushes, please **always indicate in addition** to the article number

- the desired trim height (H)
- the total length (GL)

We will automatically select the optimum filament diameter for you based on the fill height.

The given article numbers always refer to a brush without a frame coating.

For all other versions, please use the inquiry form on page 177.

For *items printed in italics* consider our minimum order value (see page 184).

PA = Polyamide

ROS = Horse hair  
(mixed with 30% Polyethylene)

STV = Zinc-plated steel

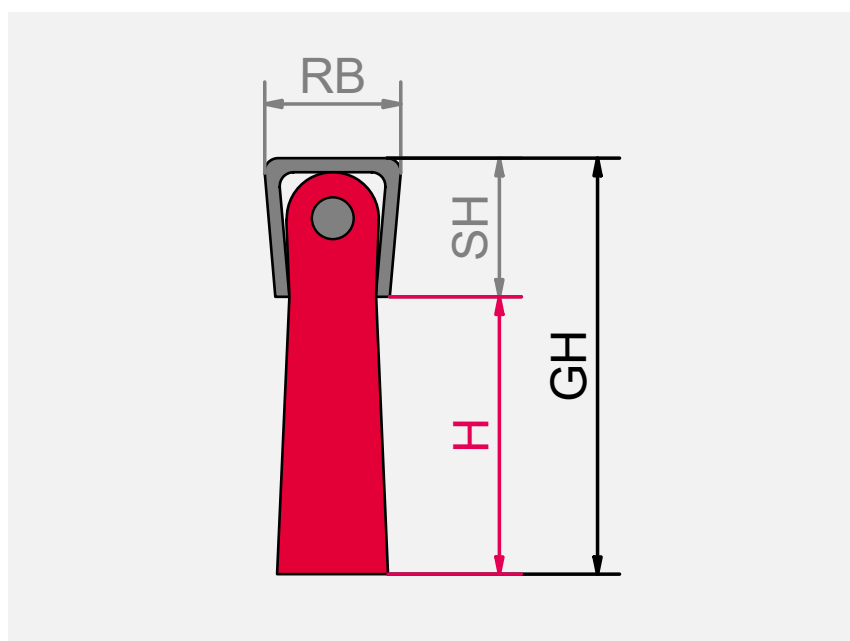
ROF = Stainless steel

# Strip brushes for slots / profiles



Strip brushes for slots / profiles					ROS grey		ROS black		PA 6.6 black		
Type	RB	SH	H	GH	Backing STV	Backing ROF	Backing STV	Backing ROF	Backing STV	Backing ROF	Filament Ø
	mm	mm	mm	mm	Art. No.	Art. No.	Art. No.	Art. No.	Art. No.	Art. No.	mm
2	1.9–2.1	2.1–2.3	6–28	max. 30	200.C53.10	210.D53.10	200.C53.00	210.D53.00	200.C21.00	210.D21.00	0.10
2.5	2.4–2.7	2.7–2.9	7–50	max. 53	201.C53.10	211.D53.10	201.C53.00	211.D53.00	201.C23.00	211.D23.00	0.15
3	2.8–3.2	2.8–3.0	8–19	max. 22	202.853.10	212.753.10	202.853.00	212.753.00	202.821.00	212.721.00	0.10
			20–39	max. 42					202.823.00	212.723.00	0.15
			40–60	max. 63					202.825.00	212.725.00	0.20
3.5	3.3–3.7	3.8–4.2	8–19	max. 23	203.853.10	213.753.10	203.853.00	213.753.00	203.821.00	213.721.00	0.10
			20–39	max. 43					203.823.00	213.723.00	0.15
			40–65	max. 69					203.825.00	213.725.00	0.20
4	3.7–4.2	3.8–4.2	6–19	max. 23	204.853.10	214.753.10	204.853.00	214.753.00	204.823.00	214.723.00	0.15
			20–39	max. 43					204.826.00	214.726.00	0.25
			40–60	max. 64					204.827.00	214.727.00	0.30
4.5	4.4–4.6	4.8–5.2	6–24	max. 29	201.153.10	211.253.10	201.153.00	211.253.00	201.123.00	211.223.00	0.15
			25–59	max. 64					201.126.00	211.226.00	0.25
			60–90	max. 95					201.127.00	211.227.00	0.30
5	4.7–5.2	5.0–5.3	6–24	max. 29	206.153.10	216.253.10	206.153.00	216.253.00	206.123.00	216.223.00	0.15
			25–59	max. 64					206.126.00	216.226.00	0.25
			60–90	max. 95					206.127.00	216.227.00	0.30
8	7.5–8.3	8.9–9.5	30–100	max. 110	207.A53.10	217.B53.10	207.A53.00	217.B53.00	207.A29.00	217.B29.00	0.40
			101–300	max. 310					207.A2E.00	217.B2E.00	0.60
			301–550	max. 560					207.A2I.00	217.B2I.00	0.80
10	9.7–10.5	9.9–10.5	30–100	max. 110	208.A53.10	218.B53.10	208.A53.00	218.B53.00	208.A29.00	218.B29.00	0.40
			101–300	max. 310					208.A2E.00	218.B2E.00	0.60
			301–550	max. 560					208.A2I.00	218.B2I.00	0.80





### Strip brushes for slots / profiles

We offer strip brushes in different sizes as well as different backing width and length of the legs. Depending on the brush application we offer different filling materials.

The mentioned dimensions vary due to the density, the thickness and the selection of the trim material. Upon request, all brushes can be adapted to existing profiles.



### Ordering information

For all strip brushes, please **always indicate in addition** to the article number

- the desired trim height (H)
- the total length (GL)

We will automatically select the optimum filament diameter for you based on the fill height.

The given article numbers always refer to a brush without a frame coating.

For all other versions, please use the inquiry form on page 177.

For *items printed in italics* consider our minimum order value (see page 184).

**PA** = Polyamide

**ROS** = Horse hair  
(mixed with 30% Polyethylene)

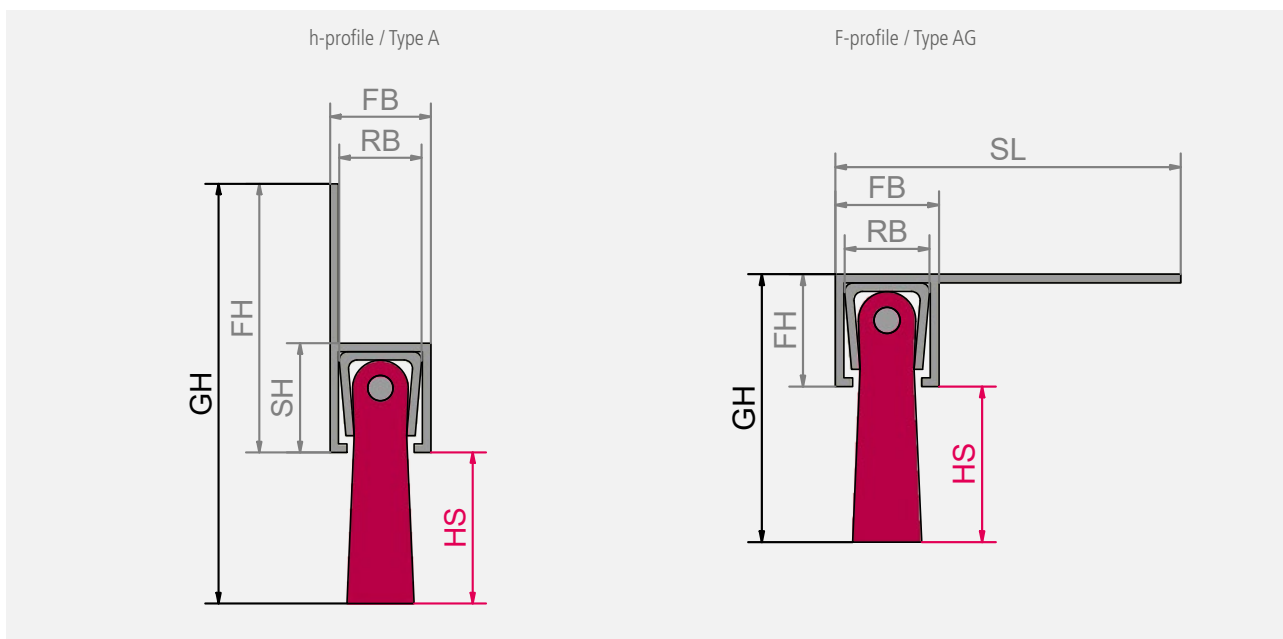
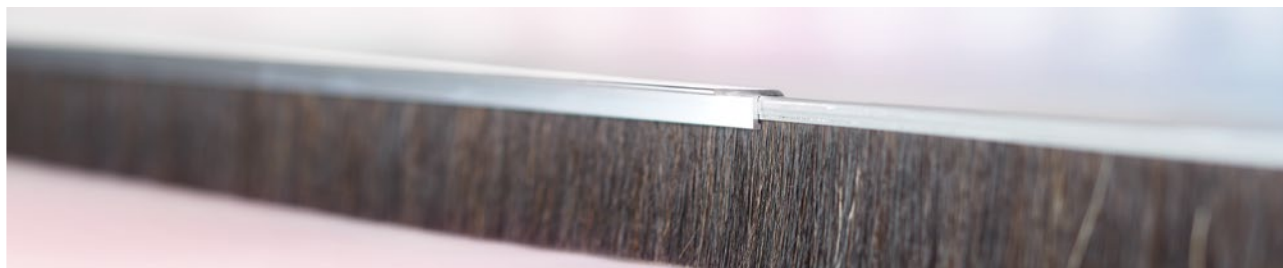
**STV** = Zinc-plated steel

**ROF** = Stainless steel

# Strip brushes in aluminum profile



Strip brushes in aluminum profile								ROS grey		ROS black		PA 6.6 black				
Brush type	Profile type	SH mm	SL mm	FB mm	FH mm	H mm	GH mm	Backing	STV	Backing	ROF	Backing	STV	Backing	ROF	Filament Ø
								Art. No.	Art. No.	Art. No.	Art. No.	Art. No.	Art. No.	mm		
2.5	13.5 A	4.0	-	4.4	13.5	4-47	max. 61	261.C53.10	271.D53.10	261.C53.00	271.D53.00	261.C23.00	271.D23.00			0.15
						3-16	max. 31			264.823.00	274.723.00			0.15		
4	15 A	7.0	-	7.3	15	17-36	max. 51	264.853.10	274.753.10	264.853.00	274.753.00	264.826.00	274.726.00			0.25
						37-57	max. 72			264.827.00	274.727.00			0.30		
						3-16	max. 23			265.823.00	275.723.00			0.15		
						16 AG	-	16.0	7.3	7.0	17-36	max. 43	265.853.10	275.753.10	265.853.00	275.753.00
						37-57	max. 64					265.827.00	275.727.00			0.30
						3-21	max. 38			266.123.00	276.223.00			0.15		
	17 A	9.2	-	8.8	17	22-56	max. 73	266.153.10	276.253.10	266.153.00	276.253.00	266.126.00	276.226.00			0.25
						57-87	max. 104			266.127.00	276.227.00			0.30		
						3-21	max. 46			262.123.00	272.223.00			0.15		
						25 A	9.2	-	8.8	25	22-56	max. 81	262.153.10	272.253.10	262.153.00	272.253.00
						57-87	max. 112					262.127.00	272.227.00			0.30
						3-21	max. 61			269.123.00	279.223.00			0.15		
5	40/5 A	9.2	-	8.8	40	22-56	max. 96	269.153.10	279.253.10	269.153.00	279.253.00	269.126.00	279.226.00			0.25
						57-87	max. 127			269.127.00	279.227.00			0.30		
						3-21	max. 30					260.123.00	270.223.00			0.15
						18 AG	-	18	8.5	8.5	22-56	max. 65	260.153.10	270.253.10	260.153.00	270.253.00
						57-87	max. 96					260.127.00	270.227.00			0.30
						3-21	max. 30			263.123.00	273.223.00			0.15		
	25 AG	-	25	8.5	8.5	22-56	max. 65	263.153.10	273.253.10	263.153.00	273.253.00	263.126.00	273.226.00			0.25
						57-87	max. 96			263.127.00	273.227.00			0.30		
8	40/8 A	13.5	-	12.5	40	27-97	max. 137					267.A29.00	277.B29.00			0.40
						98-297	max. 337	267.A53.10	277.B53.10	267.A53.00	277.B53.00	267.A2E.00	277.B2E.00			0.60
						298-547	max. 587					267.A2I.00	277.B2I.00			0.80
						27-97	max. 111			268.A29.00	278.B29.00			0.40		
	40/8 AG	-	40	12.5	13.5	98-297	max. 311	268.A53.10	278.B53.10	268.A53.00	278.B53.00	268.A2E.00	278.B2E.00			0.60
						298-547	max. 561			268.A2I.00	278.B2I.00			0.80		



**Profiles**

We supply h- and F-profiles made of aluminum for strip brushes. On request we can produce the profiles with perforation or/and notches at the profile legs as well as cut them on requested measurement. Anodized and powder coated profiles are also available in different colors upon request.

*For items printed in italics consider our minimum order value (see page 184).*

- PA** = Polyamide
- ROS** = Horse hair  
(mixed with 30% Polyethylene)
- STV** = Zinc-plated steel
- ROF** = Stainless steel

**Standard lengths of the profiles:**

1 000 mm, 1 100 mm, 1 200 mm, 1 300 mm, 2 000 mm, 2 500 mm, 3 000 mm.



**Ordering information**

For all strip brushes, please **always indicate in addition** to the article number

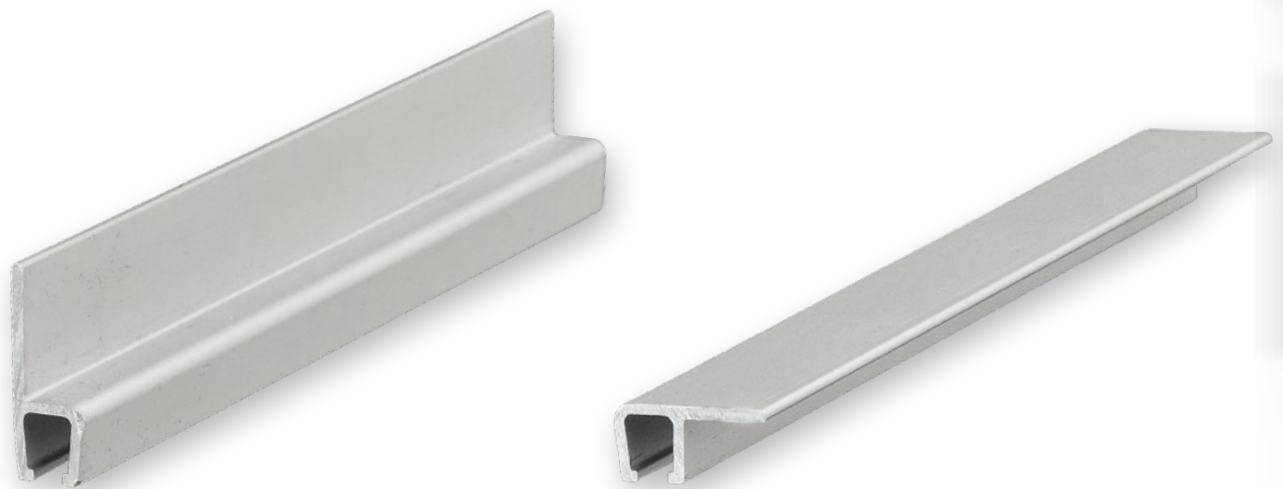
- the desired trim height (H)
- the total length (GL)

We will automatically select the optimum filament diameter for you based on the fill height.

The given article numbers always refer to a brush without a frame coating.

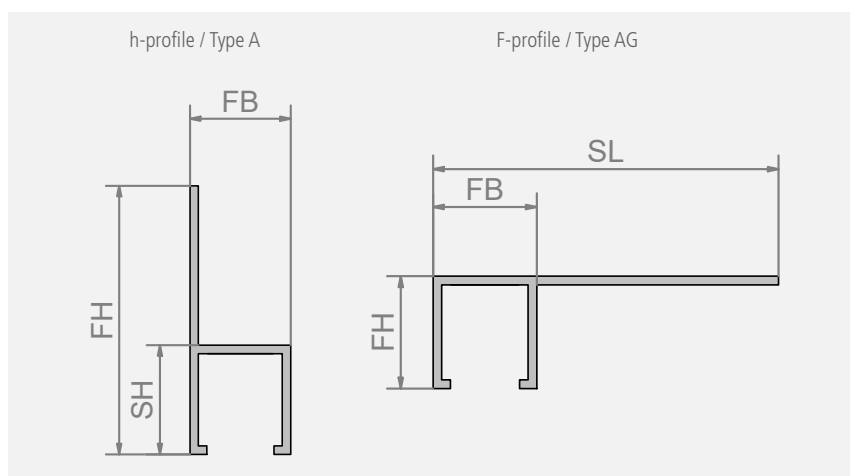
For all other versions, please use the inquiry form on page 177.

# Aluminum profiles

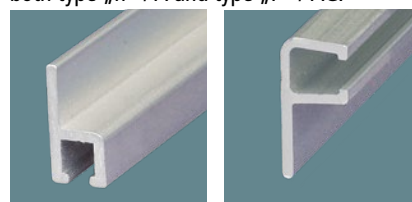


Aluminum profiles (without brushes)

Profile type	Fitting for brush type	FB mm	SL mm	FH mm	Backing blank Art.-Nr.
13,5 A	2,5	4,4		13,5	2Z0.000.00
15 A	4	7,3		15	2Z1.000.00
16 AG		7,3	16	7,0	2Z2.000.00
17 A		8,8		17	2Z3.000.00
18 AG		8,5	18	8,5	2Z4.000.00
25 A	5	8,8		25	2Z6.000.00
25 AG		8,5	25	8,5	2Z7.000.00
30 A		10,2		30	2Z8.000.00
40/5 A		8,8		40	2Z9.000.00
40/8 A	8	12,5		40	2ZB.000.00
40/8 AG		12,5	40	13,5	2ZA.000.00



In general, we supply our holding profiles made of high-quality, untreated aluminum, both type „h“ / A and type „F“ / AG.



h Profile / Type A

F Profile / Type AG

On request, the profiles are also available with anodizing and colored coatings:

- Silver (C-0)



- Black (C-35)



- Powder coated profiles in different colours



**Ordering information**

For all profiles, please **always indicate in addition** to the article number

- the total length (GL)

The given article numbers always refer to a profile without a frame coating. For all other versions, please use the inquiry form on page 177.

**Profiles**

We supply h- and F-profiles made of aluminum for strip brushes. On request we can produce the profiles with perforation or/and notches at the profile legs as well as cut them on requested measurement. Anodized and powder coated profiles are also available in different colors upon request.

**Standard lengths of the profiles:**

1 000 mm, 1 100 mm, 1 200 mm, 1 300 mm, 2 000 mm, 2 500 mm, 3 000 mm.

# Shaped strip brushes, filling facing outwards



Shaped strip brushes. filling facing outwards							ROS black or grey		PA 6.6 black		
Type	RB mm	SH mm	DI mm	DA mm	H mm	GH mm	Backing STV Art. No.	Backing ROF Art. No.	Backing STV Art. No.	Backing ROF Art. No.	Filament Ø mm
2.5	2.4–2.7	2.7–2.9	6–80	26–186	7–50	max. 53	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.15
					8–19	max. 22					0.10
3	2.8–3.2	2.8–3.0	12–80	34–206	20–39	max. 42	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.15
					40–60	max. 63					0.20
4	3.7–4.2	3.8–4.2	20–140	40–266	6–19	max. 23	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.15
					20–39	max. 43					0.25
5	4.7–5.2	5.0–5.3	25–140	47–326	40–60	max. 64	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.30
					6–24	max. 29					0.15
8	7.5–8.3	8.9–9.5	80–320	160–1000	25–59	max. 64	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.25
					60–90	max. 95					0.30
					30–100	max. 110					0.40
					101–300	max. 310	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.60
						max. 560			<i>on demand</i>	<i>on demand</i>	0.80

## Special shaped strip brushes

Special shaped strip brushes complement our assortment of classic strip brushes.

Spiral or ring shaped brushes are available with outward or inward facing filament.

Strip brushes with **filling facing outward** can be used for cleaning, polishing, for applying liquids, for gentle transport and for deburring.

We offer strip brushes in different sizes and backing width and height. Depending on the individual application we offer different filling materials.



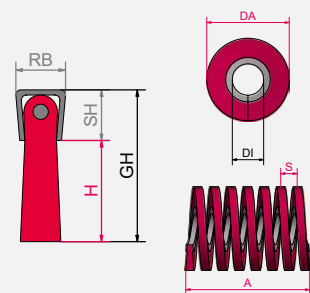
## Ordering information

For all shaped strip brushes, please **always indicate in addition** to the article number

- the desired trim height (H)
- inner & outer diameter
- work width

Please use the inquiry form on page 178.

We will automatically select the optimum filament diameter for you based on the fill height.



Shaped strip brushes, filling facing outwards

For items printed in italics consider our minimum order value (see page 184).

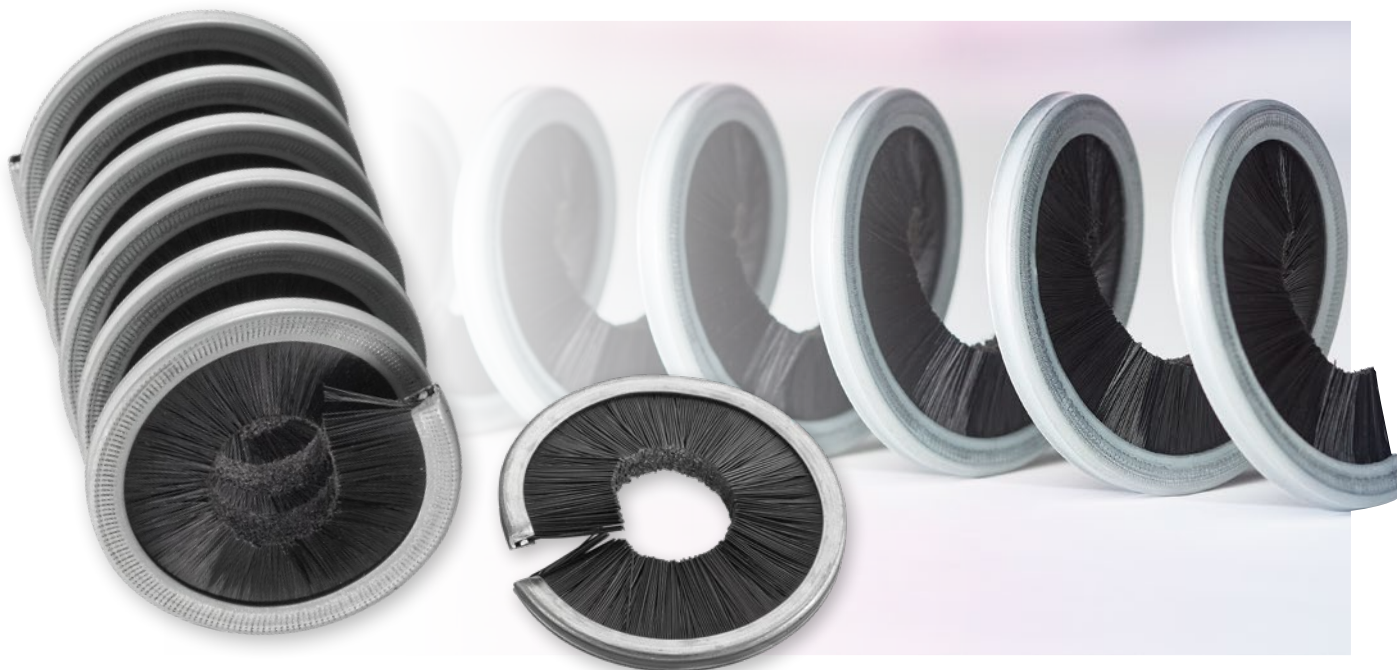
PA = Polyamide

ROS = Horse hair  
(mixed with 30% Polyethylene)

STV = Zinc-plated steel

ROF = Stainless steel

# Shaped strip brushes, filling facing inwards



Shaped strip brushes. filling facing inwards							ROS black or grey		PA 6.6 black		
Typ	RB mm	SH mm	DI mm	DA mm	H mm	GH mm	Backing STV Art. No.	Backing ROF Art. No.	Backing STV Art. No.	Backing ROF Art. No.	Filament Ø mm
2.5	2.4–2.7	2.7–2.9	0–240	20–260	7–50	max. 53	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.15
					8–19	max. 22	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.10	
3	2.8–3.2	2.8–3.0	0–260	22–290	20–39	max. 42	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.15
					40–60	max. 63	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.20	
4	3.7–4.2	3.8–4.2	0–320	20–340	6–19	max. 23	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.15
					20–39	max. 43	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.25	
5	4.7–5.2	5.0–5.3	0–320	22–345	6–24	max. 29	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.15
					25–59	max. 64	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.25	
8	7.5–8.3	8.9–9.5	0–420	80–500	30–100	max. 110	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.40
					101–300	max. 310	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.60	
					301–550	max. 560	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.80

Strip brushes with **filling facing inwards** can be used for sealing, cleaning and carrying cylindrical parts in mechanical engineering, tool manufacturing and vehicle construction.

We offer strip brushes in different sizes and backing width and height. Depending on the individual application we offer different filling materials.



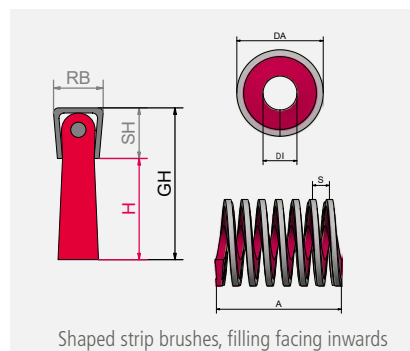
### Ordering information

For all shaped strip brushes, please **always indicate in addition** to the article number

- the desired trim height (H)
- inner & outer diameter
- work width

Please use the inquiry form on page 178.

We will automatically select the optimum filament diameter for you based on the fill height.



For *items printed in italics* consider our minimum order value (see page 184).

PA = Polyamide

ROS = Horse hair  
(mixed with 30% Polyethylene)

STV = Zinc-plated steel

ROF = Stainless steel

# Cup shaped strip brushes



Cup shaped strip brushes						ROS black or grey		PA 6.6 black		
Type	RB mm	SH mm	DI/DA mm	H mm	GH mm	Backing STV Art. No.	Backing ROF Art. No.	Backing STV Art. No.	Backing ROF Art. No.	Filament Ø mm
2.5	2.4–2.7	2.7–2.9	14–120	7–50	max. 53	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.15
				8–19	max. 22					0.10
3	2.8–3.2	2.8–3.0	15–130	20–39	max. 42	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.15
				40–60	max. 63					0.20
4	3.7–4.2	3.8–4.2	25–140	6–19	max. 23	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.15
				20–39	max. 43					0.25
5	4.7–5.2	5.0–5.3	50–180	40–60	max. 64	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.30
				6–24	max. 29					0.15
8	7.5–8.3	8.9–9.5	90–500	25–59	max. 64	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.25
				60–90	max. 95					0.30
8	7.5–8.3	8.9–9.5	90–500	30–100	max. 110	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	<i>on demand</i>	0.40
				101–300	max. 310					0.60
				301–550	max. 560					0.80

Cup shaped strip brushes can be used for sealing rotating tools or nozzles, for cleaning, for applying liquids and polishing surfaces.



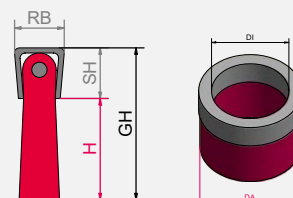
### Ordering information

For all shaped strip brushes, please **always indicate in addition** to the article number

- the desired trim height (H)
- inner & outer diameter

Please use the inquiry form on page 178.

We will automatically select the optimum filament diameter for you based on the fill height.



Cup shaped strip brushes

For items printed in italics consider our minimum order value (see page 184).

PA = Polyamide

ROS = Horse hair  
(mixed with 30% Polyethylene)

STV = Zinc-plated steel

ROF = Stainless steel



# Inquiry for straight strip brushes

Drawing / description of application

No. of pieces \_\_\_\_\_

Brush length \_\_\_\_\_ mm

Application \_\_\_\_\_  dry  wet

- sealing
- sloughing
- cleaning
- deburring
- roughening
- transporting
- other \_\_\_\_\_

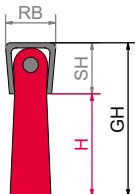
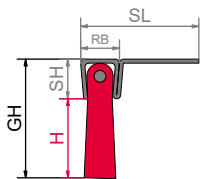
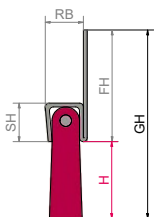
Material to be treated \_\_\_\_\_ °C Temperature

- steel
- aluminum
- wood
- stainless steel
- plastic
- other \_\_\_\_\_

Filling material

- horse hair
- mixed with 30% PE
- pure Polyamide (PA)
- Polypropylene (PP)
- steel
- brass coated steel
- brass
- stainless steel
- abrasive filament (SIC)
- abrasive filament (AO)
- fibre
- other \_\_\_\_\_
- Diameter for filling material \_\_\_\_\_ mm

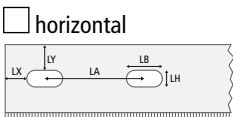
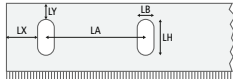
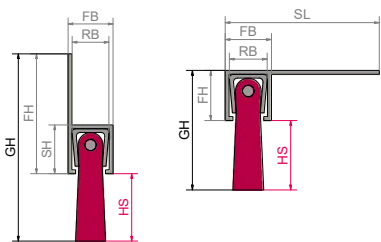
- Sealing brushes straight (Type h / FH)
- Sealing brushes angled (Type F / SL)
- Strip brushes for slots



- Strip brushes in aluminum slot
- Aluminum profile (without brush)
- Predefined perforation
  - vertical

Form/Type of profile

- h/A
- F/AG



Standard perforations

Round mm	Slot holes mm
4,5	4,5 x 14
5,5	4,5 x 18
6,0	5,8 x 20
6,5	6,0 x 20
7,0	7,0 x 12
10,0	7,0 x 15
	9,0 x 15
	9,0 x 20

Anodization

- Blank / none
- Silver
- Black

Please indicate the dimensions according to the technical drawing

H filling height \_\_\_\_\_ mm

RB backing width \_\_\_\_\_ mm

SH socket height \_\_\_\_\_ mm

GH total height \_\_\_\_\_ mm

FH backing height \_\_\_\_\_ mm

SL socket length \_\_\_\_\_ mm

LB perforation width \_\_\_\_\_ mm

LH perforation height \_\_\_\_\_ mm

LY distance \_\_\_\_\_ mm

from upper backing edge

LX distance \_\_\_\_\_ mm

from lateral backing edge

LA hole spacing \_\_\_\_\_ mm

+ number of holes \_\_\_\_\_ pcs.

Sender: Company, contact person



# Inquiry for shaped strip brushes

Drawing / description of application

No. of pieces \_\_\_\_\_

Application \_\_\_\_\_  dry  wet

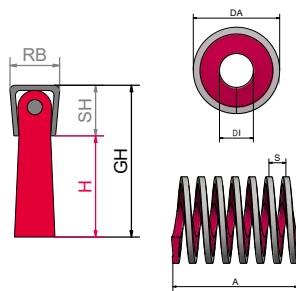
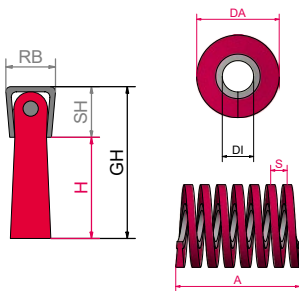
- sealing
- sloughing
- cleaning
- deburring
- roughening
- transporting
- other \_\_\_\_\_

Material to be treated \_\_\_\_\_ °C Temperature

- steel
- aluminum
- wood
- stainless steel
- plastic
- other \_\_\_\_\_

Shaped strip brushes,  
filling facing outwards

Shaped strip brushes,  
filling facing inwards



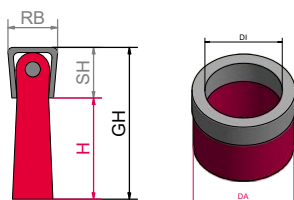
Form

- Spiral  Ring

Form

- Spiral  Ring

Cup shaped strip brushes



Filling material

- horse hair  mixed with 30% PE  pure
- Polyamide (PA)
- Polypropylene (PP)
- steel
- brass coated steel
- brass
- stainless steel
- abrasive filament (SIC)
- abrasive filament (AO)
- fibre
- other \_\_\_\_\_
- Diameter for filling material \_\_\_\_\_ mm

Please indicate the dimensions according to the technical drawing

- H filling height \_\_\_\_\_ mm
- RB backing width \_\_\_\_\_ mm
- SH socket height \_\_\_\_\_ mm
- GH total height \_\_\_\_\_ mm
- FH backing height \_\_\_\_\_ mm
- SL socket length \_\_\_\_\_ mm
- DI diameter inner \_\_\_\_\_ mm
- DA diameter outer \_\_\_\_\_ mm
- A work width \_\_\_\_\_ mm
- number of windings (spiral brushes) \_\_\_\_\_ pcs.
- S pitch (if required) \_\_\_\_\_ mm

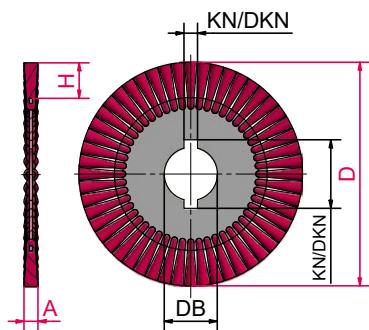
Sender: Company, contact person



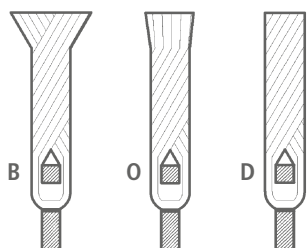
# Enquiry for Cutback Brushes

**Drawing / description of application**

Grid area for drawing or description of application.



**Knot type ZF**



**Sender:** Company, contact person

**Piece number** \_\_\_\_\_

**Brush Application**  dry  wet

- removal of pipe coatings
- others \_\_\_\_\_

**Material to be treated** \_\_\_\_ °C Temperature

- steel
- stainless steel
- others \_\_\_\_\_

**Filling material**

- steel
- brass coated steel
- stainless steel

**Diameter of filling material:** \_\_\_\_\_

**Please indicate the dimensions according to the technical drawing (mm):**

- D Diameter \_\_\_\_\_ mm
- DB bore \_\_\_\_\_ mm
- DKN double keyway \_\_\_\_\_ mm
- H trim height \_\_\_\_\_ mm
- A working width \_\_\_\_\_ mm
- Z number of knots \_\_\_\_\_ pcs.
- EBR clamping width \_\_\_\_\_ mm

**Knot type**

- B Rose Bud
- O Open Knot (wire ends are cut)
- D Fully knotted (wire ends are cut completely)

**Used machine**

- stationary machine, Type \_\_\_\_\_
- others \_\_\_\_\_

**Machine data**

max. speed \_\_\_\_\_

**Inquiries and Infos:**

Phone: +49 9082 707-0    info@lessmann.com  
 Fax: +49 9082 707-76    www.lessmann.com



# Enquiry for Wheel and Deburring Brushes

Drawing / description of application

Grid area for drawing or description of application.

Piece number \_\_\_\_\_

Brush Application  dry  wet

- derusting
- removing paint
- deburring
- cleaning
- roughening / structuring
- weld dressing
- others \_\_\_\_\_

Material to be treated \_\_\_\_\_ °C Temperature

- steel
- aluminium
- wood
- stainless steel
- plastic
- others \_\_\_\_\_

Filling material

- crimped  knotted
- steel
- brass coated steel
- brass
- stainless steel
- polyamide
- silicon carbide bristles (SIC)
- aluminium oxide bristles (AO)

Diameter of filling material \_\_\_\_\_

Please indicate the dimensions according to the technical drawing (mm):

D Diameter \_\_\_\_\_ mm

DB bore/thread \_\_\_\_\_ mm

H trim height \_\_\_\_\_ mm

A working width \_\_\_\_\_ mm

R tube \_\_\_\_\_ mm

EBR clamping width \_\_\_\_\_ mm

Knot type if necessary (more aggressive execution)

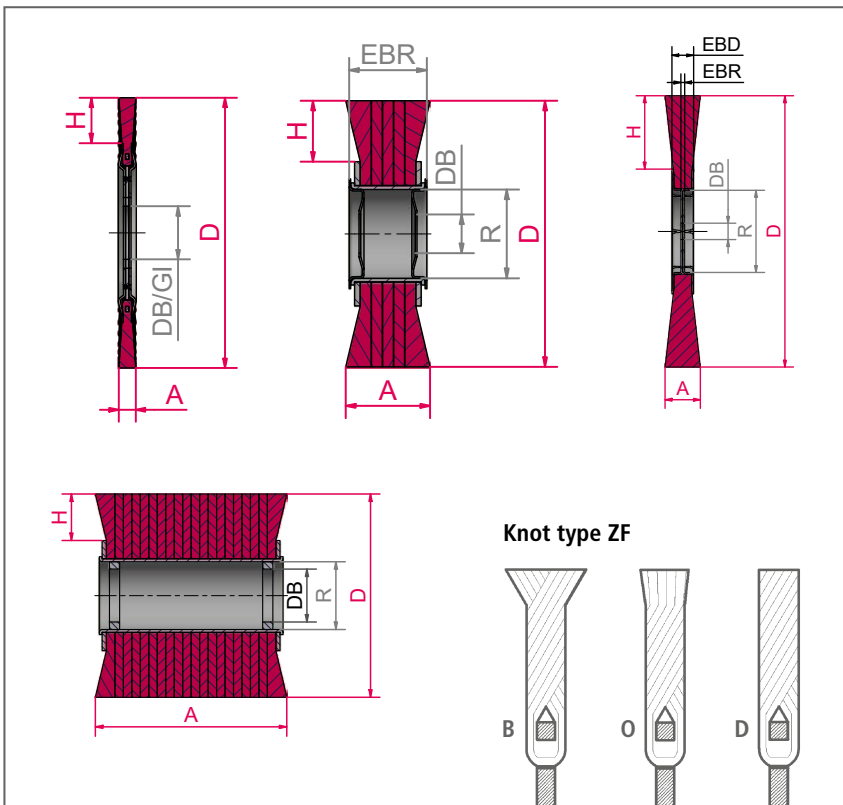
- B Rose Bud
- O open Knot (wire ends are cut)
- D Fully knotted (wire ends are cut completely)

Used machine

- Hand-operated machine (e.g. angle grinders) \_\_\_\_\_
- stationary machine (z.B. CNC) \_\_\_\_\_
- others \_\_\_\_\_

Machine data

max. speed \_\_\_\_\_



Sender: Company, contact person

Blank area for sender information.

Inquiries and Infos:

Phone: +49 9082 707-0

info@lessmann.com

Fax: +49 9082 707-76

www.lessmann.com



# Enquiry for Cup and Bevel Brushes

Drawing / description of application

Grid area for drawing or description of application.

Piece number \_\_\_\_\_

Brush Application  dry  wet

- derusting
- removing paint
- deburring
- cleaning
- weld dressing
- others \_\_\_\_\_

Material to be treated \_\_\_\_ °C Temperature

- steel
- aluminium
- stainless steel
- others \_\_\_\_\_

Filling material

- crimped  knotted
- steel
- brass coated steel
- brass
- stainless steel
- silicon carbide bristles (SIC)

Diameter of filling material \_\_\_\_\_

Please indicate the dimensions according to the technical drawing (mm):

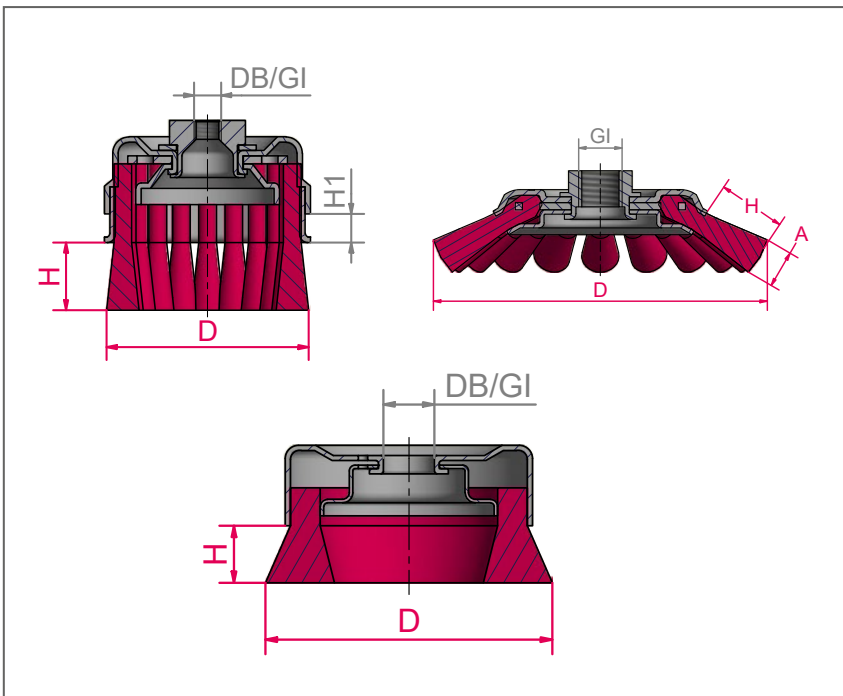
- D Diameter \_\_\_\_\_ mm
- DB/GI bore/thread \_\_\_\_\_ mm
- H trim height \_\_\_\_\_ mm
- A working width \_\_\_\_\_ mm
- H1 Height of support cuff \_\_\_\_\_ mm

Used machine

- hand-operated machine (e.g. angle grinders) \_\_\_\_\_
- stationary machine (z.B. CNC) \_\_\_\_\_
- others \_\_\_\_\_

Machine data

- max. speed \_\_\_\_\_
- max. brush height \_\_\_\_\_ mm



Sender: Company, contact person

Blank area for sender information.

**Inquiries and Infos:**

Phone: +49 9082 707-0 info@lessmann.com  
 Fax: +49 9082 707-76 www.lessmann.com





# Enquiry for Interior Brushes

Drawing / description of application

Piece number \_\_\_\_\_

Brush Application  dry  wet

- derusting
- deburring
- cleaning
- others \_\_\_\_\_

Material to be treated \_\_\_\_\_°C Temperature

- steel
- aluminium
- stainless steel
- plastic
- others \_\_\_\_\_

Filling material

- steel
- brass coated steel
- brass
- stainless steel
- polyamide
- silicon carbide bristles (SIC)
- aluminium oxide bristles (AO)
- others \_\_\_\_\_

Diameter of filling material \_\_\_\_\_

Please indicate the dimensions according to the technical drawing (mm):

- D Diameter \_\_\_\_\_ mm
- SD core wire \_\_\_\_\_ mm
- A working width \_\_\_\_\_ mm
- GL overall length \_\_\_\_\_ mm

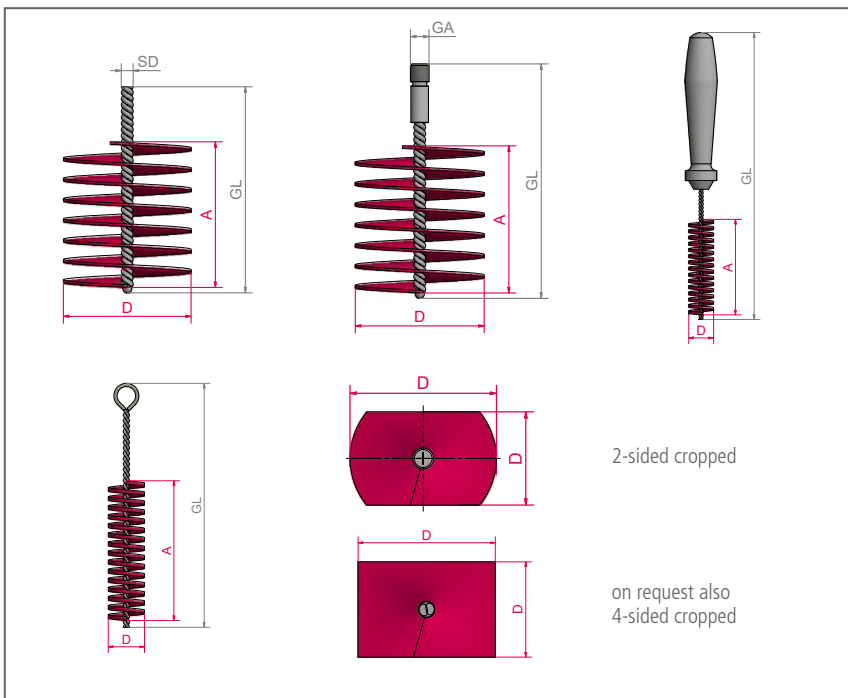
Commitment

- manually
- machine \_\_\_\_\_

Brush mount

- shank \_\_\_\_\_ mm
- thread \_\_\_\_\_

Drawing / description of application



Sender: Company, contact person

**Inquiries and Infos:**

Phone: +49 9082 707-0      info@lessmann.com  
 Fax: +49 9082 707-76      www.lessmann.com



# General Conditions of Sale and Delivery

## 1. Application / Close of contract

(1) These General Conditions of Sale and Delivery (Conditions) shall apply to all present and future contracts with commercial buyers, with public legal entities as well as public trusts in regard to deliveries and other services, including contracts for work and delivery of non-fungible goods. The buyer's purchase conditions shall not be binding even if we do not expressly object to them again after their receipt.

(2) Orders of the buyer shall only be binding for us if they have been confirmed by us in text form. The same applies to changes of orders. Oral agreements, promises, assurances and guarantees made by our sales staff in connection with the conclusion of the contract shall not be binding unless confirmed by us in text form.

## 2. Offers

(1) All price quotations are subject to change. The prices shall only apply as a fixed price for 6 months after confirmation of the order.

(2) We reserve the property rights and copyrights to illustrations, drawings, construction and other documents; they may not be made accessible to third parties.

## 3. Prices and Terms of payment

(1) All prices are in Euro, ex works Oettingen, excluding packaging. Our prices are net; value added tax will be charged where applicable.

(2) Unless otherwise agreed or unless otherwise stated in the order confirmation or the invoice, the purchase price shall be due immediately upon delivery without any discount and shall be paid in such a way that we can dispose of the amount on the due date. Costs of payment transactions shall be borne by the buyer.

(3) The Buyer may retain or set off any counterclaims only in so far as such claims are undisputed or have become legally binding and as they are based on the same contractual relation with the Buyer and/or as they would entitle him to refuse the fulfilment of his contractual duties under section 320 BGB.

(4) Should the Buyer default in payment or exceed the term of payment, we will charge default interests in the amount of 9 % above the base rate, unless higher rates have been agreed upon. Additionally, we charge a default allowance of EUR 40.00. We reserve the right to claim further damages resulting from late payment.

(5) The buyer shall be in default at the latest 10 days after the due date of our claim without the need for a reminder.

(6) If, after conclusion of the contract, it becomes apparent that our payment claim is endangered by the buyer's lack of ability to pay or if the buyer is in default of payment with a considerable amount, or if other circumstances arise which indicate a significant deterioration in the buyer's ability to pay after conclusion of the contract, we may exercise the rights under Sect. § 321 BGB. This also applies insofar as our obligation to perform is not yet due. We shall then also be entitled to demand payment of all claims not yet due from the current business relationship with the buyer. A lack of ability to pay on the part of the buyer is also deemed to exist if the buyer is at least three weeks in arrears with a substantial amount (from 10 % due), furthermore the substantial downgrading of the limit existing for him with our trade credit insurance.

(7) Any agreed upon cash discount always relates to the invoiced value excluding freight and will only be granted if and in so far as the Buyer has completely paid all payables due at the time of the discount. Unless otherwise agreed to discount periods shall begin with the date of the invoice.

## 4. Delivery times and dates, shipping, transfer of risks, call orders

(1) Our commitment to deliver is subject to our correct, timely and contractual self-delivery, unless we are responsible for the incorrect or delayed self-delivery.

(2) Any confirmation as to delivery times shall only be approximate and non-binding. Delivery times shall commence with the date of our order confirmation and are subject to the timely clarification of any details of the order as well as of the fulfilment of any of the Buyer's obligations, e.g. to produce official certifications, to provide letters of credit and payment guarantees and to pay agreed instalments.

(3) Any agreed delivery time shall be considered to be met if and in so far as the goods have left the works or our warehouse at such time or date. If and in so far as the goods fail to be despatched at the agreed time for reasons not attributable to us, the agreed delivery time shall be considered to have been met at the day on which the goods are notified to be ready for dispatch.

(4) In the event of a delay in delivery, the buyer may set us a reasonable grace period and, after its unsuccessful expiry, withdraw from the contract to the extent that the contract

has not yet been fulfilled. In such cases, claims for damages shall be governed by section 9 of these terms and conditions.

(5) Force majeure events, in particular wars, pandemics and flood disasters and their respective effects, entitle us to postpone the deliveries for the period of the hold-up and an appropriate start-up time. This also applies if such events occur during a present default. Force majeure is the equivalent of monetary or trade measures or other acts of sovereignty, strikes, lockouts, breakdowns not caused by us (e.g. Fire, machinery or roller breakdown, shortage of raw materials and lack of energy), obstruction of transport routes, delays in clearing the goods for import and in customs clearance, insolvency of our supplier as well as of all other circumstances, that essentially impede or render the deliveries and performances impossible, without being caused by us. Thereby, it is irrelevant if the circumstances occur with us or with one of our suppliers. If performance becomes unacceptable for one of the parties due to the abovementioned events, in particular, the execution of the contract in its essential parts is delayed by more than 3 months, the party shall be able to withdraw from the contract by instant declaration in text form.

(6) In the case of call orders, we are entitled to procure the material for the entire order and to manufacture the complete order quantity immediately.

## 5. Retention of Title

(1) The goods delivered to the Buyer shall remain our property until the full purchase price is paid. The Buyer shall take all measures required to preserve the retention of title – or of an equivalent security in the country of his branch or in a different country of destination –, and to provide the corresponding evidence upon our request.

(2) To the extent permitted by the laws of the country, in which the goods are located, the following additional regulations apply:

a. All goods delivered to the Buyer shall remain our property (Reserved Property) until all of the Buyer's accounts resulting from the business relationship with him, in particular, any account balances have been settled (current account reservation). This condition shall apply to any future as well as any conditional claims and such cases where the Buyer will affect payments on specifically designated claims. As soon as the Buyer has settled his accounts with us in full, he shall obtain title to those goods which were delivered to him before such payment was effected. The current account reservation applies not in in prepayment or delivery vs payment cases.

b. With regard to processing or manufacturing of the Reserved Property, we shall be deemed to be manufacturer within the meaning of section 950 BGB (German Civil Code) without committing us in any way. The processed or manufactured goods shall be regarded as Reserved Property within the meaning of clause 2 a of these Conditions. If the Buyer manufactures, combines or mixes the Reserved Property with other goods we shall obtain co-ownership in the new goods in proportion to the invoiced price of the Reserved Property to the invoiced price of the other goods. If, by such combining or mixing, our ownership expires, the Buyer herewith transfers to us any rights which the Buyer will have in the new stock or goods in proportion to the invoiced price of the Reserved Property, and he will keep them in safe custody free of charge. Our co-ownership rights shall be regarded as Reserved Property within the meaning of clause 2 a of these Conditions.

c. The Buyer may resell the reserved property only within the normal course of his business in accordance with his normal business terms and provided he is not in default of payment and provided also that any rights resulting from such resale will be transferred to us in accordance with clause 2 d – e of these conditions. The Buyer shall not be entitled to dispose of the Reserved Property in any other way.

d. The Buyer hereby assigns to us any claims resulting from the resale of the Reserved Property. We hereby accept the assignment. Such claims shall serve as our security to the same extent as the Reserved Property itself. If the Reserved Property is resold by the Buyer together with other goods not purchased from us, then any receivables resulting from such resale shall be assigned to us in the ratio of the invoiced value of the other goods sold by the Buyer. In the case of resale of goods in which we have co-ownership rights pursuant to clause 2 b, the assignment shall be limited to the part which corresponds to our co-ownership rights.

e. The Buyer shall be entitled to collect any receivables resulting from the resale of the Reserved Property. This right shall expire if withdrawn by us, at the latest if the Buyer defaults in payment; fails to honour a bill of exchange; or files for bankruptcy. We shall exert our right of revocation only if and in so far as it becomes evident after the conclusion of the contract that payment resulting from this contract or from other contracts is jeopardised by the lack of Buyer's ability to pay. The Buyer shall – upon our request – immediately inform

his customers of such assignment and to forward to us any information and documents necessary for collection.

f. The Buyer shall immediately inform us of any seizure or any other attachment of the Reserved Property by a third party. He shall bear any costs necessary to suspend such seizure or attachment, to separate or to remove the Reserved Property, if and in so far as such costs are not borne by a third party.

g. Should the total invoiced value of our collateral exceed the amount of the secured receivables including additional claims for interest, costs etc. by more than 50 %, we shall – upon the Buyer's request – release pro tanto collateral at our discretion.

## 6. Quality, dimensions and weights

(1) Quality, types and dimensions of the goods shall be determined in accordance with the DIN and EN standards agreed upon at the time of conclusion of the contract or, in the absence of such, in accordance with practice and commercial usage. References to standards and similar regulations, to factory test certificates and similar certificates as well as information on grades, types, dimensions, weights and usability of the goods do not constitute warranties or guarantees, nor do declarations of conformity and corresponding marks such as CE and GS.

(2) We reserve the right to make changes in form and design in the course of further technical development. All specifications of dimensions are approximate and non-binding. All dimensions are in mm.

(3) The LESSMANN free dimension tolerances apply, which we can provide on request.

## 7. Dispatch, Passing of Risk, Packaging, Partial Delivery

(1) We shall be entitled to choose the route and mode of dispatch as well as the forwarding agent and the carrier. The Buyer shall immediately request delivery of those goods which have been notified to him as ready for dispatch. Otherwise we are entitled, upon reminder, to ship such goods at the Buyer's cost and risk or to store them at our discretion and to invoice them to the Buyer.

(2) Can, by reasons not attributable to us, the goods not be shipped or will it become significantly difficult to ship the goods via the designated route or to the designated place within the designated time, we reserve the right to ship them via a different route or to a different place. Any additional costs will be borne by the Buyer. In such cases we will ask the Buyer for his prior comments.

(3) The risk, including the risk of confiscation of the goods, shall pass to the buyer upon transfer of the goods to a forwarding agent or carrier, at the latest, however, upon leaving the warehouse or the supplying plant, in all transactions, including pre-paid and free deliveries. We shall only provide insurance at the buyer's instruction and expense. We shall only provide insurance at the buyer's instruction and expense. Unloading and its costs shall be borne by the buyer.

(4) Unless otherwise agreed, the goods are delivered unpacked and not protected against rust. If customary in the trade, we shall deliver packaged. We shall provide packaging, protective and/or transport aids according to our experience at the buyer's expense. Packaging shall be taken back at our warehouse within a reasonable period of time in order to comply with the requirements of the Packaging Act. We do not assume the purchaser's costs for the return transport or for the purchaser's own disposal of the packaging.

(5) We shall be entitled to make partial deliveries at reasonable quantities. We may also exceed or reduce the agreed quantities as appropriate. Where quantities are indicated as "circa", we may exceed or fall below the agreed quantity up to 10 %.

## 8. Callable and Continuous Deliveries

(1) Where the contract provides for continuous deliveries, the Buyer shall divide the quantities and grades of the goods into approximately equal monthly shipments. Otherwise we shall be entitled to specify them at our own fair and just discretion.

(2) Where the single calls for delivery exceed the total contractual quantity, we shall be entitled, yet not committed, to deliver the surplus quantity and invoice it at the prices applicable at the time of the call or the delivery.

(3) Unless otherwise agreed, call-off orders are to be processed within 365 days of conclusion of the contract. After expiry of this period, we shall be entitled to store the goods not called off at the expense and risk of the buyer and to charge him for them.

## 9. Warranty Provisions

(1) The inner and outer properties of the goods, especially their quality, grade and measures are to be determined with priority by the agreed quality, namely by the DIN and EN nor-



mes, data or materials sheets or any other agreed technical provisions. References to standards and other sets of regulations, to test certificates according to EN 10204 and other attestations as well as particulars of qualities, grades, measures and use of the goods are no warranties or guaranties, just as little declarations of conformity and corresponding markings such as CE and GS.

(2) Insofar as the quality has not been agreed, the goods shall be free from defects if they are suitable for the use presumed under the contract. A use is contractually presumed only if we were informed of this use by the Buyer in text form at the latest upon conclusion of the purchase contract and have expressly agreed to this use in text form.

(3) Insofar as the goods have the agreed quality in accordance with clause 9.1 or are suitable for the use stipulated in the contract in accordance with clause 9.2, the Buyer may not invoke the fact that the goods are not suitable for normal use or do not have a quality which is usual for goods of this type and which the Buyer has expected. In this respect, our liability is excluded in accordance with Section 10 of these Terms and Conditions.

(4) For the inspection of the goods and the indication of defects the statutory provisions apply, it being understood that the duty to inspect the delivered goods includes the inspection of eventual test certificates according to or correlating to EN 10204 and any defects of the goods and test certificates are notified to us in writing no later than 7 days after delivery. Any transport damage can only be taken into account if it is noted on the delivery note. Defects that cannot be discovered immediately after delivery, even with the most careful inspection, must be reported to us in text form immediately after discovery with immediate cessation of any working and processing.

(5) In case the Buyer intends to install the goods into another object or attach the goods to another object, prior to installation resp. attachment, the Buyer has the obligation to inspect at least randomly the goods with regard to properties relevant for the application in question and to notify us of defects without delay. The obligation to inspect exists even if a test certificate or other material certificate has been supplied. In case the Buyer, in the event of an installation of the goods into another object or attachment of the goods to another object, fails to inspect the properties of the goods relevant for the designated end use at least at random prior to installation resp. attachment, this represents a particularly grave disregard of the care required in the ordinary course of business (gross negligence) in relation to us. In such a case, the Buyer may assert rights in relation to these properties only if the defect had been deliberately concealed or in case of a guarantee for the respective quality of the goods.

(6) If and in so far the Buyer's claim for defects is justified and has been made in time, we may, upon our discretion, remedy the defect or deliver non-defective goods (subsequent delivery). Should we fail or decline the supplementary performance, the Buyer may resort to his statutory rights. In cases where the defect is only minor or where the goods have already been resold, processed or transformed, he may only reduce the purchase price.

(7) In case the Buyer has installed the goods, in accordance with the goods' type and designated use, into another object or attached the goods to another object, he may claim reimbursement of his necessary costs for the dismantling of the defective goods and the installation or attachment of goods free from defects ("dismantling and installation costs") only in accordance with the following provisions:

Necessary dismantling and installation costs are only those, which directly result from the dismantling resp. removal of the defective goods and the installation resp. attachment of identical goods, have accrued on the basis of competitive market prices and have been proven by the Buyer by appropriate documents in text form.

Any additional costs incurred by the buyer for consequential damages due to defects, such as lost profits, operating loss costs or additional costs for replacement purchases, are not direct dismantling and installation costs and therefore cannot be reimbursed as reimbursement of expenses pursuant to Section 439 (3) of the German Civil Code (BGB). The same applies to sorting costs and additional expenses arising from the fact that the sold and delivered goods are located at a place other than the agreed place of performance.

The Buyer is not entitled to request advance payments for dismantling and installations cost or other expenses required for the remedy of the defective delivery.

(8) We will reimburse the Buyer for his expenditures in connection with the supplementary performance only in so far as such expenditures are reasonable and not disproportionate in relation to the value of the goods. Disproportionate expenditures are especially given in case the expenditures requested by the Buyer, in particular dismantling and installation costs, exceed 150 % of the purchase price of the goods invoiced by us or 200 % of the value of the defective merchandise. If the last contract in the supply chain is a consumer sale, the reimbursement of expenses shall be limited to the appropriate amount. Expenditures accrued by delivery of goods to another place than that of the agreed performance, will not be accepted.

(9) If the buyer does not immediately give us the opportunity to convince ourselves of the defect, in particular if he does not immediately make the rejected goods or samples available for testing purposes upon request, all rights due to the material defect shall lapse.

(10) Further claims of the buyer are excluded according to section 10 of these terms and conditions. This applies in particular to claims for compensation for: damage that has not occurred to the goods themselves (consequential damage), costs for the self-remedy of a defect, without the legal requirements for this being met, and removal and installation costs, insofar as the goods supplied by us were no longer in their original condition at the time of installation or fitting or a new product was manufactured from the goods supplied prior to installation.

### 10. General Limitation of Liability and Limitation Periods

(1) Our liability for breach of contractual or extra-contractual obligations, in particular for non-performed or deferred deliveries, for breach of duties prior to the contract ("Verschulden

bei Vertragsbahnung") as well as for tortious acts – including our responsibility for our managerial staff and any other person employed in performing our obligations – shall be restricted to damages caused by our wrongful intent or by our gross negligence and shall in case of gross negligence not exceed the foreseeable losses and damages characteristic for the type of contract in question. In all other respects, our liability, also for damages caused by defects and consequential damages, is excluded.

(2) The aforesaid restriction shall not apply to such cases where we breach our fundamental contractual obligations and therefore the accomplishment of the purpose of the contract is at risk or where the non-fulfilment of the obligations the contracting party relies on renders the proper completion of the contract impossible. It shall neither pertain to damages to life, to the body or to health caused by our fault nor to any cases where we have guaranteed certain characteristics of the goods. Nor shall such clause affect our statutory liability laid down in the Product Liability Act (Produkthaftungsgesetz) of 15/12/89. Any statutory rules regarding the burden of proof shall remain unaffected by the aforesaid.

(3) If we are in default with a delivery or other service, the buyer may demand compensation for the damage caused by the default in addition to the service, but in the case of slight negligence limited to a maximum of 10% of the agreed price for the service in default. The buyer's right to claim damages instead of performance in accordance with this section 10.1 and 10.2 remains unaffected.

(4) Unless otherwise agreed, any contractual claims which the Buyer is entitled to in connection with the delivery of the goods shall fall under the statute of limitations within a period of one year after the goods have been delivered to the Buyer, unless the defective goods are used for a building in accordance with their customary use and have caused the defectiveness of the building. This restriction shall not apply to our liability and claims resulting from breaches of contract caused by our wrongful intent or by our gross negligence, neither to damages to life, to the body and to health caused by our fault, or the limitation of recourse claims pursuant to §§ 478, 479 BGB. In these cases, the statutory limitation periods shall apply.

### 11. Place of Performance, Jurisdiction and Applicable Law

(1) Unless otherwise agreed, the place of performance for our delivery is our registered office.

(2) The place of jurisdiction is our seat. However, we are also entitled to sue the buyer at any general or special place of jurisdiction.

(3) All legal relationships between us and the Buyer shall be governed in addition to these conditions by the laws of the Federal Republic of Germany, excluding the provisions of the United Nations Convention on Contracts for the International Sale of Goods of 11 April 1980 (CISG).

### 12. Applicable Version

In cases of doubt, the German version of these General Conditions of Sale and Delivery shall apply.

Version: September 2023



#### Minimum order value:

For stock articles (**bold printed** articles):  
net € 100.00

For special production and *italic printed* articles:  
net € 250.00 / article

Extra payment for incomplete packets:  
net € 5.00

Delivery costs on request.  
Express delivery on extra charge available.

We reserve the right to change the construction and design of the brushes in the course of further technical developments. Information to measurements are approximate and not binding. All measurements are in mm.

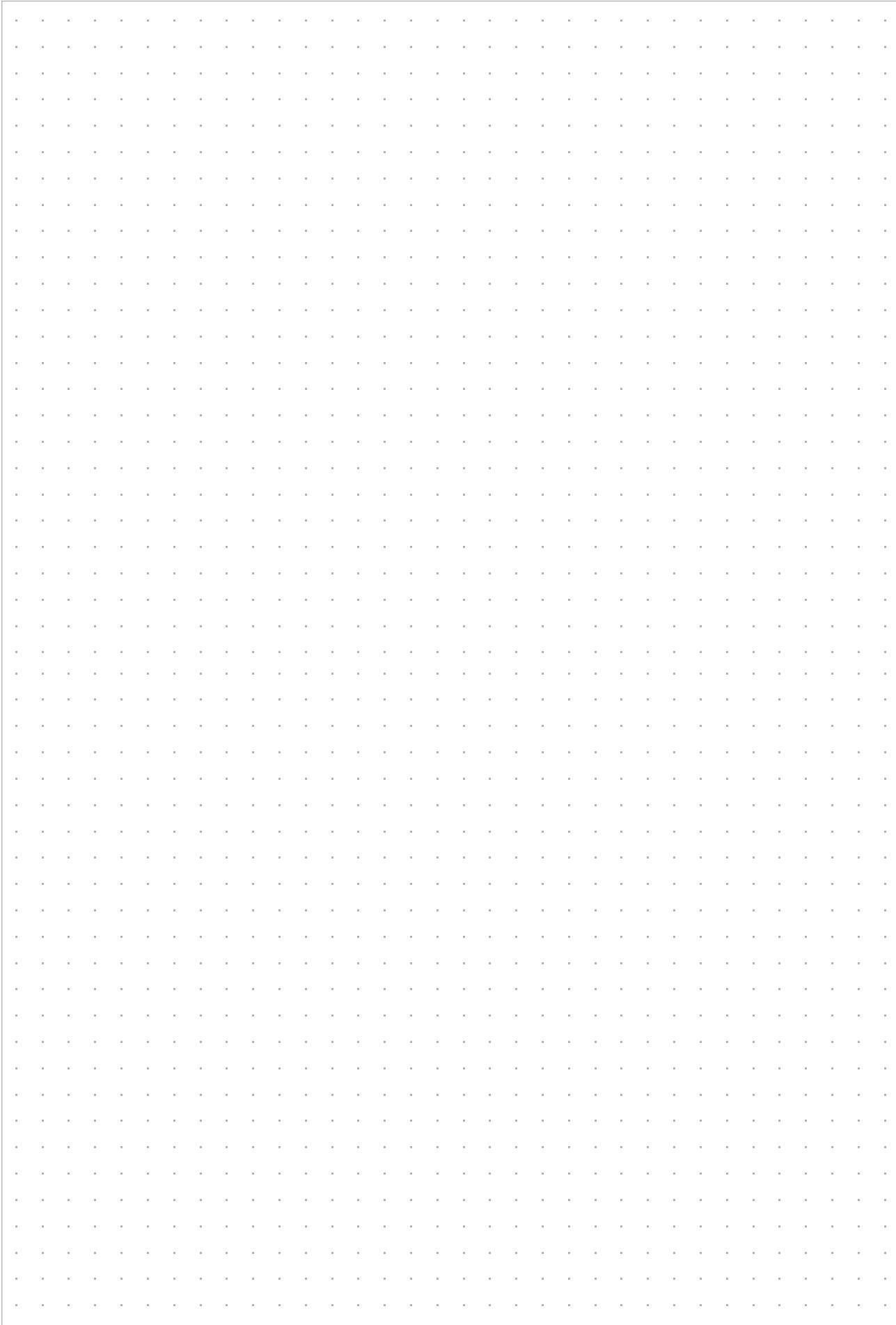
The LESSMANN free dimension tolerances apply. Request these if necessary.



Prefer the digital version? You can also find our terms and conditions at [www.lessmann.com/downloads](http://www.lessmann.com/downloads)



# Notes



# Purchase Order Form

**Supplier**

Lessmann GmbH  
Lucas-Schultes-Str. 2  
D-86732 Oettingen

**Buyer**

.....  
.....  
.....

Date .....

Customer Number .....

Contact Person .....

Phone .....

E-Mail .....

**Order Number:** .....

Article Number	Article Name	Quantity	Price	Discount	Date of Delivery

**Shipping Address (if different from above):**

.....  
.....  
.....  
.....

**Billing Address (if different from above):**

.....  
.....  
.....  
.....

Yes, please electronic order confirmation to be sent to: E-Mail .....

Yes, please electronic invoice to be sent to: E-Mail .....

For more information about our brush selection please visit our website [www.lessmann.com/en/Products](http://www.lessmann.com/en/Products)

We hereby accept the current „General Conditions of Sale and Delivery“ of Lessmann GmbH as printed in the Lessmann catalogue on page 184 available to us.

Buyer's Signature / Stamp



# Article Numbers

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000.042.....	45	103.731.....	93	125.241.....	96	185.441.....	94	221.329.00.....	164	243.32C.00.....	166	265.853.10.....	170
000.043.....	45	103.741.....	93	125.251.....	96	185.451.....	94	221.353.00.....	164	243.323.00.....	166	266.123.00.....	170
000.044.....	45	103.751.....	93	125.311.....	96	185.621.....	94	221.353.10.....	164	243.326.00.....	166	266.126.00.....	170
000.045.....	45	103.761.....	93	125.511.....	96	185.631.....	94	222.32C.00.....	164	243.329.00.....	166	266.127.00.....	170
000.051.....	154	104.321.....	93	125.521.....	96	185.641.....	94	222.323.00.....	164	243.353.00.....	166	266.153.00.....	170
000.071.....	131	104.331.....	93	126.311.....	97	185.651.....	94	222.326.00.....	164	243.353.10.....	166	266.153.10.....	170
000.072.....	131	104.341.....	93	126.401.....	97	185.811.....	95	222.329.00.....	164	244.32C.00.....	166	267.A2E.00.....	170
000.311.....	103	104.421.....	93	126.411.....	97	186.431.....	94	222.353.00.....	164	244.323.00.....	166	267.A2J.00.....	170
000.321.....	103	104.441.....	93	126.411.CC.....	138	200.C21.00.....	168	222.353.10.....	164	244.326.00.....	166	267.A29.00.....	170
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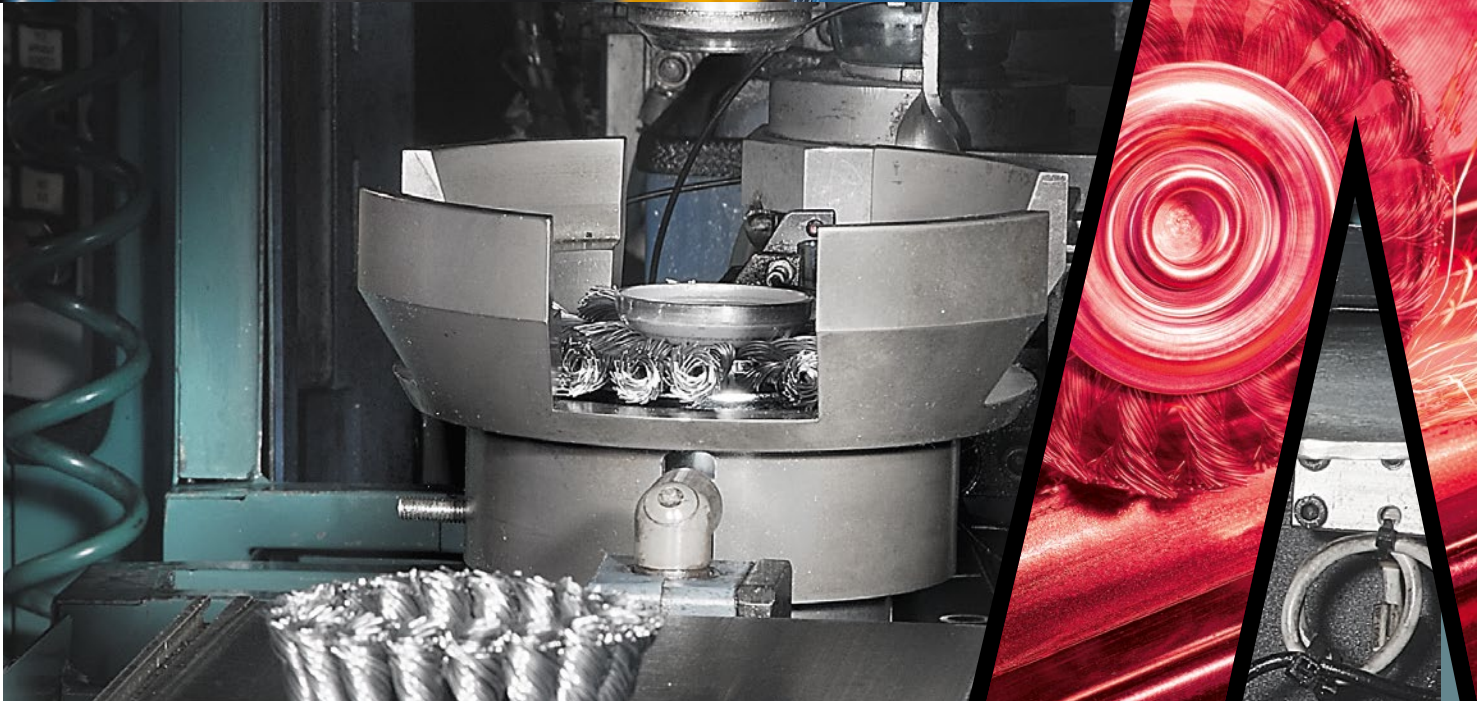
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