

LESSMANN



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!

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!

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-sparking applications.

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

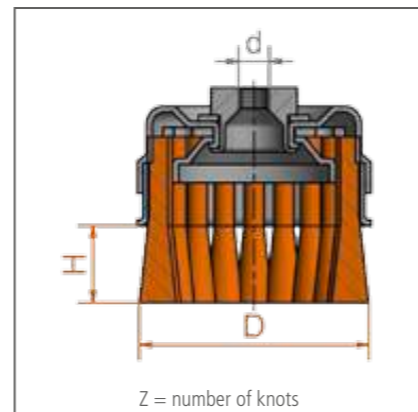
Stainless Steel Brushes

LESSMANN brushes with stainless steel wire have green cups. More information for brush applications on stainless materials you will find at www.lessmann.com



Chunky packaging

Many articles you receive as standard in handy covering boxes (10 pieces per carton).



Item Nos. in bold are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 164).

- STH = steel wire, high tensile, straight
- STM = brass coated steel, straight
- MES = brass wire
- BRO = bronze wire



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

	D mm inch	d mm inch	H mm inch	Z	RPM max.	Pack.	5			
							STH 0.35 0.014" Art.-No.	STH 0.50 0.020" Art.-No.	STH 0.80 0.031" Art.-No.	STM 0.35 0.014" 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*
	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*		

1 1 1 1 1 EAN Knot Cup Brushes without Bridle, 1 Row, brass wire, bronze wire

	D mm inch	d mm inch	H mm inch	Z	RPM max.	Pack.	5		6
							MES 0.35 0.014" Art.-No.	MES 0.50 0.020" Art.-No.	BRO 0.50 0.020" Art.-No.
	65 2 9/16	M 14 x 2.0	20 51/64	18	12,500	1	482.017	482.027	482.057

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

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

1 1 1 1 1 EAN 8 Knot Cup Brushes without Bridle, 2 Rows, Steel Wire

	D mm inch	d mm inch	H mm inch	Z	RPM max.	Pack.	STH 0.35 0.014" Art.-No.	STH 0.50 0.020" Art.-No.	STH 0.80 0.031" 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



You can find our **tutorials** here: 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 or in the catalog from page 158

Cup Brushes



||||| EAN Knot Cup Brushes with Bridle, 1 Row, Steel Wire

1									
D	d	H	H ₁	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			484.311**
80 3 1/4	M 14 x 2.0	25 1	15 5/8	20	9,000	1	484.117*	484.217*	484.317*
80 3 1/4	5/8" - 11 UNC	25 1	15 5/8	20	9,000	1	<i>484.118</i>	484.218	<i>484.318</i>
100 4	22.2 7/8	23 7/8	12 1/2	26	9,000	1	486.111	486.211*	486.311*
100 4	M 14 x 2.0	23 7/8	12 1/2	26	9,000	1	486.117*	486.217*	486.317*
100 4	5/8" - 11 UNC	23 7/8	12 1/2	26	9,000	1	<i>486.118</i>	486.218*	<i>486.318*</i>
125 5	22.2 7/8	23 7/8	15 5/8	32	7,000	1	<i>487.111</i>	487.211	487.311
125 5	M 14 x 2.0	23 7/8	15 5/8	32	7,000	1	487.117	487.217	487.317
125 5	5/8" - 11 UNC	23 7/8	15 5/8	32	7,000	1	<i>487.118</i>	487.218	<i>487.318</i>

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

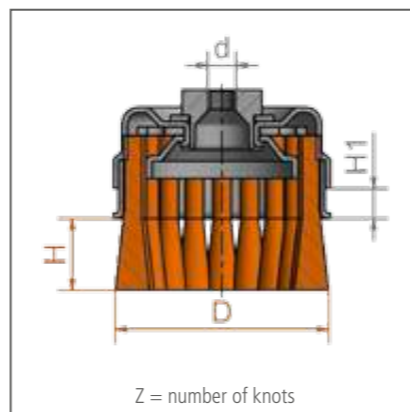
2								
D	d	H	H ₁	Z	RPM	Pack.	BRO 0.50 0.020"	
mm inch	mm inch	mm inch	mm inch		max.		Art.-No.	
125 5	16 5/8	23 7/8	15 5/8	32	4,000	1	<i>487.011.MS</i>	

After removing the bridle there is the following further trimming length (see measure H1).

- * Packed 10 pieces per carton.
- ** This brush doesn't work with angle grinders.

Item Nos. in bold are available ex stock.
Consider our minimum order value for *italic printed* article numbers (see page 164).

- STH = steel wire, high tensile, straight
- ROH = stainless steel wire, high tensile, straight
- BRO = bronze wire



||||| EAN Knot Cup Brushes without Bridle, 1 Row, Stainless Steel Wire

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

||||| EAN 3 Knot Cup Brushes with Bridle, 1 Row, Stainless Steel Wire

3									
D	d	H	H ₁	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	484.717	484.817*	
80 3 1/4	5/8" - 11 UNC	25 1	15 5/8	20	9,000	1	<i>484.718</i>	<i>484.818</i>	
100 4	M 14 x 2.0	23 7/8	12 1/2	26	9,000	1	486.717*	486.817*	
100 4	5/8" - 11 UNC	23 7/8	12 1/2	26	9,000	1	<i>486.718</i>	<i>486.818</i>	
125 5	M 14 x 2.0	23 7/8	15 5/8	32	9,000	1	<i>available on demand</i>	487.817	

* Packed 10 pieces per carton

Cup Brushes



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Cup Brushes with Crimped Wire

D mm inch	d mm inch	H max.	RPM	Pack.					
					1 STA 0.20 0.008"	1 STA 0.35 0.014"	1 STA 0.50 0.020"	2 ROH 0.30/0.35 0.012"	3 MES 0.30 0.012"
65 2 3/8	M 10 x 1,5	20	12,000	1		421.164*		421.364	421.564
65 2 3/8	M 14 x 2.0	20	12,000	1	421.147	421.167*	421.197	421.367*	421.567*
75 3	M 14 x 2.0	22	12,500	1		423.167*	available on demand	423.367*	available on demand
75 3	5/8" - 11 UNC	22	12,500	1		423.168*	available on demand	423.368	available on demand
80 3 1/4	22.2 7/8	25	8,500	1		424.171*	available on demand	424.361	available on demand
80 3 1/4	M 14 x 2.0	25	8,500	1	424.147	424.177*	424.197	424.367*	424.567
80 3 1/4	5/8" - 11 UNC	25	8,500	1		424.178	424.198	424.368	available on demand
100 4	22.2 7/8	30	9,000	1		426.171*	426.191	426.361	
100 4	M 14 x 2.0	30	9,000	1	426.147**	426.177*	426.197*	426.367*	426.567
100 4	5/8" - 11 UNC	30	9,000	1		426.178*	426.198	426.368	426.568
125 5	22.2 7/8	30	8,000	1		427.171**	available on demand	available on demand	available on demand
125 5	M 14 x 2.0	30	8,000	1	427.147	427.177	427.297	427.367*	427.567*
125 5	5/8" - 11 UNC	30	8,000	1		427.178	427.298		
150 6	22.2 7/8	40	6,500	1		429.171	429.191		
150 6	M 14 x 2.0	40	6,500	1		429.177	429.197	429.367	
150 6	5/8" - 11 UNC	40	6,500	1		429.178	429.198		

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Cup Brushes, Brass Coated Steel Wire, Abrasive Filament

D mm inch	d mm inch	H max.	RPM	Pack.					
					1 STL 0.35 0.014"	1 STM 0.30 0.012"	4 SIC 80/1.2	4 SIC 180/0.9	
65 2 3/8	M 14 x 2.0	20	12,000	1			421.767	421.827	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		426.767			

* Packed 10 pieces per carton.

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

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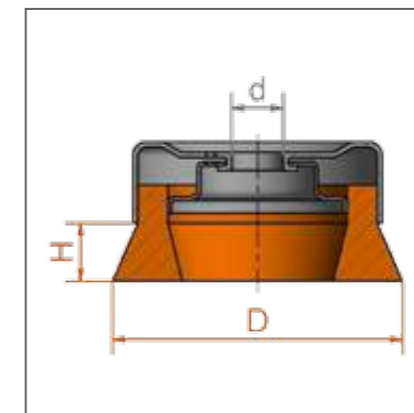
Cup Brushes, Straight Filament

	D mm inch	d mm inch	H max.	RPM	Pack.	1 STH 0.35 0.014"	1 STM 0.35 0.014"	3 STL 0.35	3 SIC 80/1.2	3 SIC K180/1.0
						Art.-No.	Art.-No.	Art.-No.	Art.-No.	Art.-No.
1	90 3 1/2	M 14	25	9,000	1				446.827*	446.857*
	90 3 1/2	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*	446.701*		
2	110 4 1/2	M 14	30	7,000	1				447.827*	447.857*
3	125 5	M 14	30	7,000	1	447.277*	available on demand	447.707		

1 with bridle | * Packed 10 pieces per carton

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 164).

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, straight

MES = brass wire, crimped

SIC = silicon carbide bristles

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

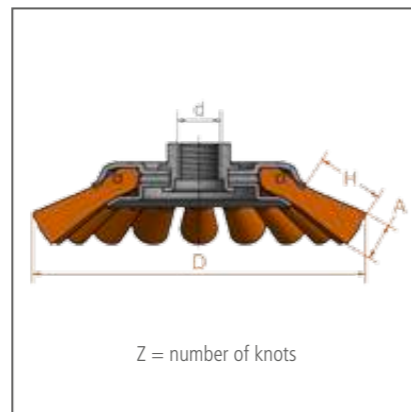
LESSMANN brushes with stainless steel wire have green cups. We use wire with material number 1.4310. Material number 1.4401 can be used on request.

More information for brush applications on stainless materials you will find at www.lessmann.com

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 164).

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



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

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

1 1 1 1 EAN 4 Knot Bevel Brushes, Steel Wire, Brass coated steel wire

D mm inch	A mm inch	d mm inch	H	Z	RPM max.	Pack.		
							STM 0.35 0.014"	STM 0.50 0.020"
							Art.-No.	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		472.257.SM*

1 1 1 1 EAN Bevel Brushes, Crimped Wire

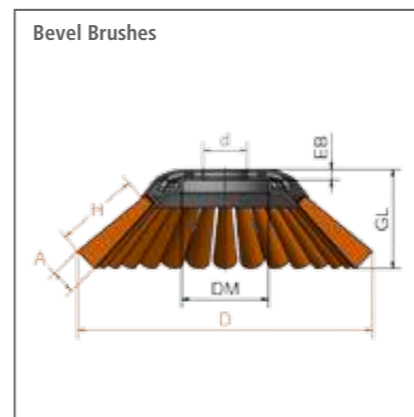
D mm inch	A mm inch	d	H	RPM max.	Pack.			
						5 STA 0.35 0.014"	ROF 0.30 0.012"	6 STM 0.30 0.012"
						Art.-No.	Art.-No.	Art.-No.
100 4	10 3/8	M 14 x 2.0	20	15,000	1	422.177*	422.367*	422.767

1 1 1 1 EAN 7 Wheel Brushes, crimped wire, with thread

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

* Packed 10 pieces per carton

Brushes for grass trimmers



Brushes for grass trimmers

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

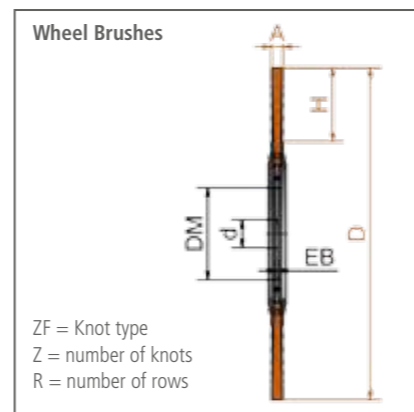


Right adaption of the brush

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 filaments 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.

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.



Item Nos. in bold are available ex stock. Consider our minimum order value for *italic printed* article numbers (see page 164).

STM = brass coated steel, straight
STH = steel wire, high tensile, straight
PBT = Polyester PBT



Knotted Bevel Brushes, for grass trimmers

	D	A	EB	DM	H	GL	Z	d	ZF	RPM	Pack.	STH 0.50 0.020"	STM 0.50 0.020"
	mm inch	mm inch			mm inch			mm inch		max.		Art.-No.	Art.-No.
1	170 6 ^{3/4}	12 1/2	6	50	50 2	58	32	20 3/4	B	10,000	1	475.250.01	
	170 6 ^{3/4}	12 1/2	6	50	50 2	58	32	25.4 1	B	10,000	1	475.251.01	
2	200 8	14 9/16	6	64	37 1 ^{1/2}	55	36	20 3/4	B	10,000	1	476.250.01	476.250.SM
	200 8	14 9/16	6	64	37 1 ^{1/2}	55	36	25.4 1	B	10,000	1	476.251.01	476.251.SM

The brushes are suitable for all common grass trimmer and brush cutter models. Possible special diameters or special bores are deliverable on demand.

Knotted Wheel Brushes, for grass trimmers

	D	A	EB	DM	H	Z	d	ZF	RPM	Pack.	STH 0.50 0.020"
	mm inch	mm inch			mm inch		mm inch		max.		Art.-No.
3	175 6 ^{7/8}	6 1/4	8	68	34 1 ^{1/4}	40	20 3/4	B	12,500	1	475.260.01
	175 6 ^{7/8}	6 1/4	6	68	34 1 ^{1/4}	40	25.4 1	B	12,500	1	475.261.01
	200 8	6 1/4	8	68	46 1 ^{49/64}	40	20 3/4	B	12,500	1	476.260.01
	200 8	6 1/4	6	68	46 1 ^{49/64}	40	25.4 1	B	12,500	1	476.261.01
4	250 10	6 1/4	3	83	42 1 ^{5/8}	56	20 3/4	B	10,000	1	477.260.01
	250 10	6 1/4	3	83	42 1 ^{5/8}	56	25.4 1	B	10,000	1	477.261.01
	300 12	6 1/4	3	83	67 2 ^{5/8}	56	20 3/4	B	10,000	1	478.260.01
	300 12	6 1/4	3	83	67 2 ^{5/8}	56	25.4 1	B	10,000	1	478.261.01

Bevel Brushes, for grass trimmers, PBT

	D	A	EB	DM	H	d	RPM	Pack.	PBT
	mm inch	mm inch			mm inch	mm inch	max.		Art.-Nr.
5	160 6 ^{1/4}	10 25/64	3.5	50	65 2 ^{1/4}	20 3/4	10.000	1	425.000.01
	160 6 ^{1/4}	10 25/64	3.5	50	65 2 ^{1/4}	25.4 1	10.000	1	425.001.01
	230 9 ^{3/16}	25 1	5	80	70 2 ^{3/4}	20 3/4	10.000	1	426.000.01
	230 9 ^{3/16}	25 1	5	80	70 2 ^{3/4}	25.4 1	10.000	1	426.001.01



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

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 164).

BRO = bronze wire



- 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.

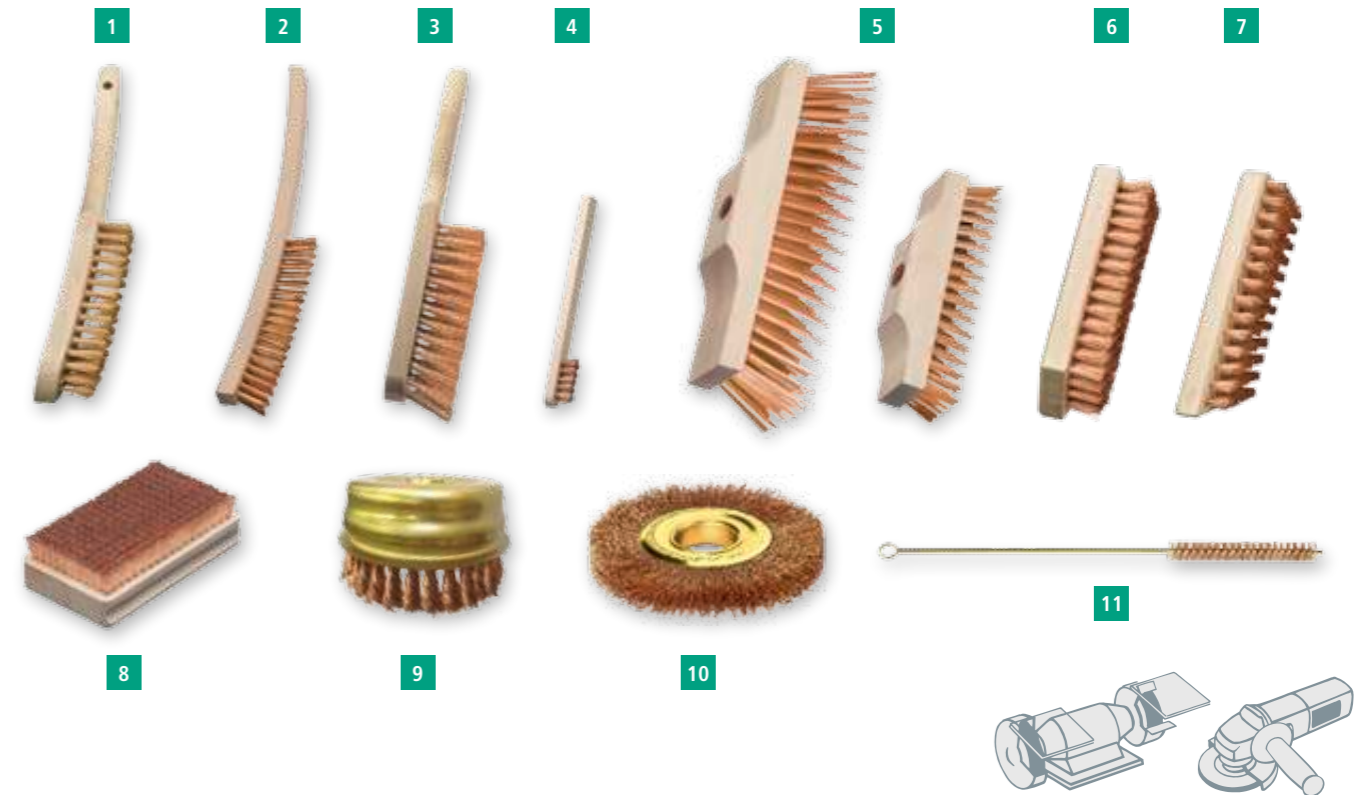
1 Handbrushes standard; KL 290				
Rows	H mm inch	Pack.	BRO 0.20/BRO 0.40*	Art.-No.
3	25 1	12	108.331	
4	25 1	12	108.341	
5	25 1	12	108.351	
4	25 1	12	<i>108.041*</i>	

4 Spark Plug Brushes; KL 200				
Rows	H mm inch	Pack.	BRO 0.15	Art.-No.
3	15 19/32	12	132.801	

2 Handbrushes export model; KL 350				
Rows	H mm inch	Pack.	BRO 0.30	Art.-No.
3	30 1 3/16	6	122.771	
4	30 1 3/16	6	122.821	
5	30 1 3/16	6	<i>122.871</i>	

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

3 Dusters; KL320				
Rows	H mm inch	Pack.	BRO 0.25 Art.-No.	
4	40 1 5/8	12	<i>124.181</i>	



Special models

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

Cup Brushes								
D mm inch	H mm inch	H1 mm inch	Z	RPM max.	Cup	Pack.	BRO 0.50 knotted Art.-No.	
9	125 5	23 29/32	15 19/32	32	7,000	brass	1	<i>487.011.MS</i>

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

Cylinder Brushes; GL330					
D mm inch	A mm inch	drilling wire	Pack.	BRO 0.20 Art.-No.	
11	10 25/64	100 4	MES 2.5	10	542.034
	20 51/64	100 4	MES 2.5	10	543.006
	35 1 3/8	100 4	MES 3.0	10	543.926

GL = total length
KL = body length