



BSI Standards Publication

Power-driven brushes

Part 1: Definitions and nomenclature

National foreword

This British Standard is the UK implementation of EN 1083-1:2024. It supersedes BS EN 1083-1:1997, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MTE/1, Machine tools.

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Power-driven brushes - Part 1: Definitions and nomenclature

Brosses entraînées par un moteur - Partie 1:
Définitions et nomenclature

Kraftbetriebene Bürstwerkzeuge - Teil 1: Definitionen
und Nomenklatur

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European foreword

This document (EN 1083-1:2024) has been prepared by Technical Committee CEN/TC 143 “Machine tools – Safety”, the secretariat of which is held by SNV.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2025 and conflicting national standards shall be withdrawn at the latest by June 2025.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document will supersede EN 1083-1:1997.

This document includes the following significant technical changes with respect to EN 1083-1:1997:

- a) The entire document has been updated with a new designation system to meet current needs of manufacturers and end users.
- b) New types of brushes and new materials have been added.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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1 Scope

This document defines terms which are used to describe power-driven brushes and strip brushes and describes the designation system.

This document does not cover brushes for car wash sites, vacuum cleaners, carpet cleaning machines, sewer and street cleaning machines, dental brushes, brushes for sealing and stripping.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 847-1:2017, *Tools for woodworking — Safety requirements — Part 1: Milling tools, circular saw blades*

ISO 525:2020, *Bonded abrasive products — Shape types, designation and marking*

ISO 6106, *Abrasive products — Checking the grain size of superabrasives*

ISO 8486-1, *Bonded abrasives — Determination and designation of grain size distribution — Part 1: Macrogrits F4 to F220*

ISO 8486-2, *Bonded abrasives — Determination and designation of grain size distribution — Part 2: Microgrits F230 to F2000*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 847-1:2017 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp/>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1.1

brush

assembly consisting of the brush body, soul, clamping part and the filling material

3.1.2

brush body

component of a brush whose function is to keep the filling material together

3.1.3

filling material

material (wire, filament or similar), fixed into the brush body or into the soul, in order to form the brush area and hence the working part of the brush

3.1.4

bundle

number of elements of the filling material

3.1.5**knot**

bundle twisted to a knot

3.1.6**soul**

wires winded to a spiral, which fix the filling material and form also the brush body

3.1.7**bound brush****binding**

brush with filling material that is embedded into a binding in a way that only the tips of the filling material are used during application

3.1.8**working surface**

surface formed by the tips of the filling material, which contacts the workpiece

3.2 Symbols

For the purposes of this document, the symbols, definitions and units given in Table 1 apply.

Table 1 — Symbols, definitions und units

Symbol	Definition	Unit
α	Orientation of the filling material towards the axis (nominal dimension)	°
C_H	Nominal height of a strip brush	mm
C_L	Nominal length of strip brushes	mm
C_W	Nominal back width of strip brushes	mm
D	Nominal outside diameter of the brush or of the working surface of an end brush	mm
D_A	Bore diameter	mm
D_{AM}	Maximum bore diameter of the brush body	mm
D_C	Maximum outside diameter of the brush body	mm
D_F	Nominal diameter of the round filling material	mm
D_{F1}	Nominal diameter of the oval or rectangular filling material (higher value)	mm
D_{F2}	Nominal diameter of the oval or rectangular filling material (lower value)	mm
D_I	Nominal inside diameter of the working surface	mm
D_M	Diameter in the bore area	mm
D_P	Outside diameter of the pilot	mm

Symbol	Definition	Unit
D_S	Shank diameter of brushes with shank Axis diameter of cylinder brushes Soul diameter of tube brushes	mm
D_T	Nominal thread diameter, e.g. M14 × 2	—
H	Nominal total height (incl. parts for bore or thread and incl. shank)	mm
L	Nominal total length of end brushes (excl. pilot) and of tube brushes	mm
L_B	Body length of head brushes	mm
L_H	Length of soul at the head of tube brushes without filling material	mm
L_P	Visible nominal length of pilot	mm
L_S	Useable length of shank, total length of the clamping axis, usable length of thread	mm
L_T	Nominal length of the filling material (free length of filling material)	mm
N_S	Number of strips of cylinder brushes	—
P_W	Pitch of winding of cylinder brushes and of strip brushes	mm
W_A	Width of the brush body at the hole/at the thread	mm
W_B	Mounting width, maximum width of the brush body	mm
W_F	Nominal working width	mm

4 Designation system and nomenclature of power-driven brushes and of strip brushes

4.1 Structure of the designation system

The individual item block of power-driven brushes and of strip brushes is composed from up to seven data blocks, depending on the brush type (see Table 2). The given sequence of the data blocks is mandatory.

All data blocks shall be separated with hyphens and without blanks (see Example 1).

Table 2 — Designation system

	Designation		Individual item block						
	Description block	Identity block	EN standard						
			Data block 1	Data block 2	Data block 3	Data block 4	Data block 5	Data block 6	Data block 7
Designation		EN 1083-1	Types and dimensions	Material type of filling material, shape of filling material and form of filling material	Abrasive additive in the filling material	Arrangement of filling material	Embedding of filling material (type of binding and hardness grade or removable supporting rings)	Direction of winding	Material type of brush body and its possible manteling
Statement	mandatory, if standard reference is not stated	optional	mandatory	mandatory	mandatory, if filling material with abrasive additive is used	mandatory, if filling material in form of rows, segments or knots is used	optional	optional	optional
Clause			4.2	4.3	4.4	4.5	4.6	4.7	4.8

EXAMPLE 1 Designation of a wheel brush:

Wheel brush EN 1083-1-WID-B-150×38-50.8A-32×32-0.3×2.5 -IRCR-2-S

Data block 1 – Types and dimensions	
Data block 2 – Material type of filling material, shape of filling material and form of filling material	
Data block 4 – Arrangement of filling material	
Data block 7 – Material type of brush body	

EXAMPLE 2 For additional examples, see Annex B.

4.2 Data block 1: Types and dimensions

4.2.1 General

Data block 1 is mandatory (see Table 2). For the structure of data block 1, different information about the types and dimensions are necessary, depending on the brush type.

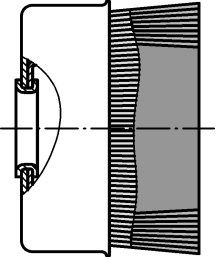
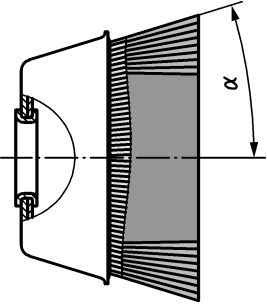
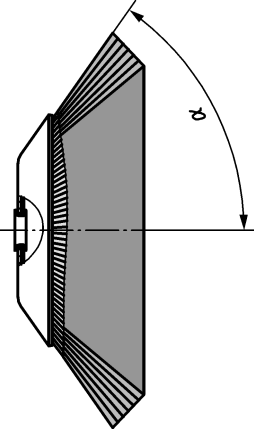
Table 3 gives the brush types, regardless of the type of mounting, with references on the relevant clause, which gives the mandatory parameters. Annex A gives detailed explanations (e.g. on clamping type, position of the indication of measurements) and drawings.

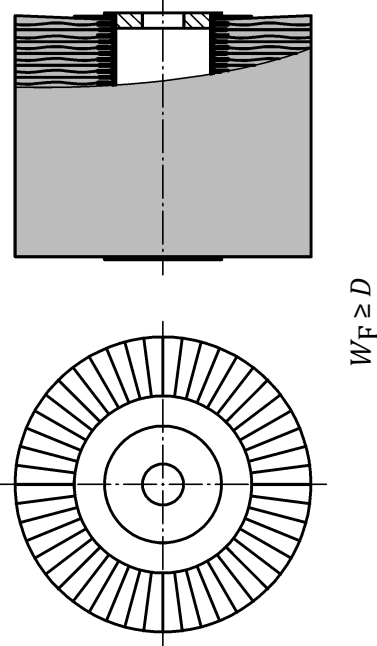
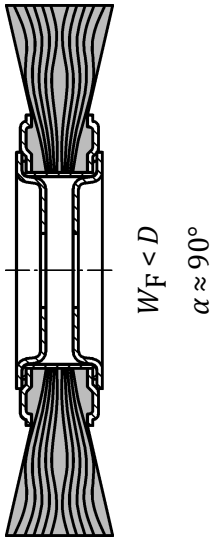
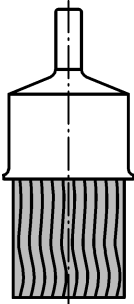
The structure of data block 1 is given in Figures 1 to 7, depending on the brush type. As separation between the statements, the symbols “-” and “×” shall be used, as defined in the following subclauses.

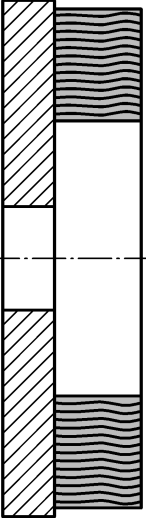
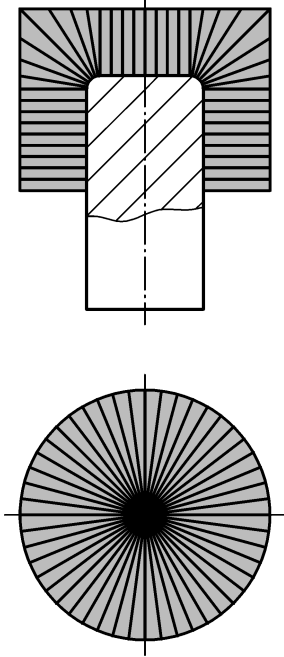
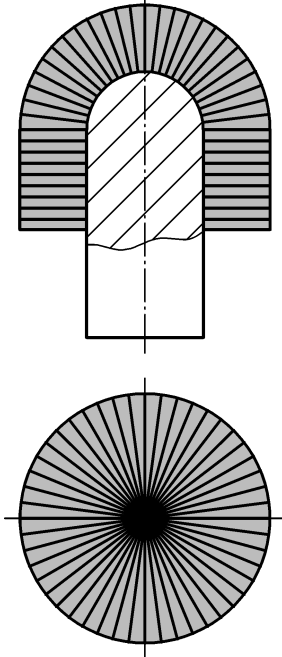
Statements in brackets in the columns “Dimensions” are optional and shall be included or left out only in the whole. If the information in brackets shall be given, the brackets themselves shall not be included into the designation system.

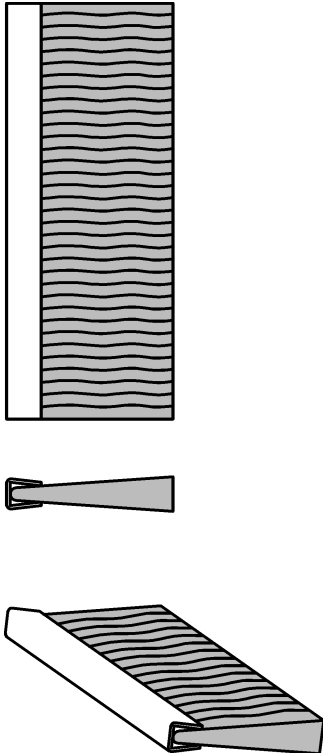
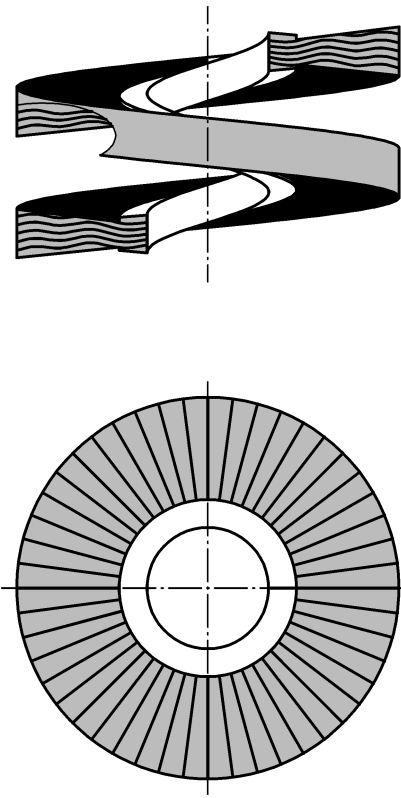
The filling material is shown in grey.

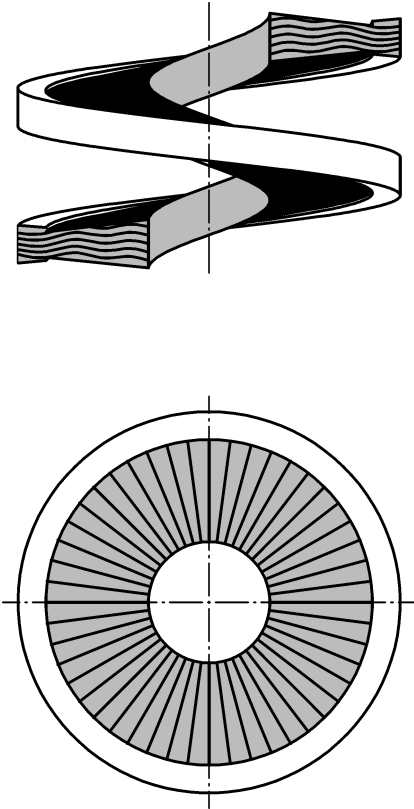
Table 3 — Type code

Type code	Figure	Designation	Clause
CS	 $\alpha \approx 0^\circ$	cup brush, straight	4.2.2
CF	 $0^\circ < \alpha < 45^\circ$	cup brush, flared	
WC	 $45^\circ \leq \alpha < 90^\circ$	wheel brush, conical	

Type code	Figure	Designation	Clause
CID	 $W_F \geq D$	cylinder brush, individual brush disc	4.2.3
CSS		cylinder brush, strip straight	
CSH		cylinder brush, strip helical	
CSW		cylinder brush, strip wounded	
CCP		cylinder brush, core punched	
WID	 $W_F < D$ $\alpha \approx 90^\circ$	wheel brush (straight), individual brush disc	4.2.3
WSS		wheel brush (straight), strip straight	
WSH		wheel brush (straight), strip helical	
WSW		wheel brush (straight), strip wounded	
WCP		wheel brush (straight), core punched	
ES		end brush, solid working surface	4.2.4
EH		end brush, hollow working surface	
EP		end brush, hollow working surface, with pilot	
ER		end brush, flared end (round)	
EW		end brush, flared end (square)	

Type code	Figure	Designation	Clause
DI		disc brush, flat body	4.2.5
TT		tube brush, 2 core wires	4.2.6
TF		tube brush, 4 core wires	
HS		headbrush, square end	4.2.7
HR		headbrush, round end	

Type code	Figure	Designation	Clause
SS		strip brush, straight	4.2.8
SWO		strip brush as single ring ($P_W = 0$) or wounded, filaments outside	

Type code	Figure	Designation	Clause
SWI		strip brush as single ring ($P_W = 0$) or wounded, filaments inside	4.2.8

4.2.2 Cup brush and wheel brush, conical

Data block 1 “Types and dimensions” of cup brushes and wheel brushes, conical, consists of five elements. Figure 1 gives the elements with the possible statements and two examples. Reference figures of the brushes and the location of the dimensions are specified in A.2.

The diagram illustrates the relationship between three tables: Table 1, Table 2, and Table 3. Table 1 (Type code) has elements 1, 2, 3, 4, 5. Table 2 (Code for mounting type) has elements 1, 2, 3, 4, 5. Table 3 (Dimensions of brush body) has elements 1, 2, 3, 4, 5. Arrows indicate that the 'Type code' in Table 1 corresponds to the 'Code for mounting type' in Table 2, and the 'Dimensions of brush body' in Table 2 corresponds to the 'Dimensions of filling material' in Table 3.

Element	1	2	3	4	5
Designation	Type code				
Reference	Table 3				
	CS				
	CF				
	WC				

Element	1	2	3	4	5
Designation		Code for mounting type	Dimensions of brush body		
Reference		A.1	A.2.2		
		B*	$D_A \cdot (D_C)H$		
		ITI	$D_{T^-} \cdot (D_C)H$		
		ITO	$D_{T^-} \cdot (D_C)H$		
		ET	$D_{T \cdot xL_S^-} \cdot (D_C)H$		
		S	$D_{S \cdot xL_S^-} \cdot (D_C)H$		

Element	1	2	3	4	5
Designation			Basic dimensions		
Reference			A.2.1		
			D		

Example 1

Element	1	2	3	4	5
CS	-	-	-	-	0,35x15
ITO	-	-	65	M14x2-60-70	-
WC	-	S	125	6x30-80-80	0,5x30

Example 2

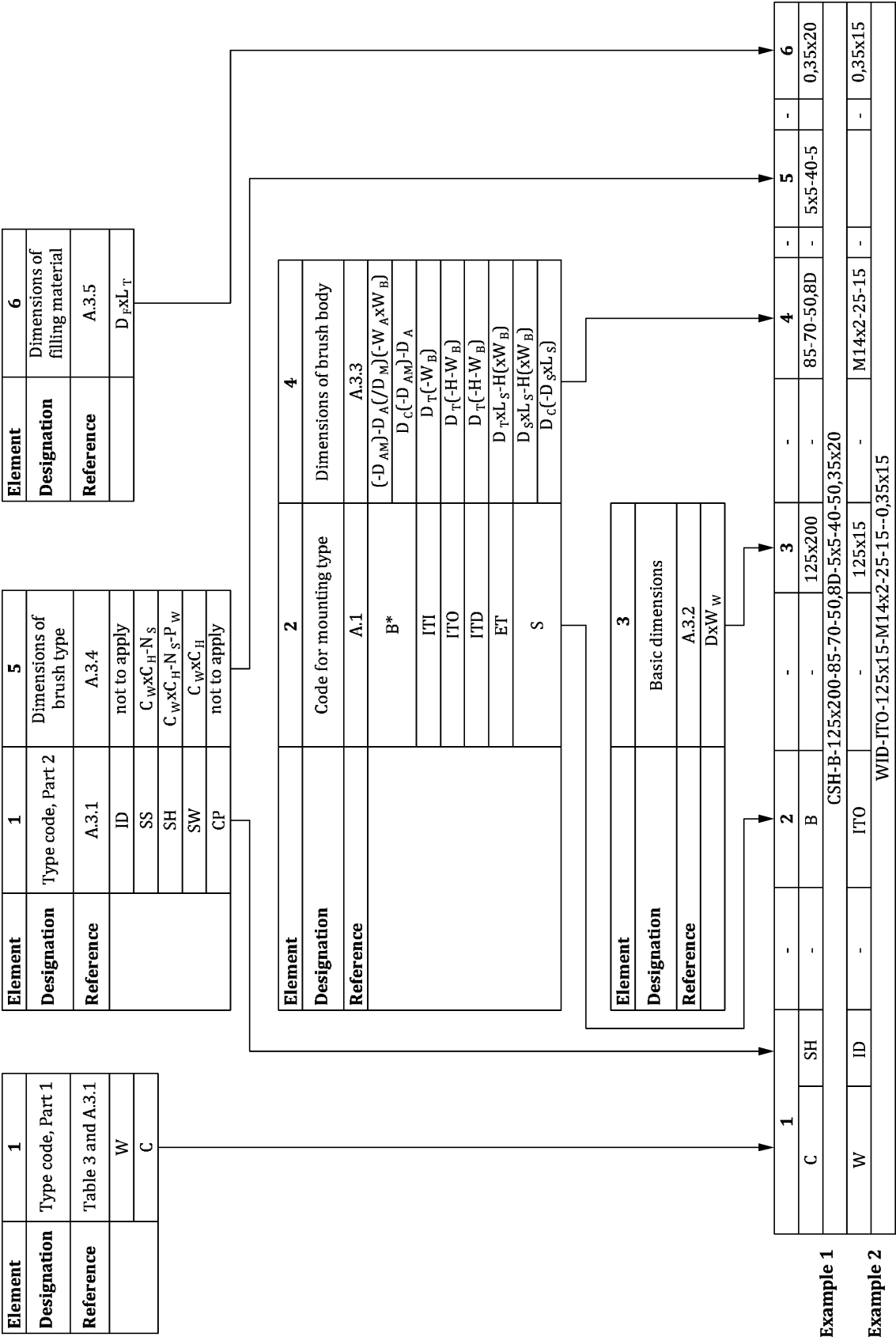
Element	1	2	3	4	5
WC	-	S	125	6x30-80-80	0,5x30

* For type “B”, additional variants are possible (see Table A.2).

Figure 1 — Structure of data block 1: Cup brush and wheel brush, conical

4.2.3 Cylinder brush and wheel brush, straight

Data block 1 “Types and dimensions” of cylinder brushes and wheel brushes, straight, consists of six elements. Figure 2 gives the elements with the possible statements and two examples. Reference figures of the brushes and the location of the dimensions are specified in A.3.



* For type “B”, additional variants are possible (see Table A.2).

Figure 2 — Structure of data block 1: Cylinder brush and wheel brush, straight

4.2.4 End brush

Data block 1 “Types and dimensions” of end brushes of six elements. Figure 3 gives the elements with the possible statements and two examples. Reference figures of the brushes and the location of the dimensions are specified in A.4.

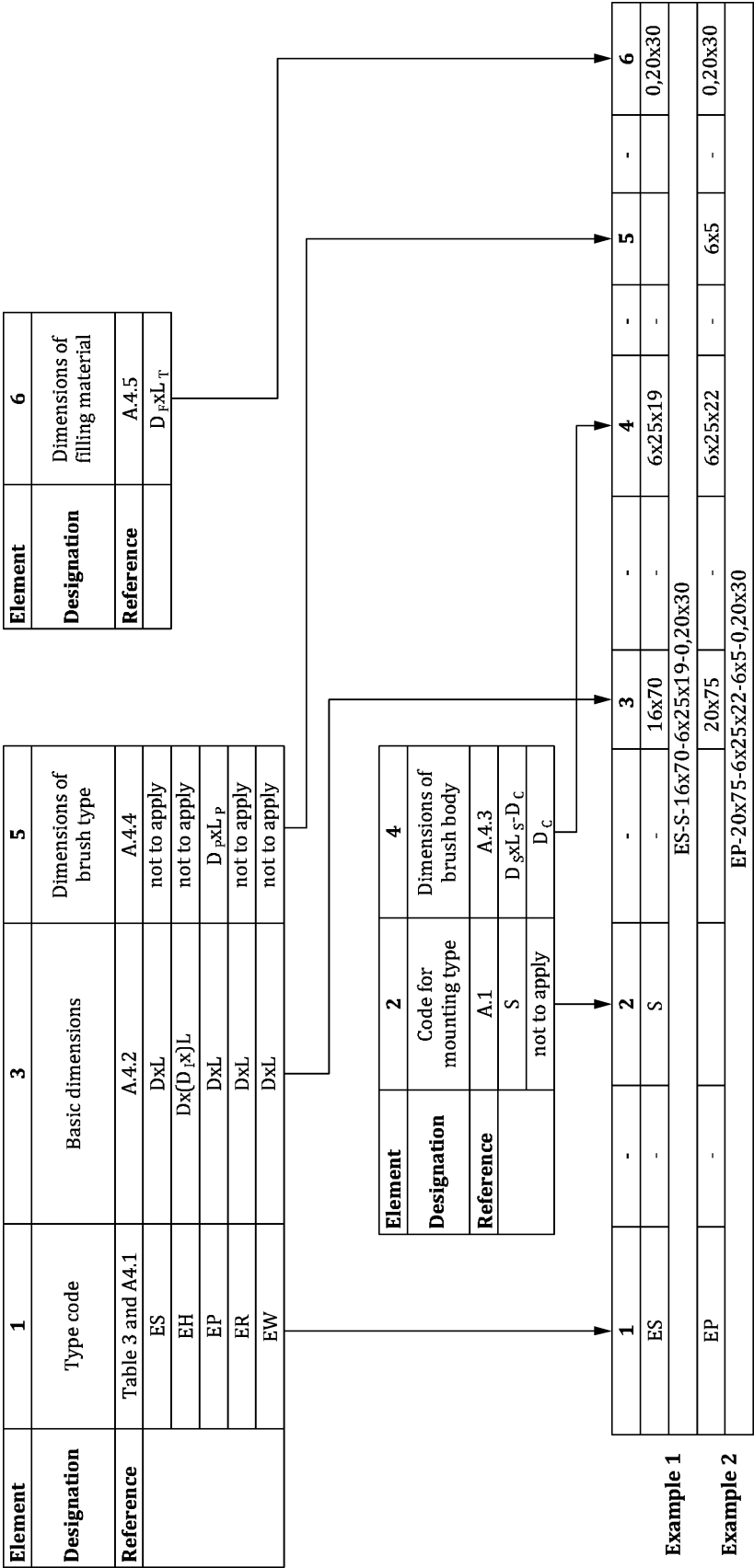
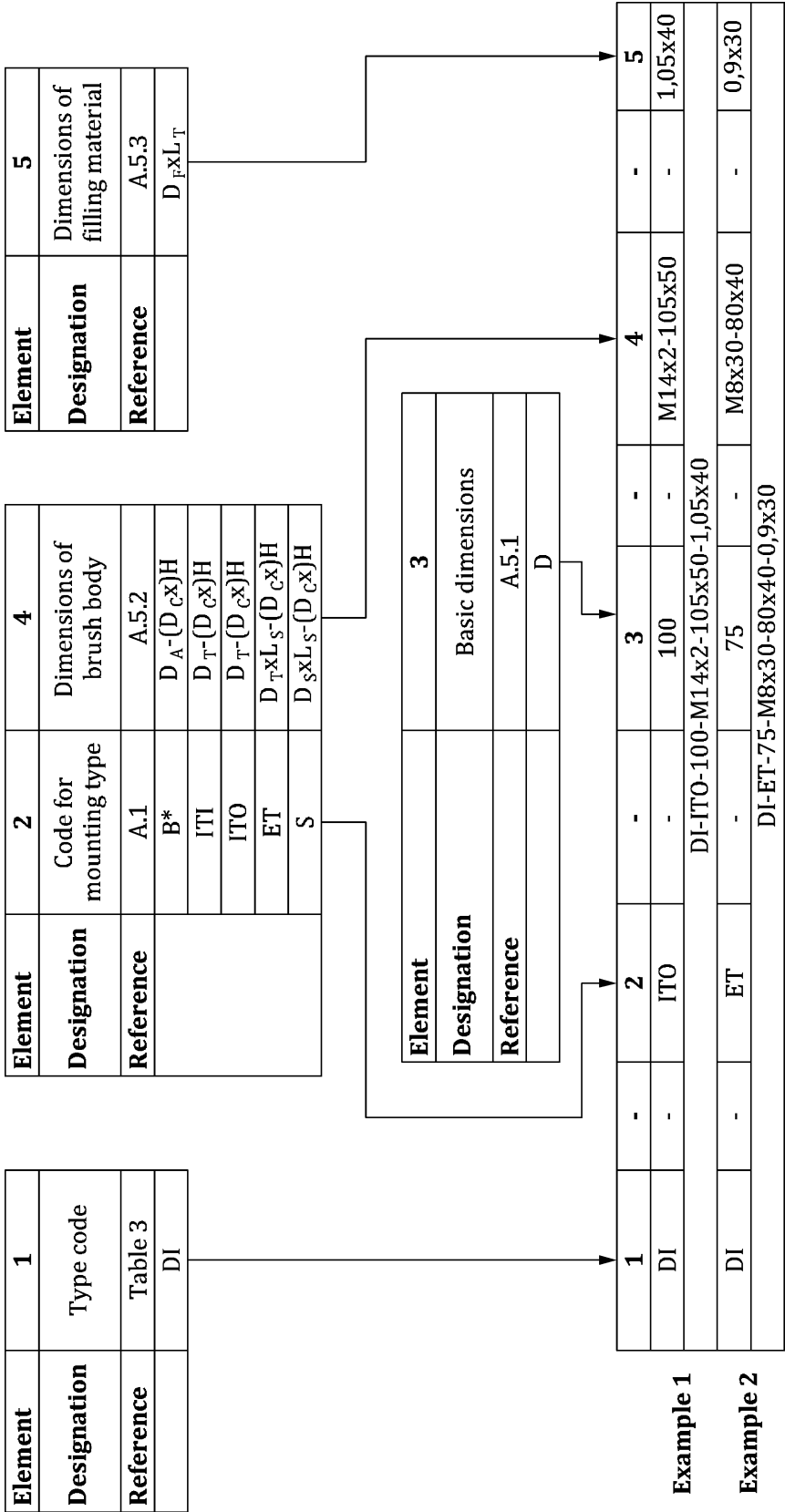


Figure 3 — Structure of data block 1: End brush

4.2.5 Disc brush

Data block 1 “Types and dimensions” of disc brushes consists of five elements. Figure 4 gives the elements with the possible statements and two examples. Reference figures of the brushes and the location of the dimensions are specified in A.5.



* For type “B”, additional variants are possible (see Table A.2).

Figure 4 — Structure of data block 1: Disc brush

4.2.6 Tube brush

Data block 1 “Types and dimensions” of tube brushes consists of five elements. Figure 4 gives the elements with the possible statements and two examples. Reference figures of the brushes and the location of the dimensions are specified in A.6.

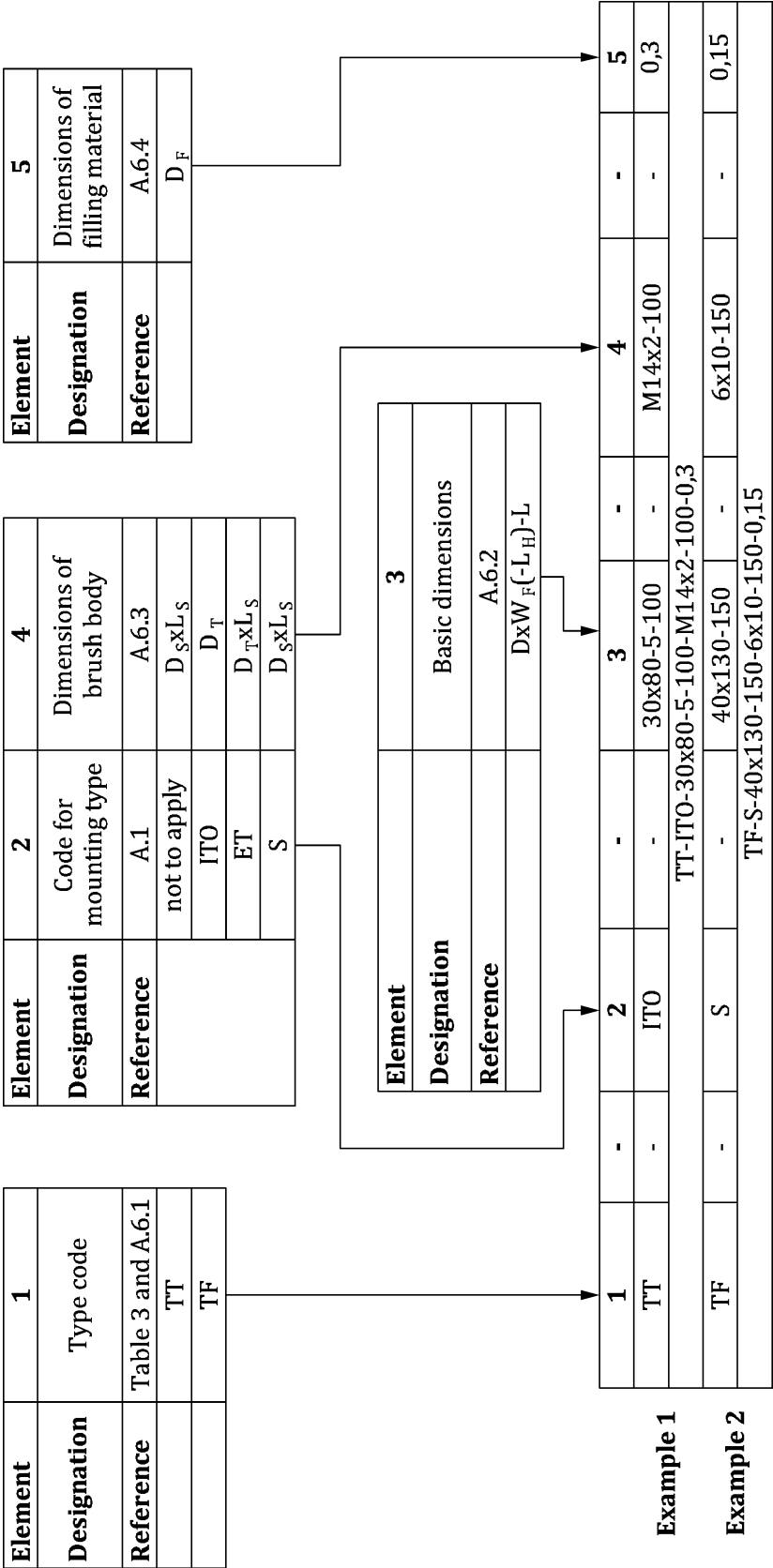


Figure 5 — Structure data block 1: Tube brush

4.2.7 Head brush

Data block 1 “Types and dimensions” of head brushes consists of four elements. Figure 6 gives the elements with the possible statements and two examples. Reference figures of the brushes and the location of the dimensions are specified in A.7.

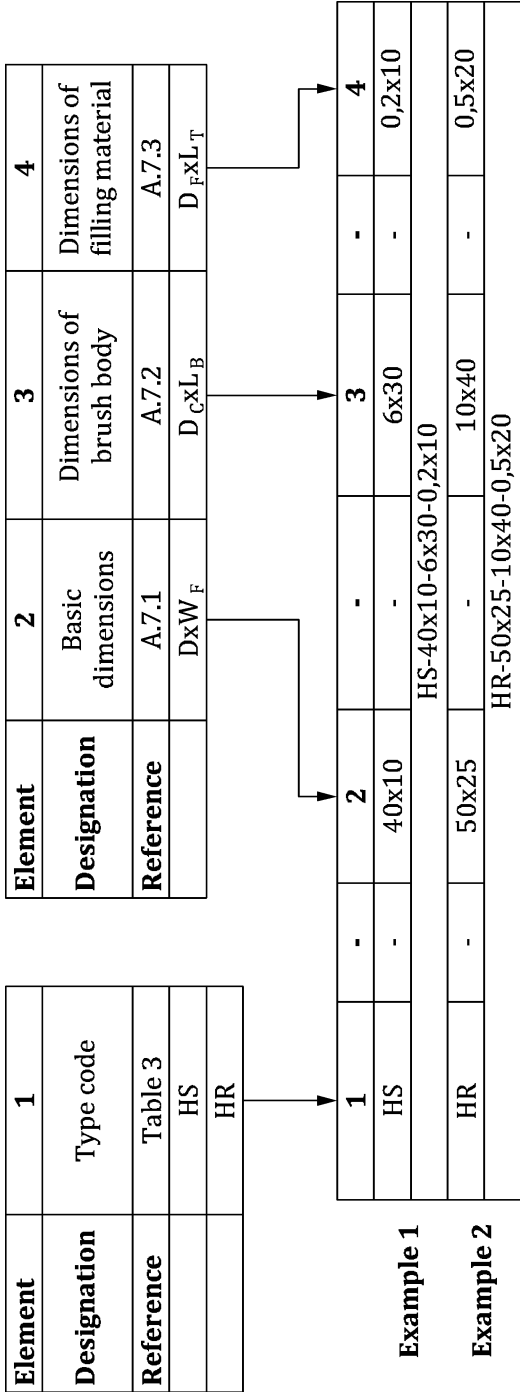


Figure 6 — Structure of data block 1: Head brush

NOTE For head brushes, this document does not give statements regarding the mounting type and geometry.

4.2.8 Strip brush

Data block 1 “Types and dimensions” of strip brushes consists of four elements. Figure 7 gives the elements with the possible statements and two examples. Reference figures of the brushes and the location of the dimensions are specified in A.8.

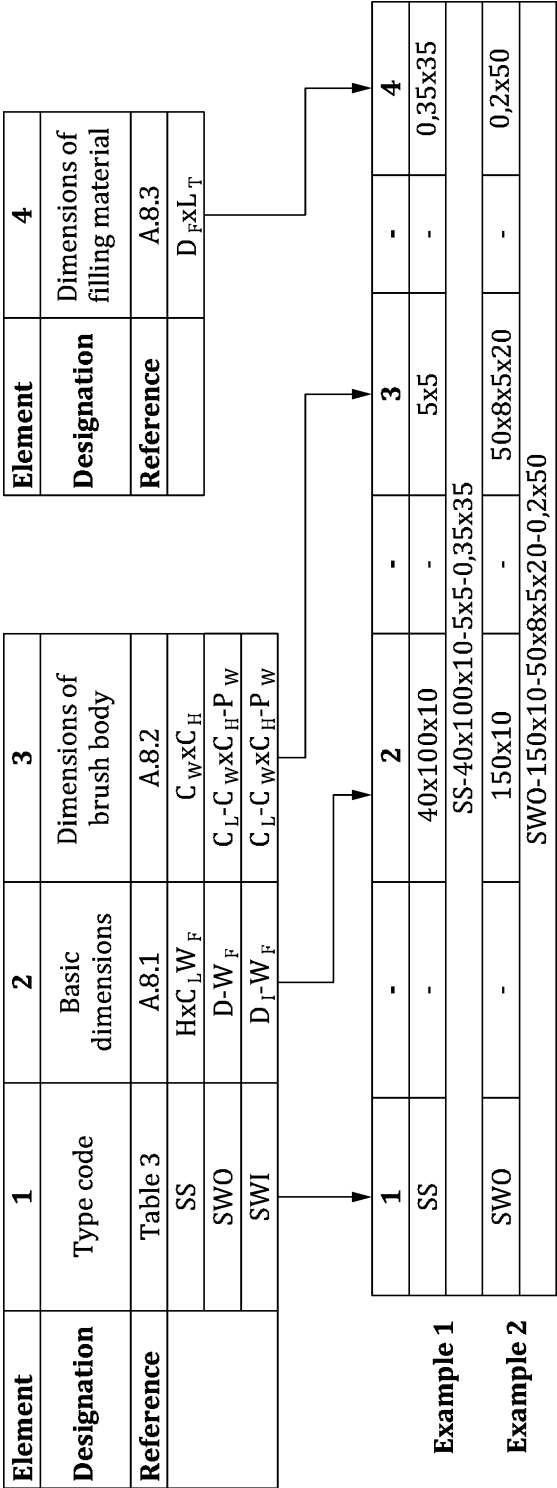


Figure 7 — Structure of data block 1: Strip brush

NOTE For strip brushes for the use in cylinder brushes, this document does not give statements regarding the mounting type.

4.3 Data block 2: Material type of filling material, shape of filling material and form of filling material

4.3.1 Data block 2 consists of the following three mandatory elements, which shall be stated in this sequence:

- Code for the material type of filling material according to Table 4;
- Code for the shape of filling material according to Table 5;
- Code for the form of filling material according to Table 6.

The three codes shall be stated in direct sequence without blanks. See Example 2.

An additional optional manufacturer specific information is given in 4.3.2.

The statement of the nominal dimension of the filling material D_F is mandatory, excluding for the filling material codes A = Animal hair and bristle and V = Vegetable fibres according to Table 4. Single elements of the geometry of the shape shall be separated by “×” without blanks. See Example 1.

EXAMPLE 1

- Round shape: $\dots-D_F \times L_T \dots \rightarrow \dots-0,3 \times 25 \dots$
- Oval or rectangular shape: $\dots-D_{F1} \times D_{F2} \times L_T \dots \rightarrow \dots-0,5 \times 1 \times 30 \dots$

Table 4 — Code for the material type of filling material

Code	Material type of filling material
A	Animal hair and bristles
B	copper-zinc alloy (brass)
H	copper-tin alloy (phosphor bronze)
N	copper-nickel-zinc alloy (nickel silver)
I	stainless steel (inox)
P	plastic (synthetic fibre), with or without abrasives
S	steel
V	vegetable fibres
Y ^a	other filament materials
^a If two or more materials are used (mixture), the code “Y” (other filament materials) shall be used.	

Table 5 — Code for the shape of filling material

Code	Shape of the filling material
C	Rectangular
O	Oval
R	Round
T	Triangluar
N	Not defined
X	X-profile

Table 6 — Code for the form of filling material

Code	Form of the filling material
ST	Straight
CW	Cord wire
CR	Crimped
N	Not defined

EXAMPLE 2 Material type of filling material: steel wire (without manufacturer specific information); shape of filling material: round; form of filling material: crimped

S R CR

Material type of filling material

Shape of filling material

Form of filling material

4.3.2 A manufacturer specific information on the filling material is optional. This information may consist of letters and numbers except letters and number which can lead to a misunderstanding in the designation. The statement shall be specified after the code for the form of the filling material separated by “×”.

See Examples 3 to 7.