International Standard 525

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Bonded abrasive products — General — Designation, marking, range of outside diameters and tolerances

Produits abrasifs agglomérés — Généralités — Désignation, marquage, gamme des diamètres extérieurs et tolérances

Second edition — 1986-12-01

UDC 621.921/.922 **Ref. No. ISO 525-1986 (E)**

Descriptors: tools, abrasives, grinding wheels, designation, dimensions, dimensional tolerances, profiles.

Price based on 13 pages

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 525 was prepared by Technical Committee ISO/TC 29, *Small tools*.

This second edition cancels and replaces the first edition (ISO 525-1975), of which it constitutes a technical revision.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Bonded abrasive products — General — Designation, marking, range of outside diameters and tolerances

1 Scope and field of application

This International Standard covers bonded abrasive products in general (grinding wheels, segments, sticks and bricks) excluding diamond, cubic boron nitride or boron carbide abrasive products.

It gives

- the designation;
- the marking;
- the main form and denomination of grinding wheels;
- the main profile of straight wheels;
- the range of nominal outside diameters;
- the tolerances on hole size.

This International Standard is general and will be completed by ISO 603.

2 References

ISO 286, *ISO system of limits and fits.*[1]

ISO 603, *Bonded abrasive products — Dimensions.*[2]

ISO/R 1938, *ISO system of limits and fits — Part 2: Inspection of plain workpieces.*

ISO 6103, *Bonded abrasive products — Static balancing of grinding wheels.*[3]

ISO 8486, *Bonded abrasive products — Grain size analysis — Designation — Testing of grain size distribution of macrogrits from* F4 *to* F220.

3 Designation

The complete designation of a bonded abrasive product consists, in order, of

- the shape;
- dimensions;
- specifications of internal nature;
- the maximum peripheral speed or rotation frequency.

The indication of shape is given by the type (see 3.1.2) completed, if necessary, by the profile (see 3.1.3).

In the designation the main dimensions shall be separated from secondary dimensions by a dash. Symbol letters other than D, T and H (D, U and H for types 27 and 28) shall appear before their numerical values in millimetres, separated by a comma (except H for threaded inserts types 16 to 19).

If the wheel includes threaded inserts, the indication of dimensions shall be completed with the thread specification (see 3.1.4).

The specifications of the constituents of the bonded abrasive product are as given in 3.2.

The maximum peripheral speed shall be expressed in metres per second (m/s), and rotational frequency in revolutions per minute (r/min).

Example:

A straight grinding wheel, outside diameter 300 mm, thickness 50 mm, hole 76,2 mm, abrasive aluminium oxide, grain size 36, grade L, structure 5, vitrified, maximum peripheral speed 35 m/s is designated:

Wheel type 1 — 300 × 50 × 76,2 — A 36 L 5 V — 35 m/s

1) At present at the stage of draft. (Revision of ISO/R 286-1962.)

2) At present at the stage of draft. (Revision of ISO/R 603, ISO/R 603/2, ISO 1117, ISO 2220, ISO 2933, ISO 3920 and ISO 3921, which all remain in force until the publication of ISO 603.)

3) At present at the stage of draft.

3.1 Dimensions and symbolized types

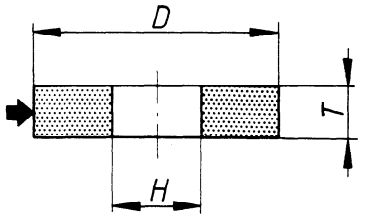
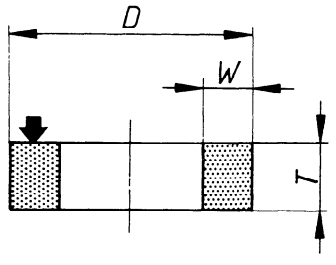
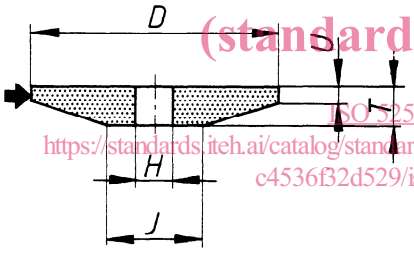
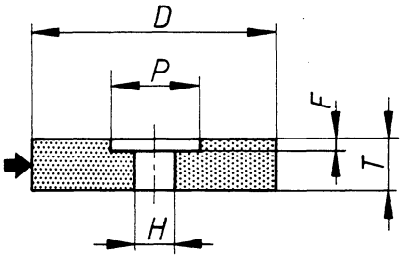
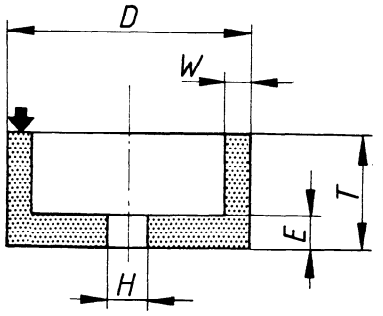
3.1.1 Symbolization of dimensions

Symbol	Designation	Types of wheels concerned
A	Small base of trapezoidal segment	31
B	Width of segment, stick or brick Length of threaded insert	31 - 54 - 90 16 to 19
C	Thickness of segment, stick or brick	31 - 54 - 90
D	Outside diameter	All types of wheels
E	Back thickness of cup and dish wheels or thickness at hole of relieved wheels with recesses	6 - 9 - 11 - 12 - 13 (20 to 28)
F	Depth of first recess	5 - 7 - 22 to 26
G	Depth of second recess	7 - 24 - 26
H	Diameter of insert thread	All types of wheels without 2 - 37 - 52
J	Small outside diameter of tapered wheel, of taper-cup of dish and saucer wheels, outside diameter of hub	3 - 11 - 12 - 13 - 38 - 39
K	Back diameter of taper-cup, of dish and saucer wheels, inner diameter of relief	11 - 12 - 13 - 20 - 21 - 22 - 25
L	Spindle length of mounted wheels Length of segments, sticks or bricks	31 - 52 - 54 - 90
N	Depth of first relief	20 to 26
O	Depth of second relief	21 - 25 - 26
P	Recess diameter	5 - 7 - 22 to 26
T	Overal thickness	All types of wheels without 27 - 28 - 52
U	Thickness of grinding face when smaller than *T* for wheels used on their periphery	3 - 12 - 13 - 27 - 28 - 38 - 39
W	Width of grinding face for wheels used laterally	2 - 6 - 9 - 11 - 12 - 37

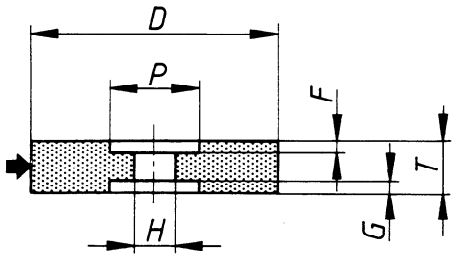
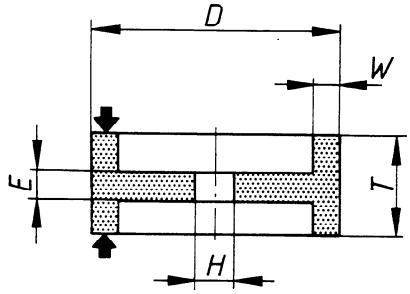
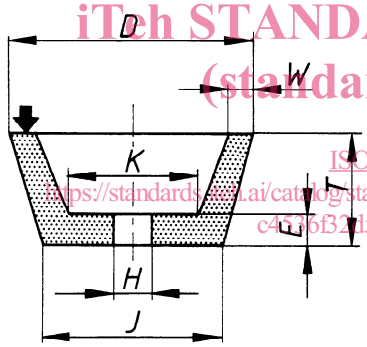
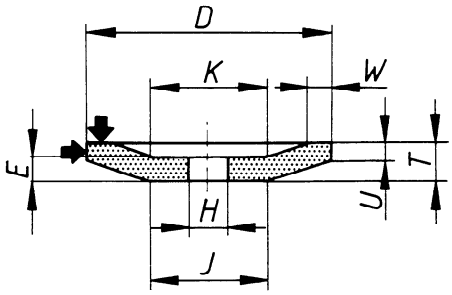
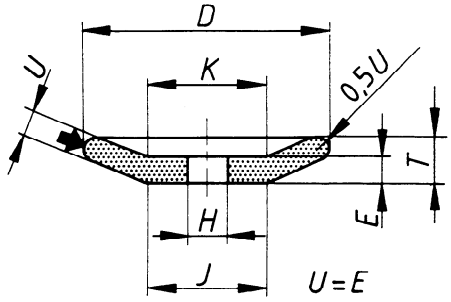
Profile elements: *U* no grinding face
V profile angle
X other profile element

▼ Symbolizes the grinding face of bonded abrasive products.

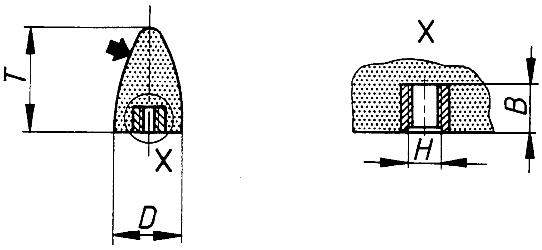
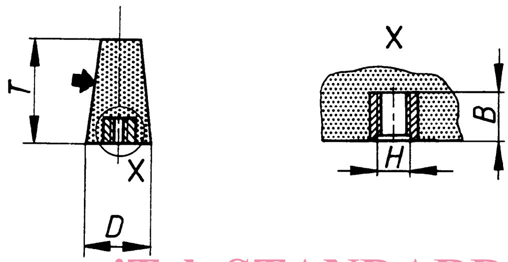
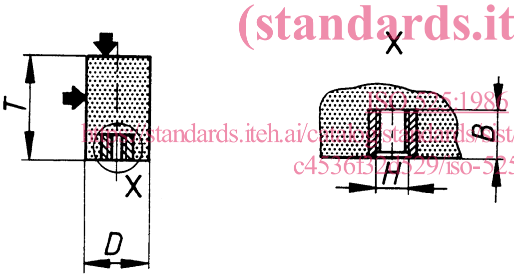
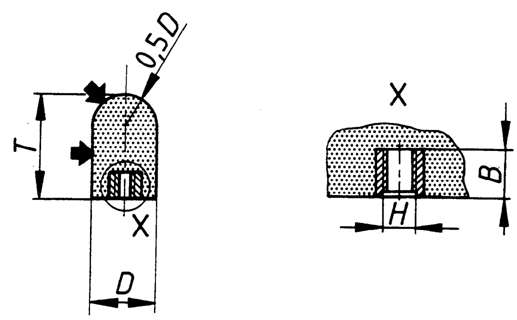
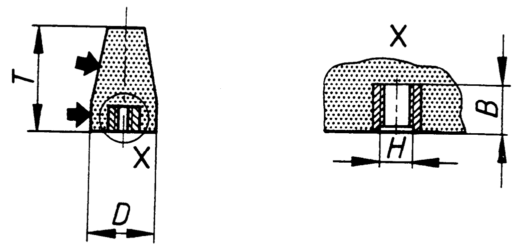
3.1.2 Designation of shapes and dimensions

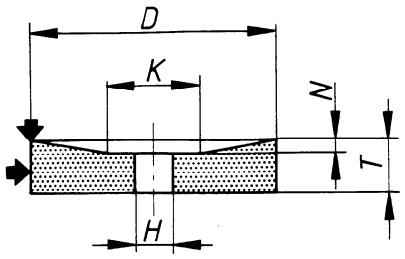
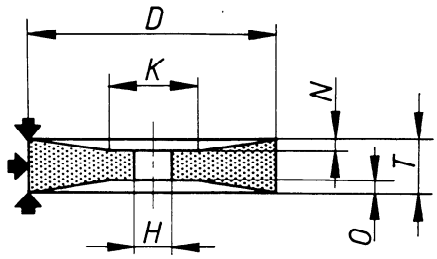
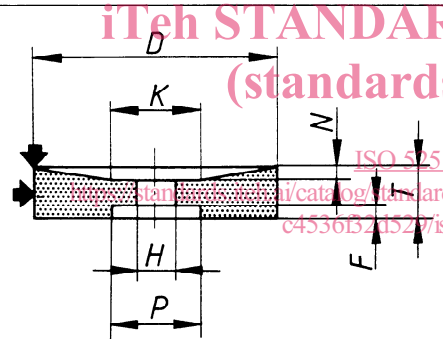
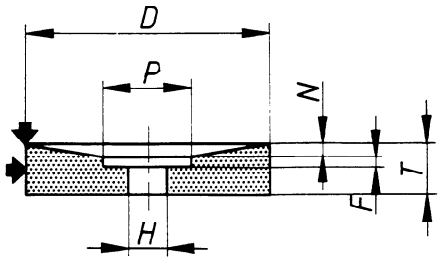
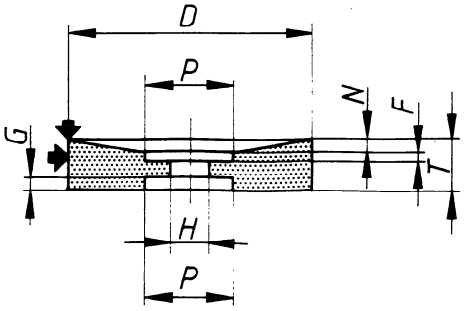
Type	Sketch	Designation of characteristics
1		Straight wheel Type 1 — Profile[1] — $D \times T \times H$
2		Cylinder wheel ($W < 0{,}17\ D$) Type 2 — $D \times T - W\ldots$
3		Tapered wheel Type 3 — $D/J\ldots \times T/U\ldots \times H$
5		Wheel, recessed one side Type 5 — Profile[1] — $D \times T \times H - P\ldots, F\ldots$
6		Straight cup wheel Type 6 — $D \times T \times H - W\ldots, E\ldots$

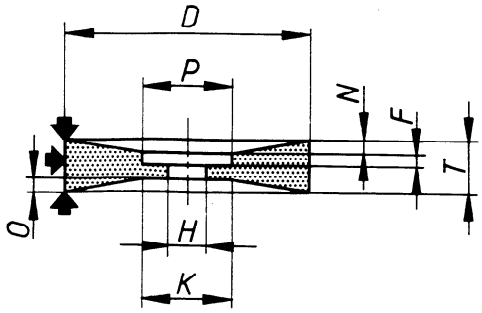
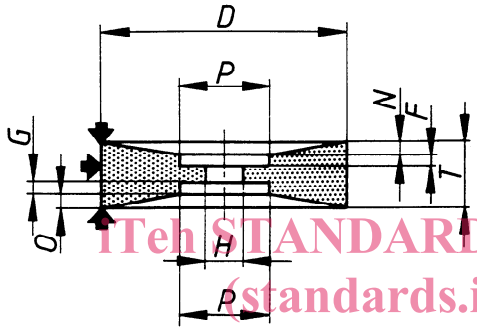
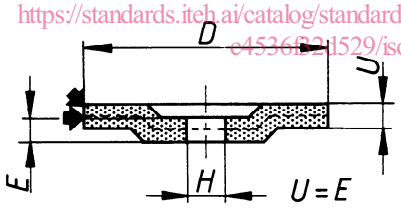
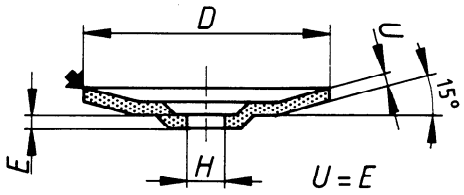
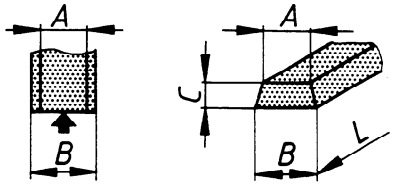
1) Profile, where appropriate; see 3.1.3.

Type	Sketch	Designation of characteristics
7		Wheel, recessed two sides Type 7 — Profile[1] — $D \times T \times H - P..., F..., G...$
9		Double cup wheel Type 9 — $D \times T \times H - W..., E...$
11		Taper cup wheel Type 11 — $D/J... \times T \times H - W..., E..., K...$
12		Dish wheel Type 12 — $D/J... \times T/U... \times H - W..., E..., K...$
13		Saucer wheel Type 13 — $D/J... \times T/U... \times H - K...$

1) Profile, where appropriate; see 3.1.3.

Type	Sketch	Designation of characteristics
16		Cone, curved side Type 16 — $D \times T - H \ldots, B \ldots$
17		Cone, straight side, flat tip Type 17 — $D \times T - H \ldots, B \ldots$
18		Plug, flat end Type 18 — $D \times T - H \ldots, B \ldots$
18R		Plug, round end Type 18R — $D \times T - H \ldots, B \ldots$
19		Plug, conical end, flat tip Type 19 — $D \times T - H \ldots, B \ldots$

Type	Sketch	Designation of characteristics
20		Wheel, relieved one side Type 20 — $D/K... \times T/N... \times H$
21		Wheel, relieved two sides Type 21 — $D/K... \times T/N.../O... \times H$
22		Wheel, relieved one side, recessed other side Type 22 — $D/K... \times T/N... \times H - P..., F...$
23		Wheel, relieved and recessed same side Type 23 — $D \times T/N... \times H - P..., F...$
24		Wheel, relieved and recessed one side, recessed other side Type 24 — $D \times T/N... \times H - P..., F.../G...$

Type	Sketch	Designation of characteristics
25		Wheel, relieved and recessed one side, relieved other side Type 25 — $D/K\ldots \times T/N\ldots/O\ldots \times H - P\ldots, F\ldots$
26		Wheel, relieved and recessed both sides Type 26 — $D \times T/N\ldots/O\ldots \times H - P\ldots, F\ldots/G\ldots$
27		Depressed centre wheel Type 27 — $D \times U\ldots \times H$
28		Coolie hat wheel Type 28 — $D \times U \times H$
31	 NOTE — Simplified sketch: refer to ISO 603 for fuller information.	Segments Type 31 — Section — Sizing Example of segment with trapezoidal section: Type 31 — Trapeze — $B\ldots/A\ldots \times C\ldots \times L\ldots$