INTERNATIONAL STANDARD

ISO 16462

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Cubic boron nitride inserts, tipped or solid — Dimensions, types

Plaquettes en nitrure de bore cubique, brasées ou monobloc — Dimensions, types

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 16462 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 9, *Tools with cutting edges made of hard cutting materials*.

Cubic boron nitride inserts, tipped or solid — Dimensions, types

1 Scope

This International Standard applies to inserts with insert shapes in accordance with ISO 883, ISO 3364, ISO 3365 and ISO 6987, tipped with cubic boron nitride (BL, BH, BC) or made of solid cubic boron nitride (BL, BH, BC).

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 513, *Classification and application of hard cutting materials for metal removal with defined cutting edges — Designation of the main groups and groups of application*

ISO 883, *Indexable hardmetal (carbide) inserts with rounded corners, without fixing hole — Dimensions*

ISO 1832, *Indexable inserts for cutting tools — Designation*

ISO 3364, *Indexable hardmetal (carbide) inserts with rounded corners, with cylindrical fixing hole — Dimensions*

ISO 3365, *Indexable hardmetal (carbide) inserts with wiper edges, without fixing hole — Dimensions*

ISO 6987, *Indexable hard material inserts with rounded corners, with partly cylindrical fixing hole — Dimensions*

3 Insert shapes and design

3.1 Insert shapes

Triangular (T), square (S), rhombic 80° (C), 55° (D) and 35° (V), round (R), and trigon (W).

3.2 Normal clearance α_n

Normal clearance 0° (N), 5° (B), 7° (C) and 11° (P).

3.3 Cutting edge corner

Inserts for turning with corner radius r_ε 0,2 mm; 0,4 mm; 0,8 mm; 1,2 mm and 1,6 mm.

Inserts for milling with wiper edge.

NOTE The design of non-tipped corners is optional.

3.4 Tolerance class

Tolerance class in accordance with ISO 1832 shall be applied. In Tables 1 to 12 this position is shown with a dot (•).

3.5 Design of cutting edges

Any design shall be indicated in the designation, see ISO 1832.

3.6 Insert type

The styles of tipped or solid cutting edges in accordance with ISO 1832 shall be applied.

4 Designation

4.1 General

The designation of inserts tipped or solid with cubic boron nitride (BL, BH, BC) is based on ISO 1832. The letter symbol for the cutting edge condition and the letter symbol for the insert type shall be indicated in the designation in each case.

Designations contained in 4.2 and 4.3 are examples of the use of designations in accordance with ISO 1832.

4.2 Designation of inserts for turning

4.2.1 Solid insert (S)

Designation of a rhombic insert with included angle ε_r = 80° (C), normal clearance α_n = 0° (N), with tolerance class M, without chip breakers and without fixing hole (N), with side length l = 9,67 mm (09), thickness s = 3,18 mm (03), corner radius r_ε = 0,8 mm (08), without chamfered and rounded cutting edges (S), insert type solid (S), cutting material in accordance with ISO 513 (e.g. BL05):

Insert CNMN 090308S — S — BL05 — ....

NOTE BL05 is optional in accordance with ISO 1832, designation symbol 13.

4.2.2 Insert, tipped — full thickness — one corner (T)

Designation of a rhombic insert with included angle ε_r = 55° (D), normal clearance α_n = 0° (N), with tolerance class M, without chip breakers and with cylindrical fixing hole (A), with side length l = 15,5 mm (15), thickness s = 4,76 mm (04), corner radius r_ε = 0,8 mm (08), with chamfered and rounded cutting edges (S), tipped – full thickness – one corner (T), long (L), cutting material in accordance with ISO 513 (e.g. BL05):

Insert DNMA 150408S — TL — BL05 — ....

NOTE BL05 is optional in accordance with ISO 1832, designation symbol 13.

4.3 Designation of a tipped insert for milling

Designation of a square insert (S) with normal clearance α_n = 7° (C), with tolerance class G, without chip breakers and with fixing hole (W), with side length l = 12,7 mm (12), thickness s = 4,76 mm (04), cutting edge angle κ_r = 75° (E), normal clearance at wiper edge α = 15° (D), right-hand type (R), tipped – one side – one corner (A), long (L), cutting material in accordance with ISO 513 (e.g. BL05):

Insert SCGW 1204EDR — AL — BL05 — ....

NOTE BL05 is optional in accordance with ISO 1832, designation symbol 13.

5 Dimensions

5.1 Insert shape T with fixing hole (inserts for turning)

See Figure 1 and Table 1.

NOTE For the dimensions of l_1, see Table 13.

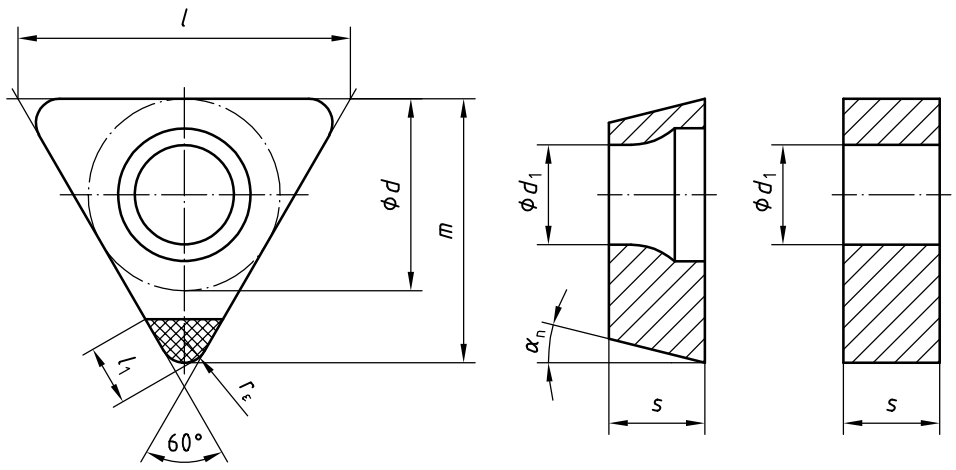


Figure 1

Table 1

Designation	d	d_1	$l \approx$	m	s	α_n	r_ε
TC•W 09 02 02S	5,56	2,5	9,63	8,137	2,38	7°	0,2
TC•W 09 02 04S	5,56	2,5	9,63	7,943	2,38	7°	0,4
TC•W 09 02 08S	5,56	2,5	9,63	7,541	2,38	7°	0,8
TC•W 11 02 02S	6,35	2,8	11	9,322	2,38	7°	0,2
TC•W 11 02 04S	6,35	2,8	11	9,128	2,38	7°	0,4
TC•W 11 02 08S	6,35	2,8	11	8,731	2,38	7°	0,8
TC•W 16 T3 02S	9,525	4,4	16,5	14,084	3,97	7°	0,2
TC•W 16 T3 04S	9,525	4,4	16,5	13,891	3,97	7°	0,4
TC•W 16 T3 08S	9,525	4,4	16,5	13,494	3,97	7°	0,8
TC•W 16 T3 12S	9,525	4,4	16,5	13,097	3,97	7°	1,2
TC•W 16 T3 16S	9,525	4,4	16,5	12,700	3,97	7°	1,6
TN•A 11 03 02S	6,35	2,26	11	9,322	3,18	0°	0,2
TN•A 11 03 04S	6,35	2,26	11	9,128	3,18	0°	0,4
TN•A 11 03 08S	6,35	2,26	11	8,731	3,18	0°	0,8
TN•A 16 04 04S	9,525	3,81	16,5	13,891	4,76	0°	0,4
TN•A 16 04 08S	9,525	3,81	16,5	13,494	4,76	0°	0,8
TN•A 16 04 12S	9,525	3,81	16,5	13,097	4,76	0°	1,2
TN•A 16 04 16S	9,525	3,81	16,5	12,700	4,76	0°	1,6
TP•W 08 02 02S	4,763	2,3	8,2	6,945	2,38	11°	0,2
TP•W 08 02 04S	4,763	2,3	8,2	6,747	2,38	11°	0,4
TP•W 08 02 08S	4,763	2,3	8,2	6,350	2,38	11°	0,8
TP•W 09 02 02S	5,56	2,5	9,63	8,137	2,38	11°	0,2
TP•W 09 02 04S	5,56	2,5	9,63	7,943	2,38	11°	0,4
TP•W 09 02 08S	5,56	2,5	9,63	7,541	2,38	11°	0,8
TP•W 11 02 02S	6,35	2,8	11	8,731	2,38	11°	0,2
TP•W 11 02 04S	6,35	2,8	11	8,137	2,38	11°	0,4
TP•W 11 02 08S	6,35	2,8	11	7,943	2,38	11°	0,8
TP•W 11 03 02S	6,35	3,3	11,0	9,327	3,18	11°	0,2
TP•W 11 03 04S	6,35	3,3	11,0	9,128	3,18	11°	0,4
TP•W 11 03 08S	6,35	3,3	11,0	8,731	3,18	11°	0,8
TP•W 16 03 04S	9,525	4,4	16,5	13,891	3,18	11°	0,4
TP•W 16 03 08S	9,525	4,4	16,5	13,494	3,18	11°	0,8
TP•W 16 T3 04S	9,525	4,4	16,5	13,891	3,97	11°	0,4
TP•W 16 T3 08S	9,525	4,4	16,5	13,494	3,97	11°	0,8
TP•W 16 T3 12S	9,525	4,4	16,5	13,097	3,97	11°	1,2
TP•W 16 T3 16S	9,525	4,4	16,5	12,700	3,97	11°	1,6
TP•W 16 04 04S	9,525	4,4	16,5	13,891	4,76	11°	0,4
TP•W 16 04 08S	9,525	4,4	16,5	13,494	4,76	11°	0,8

5.2 Insert shape S with fixing hole (inserts for turning)

See Figure 2 and Table 2.

NOTE For the dimensions of l_1, see Table 13.

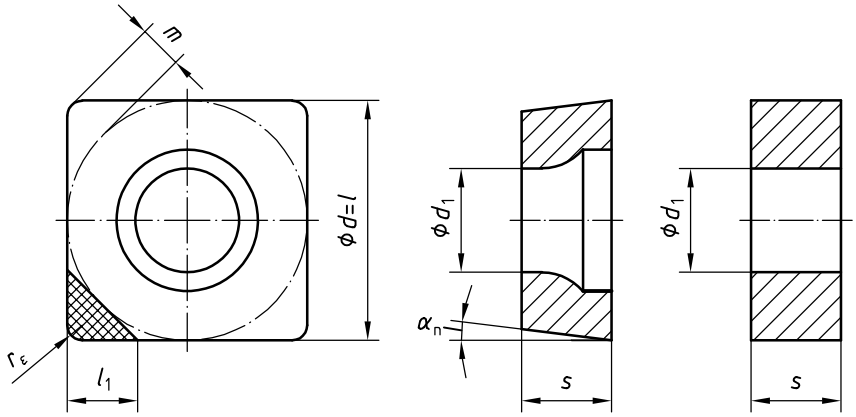


Figure 2

Table 2

Designation	d	d_1	l ≈	m	s	α_n	r_ε
SC•W 09 T3 02S	9,525	4,4	9,525	1,889	3,97	7°	0,2
SC•W 09 T3 04S	9,525	4,4	9,525	1,808	3,97	7°	0,4
SC•W 09 T3 08S	9,525	4,4	9,525	1,644	3,97	7°	0,8
SC•W 09 T3 12S	9,525	4,4	9,525	1,479	3,97	7°	1,2
SC•W 12 04 04S	12,7	5,5	12,7	2,466	4,76	7°	0,4
SC•W 12 04 08S	12,7	5,5	12,7	2,301	4,76	7°	0,8
SC•W 12 04 12S	12,7	5,5	12,7	2,137	4,76	7°	1,2
SN•A 09 03 04S	9,525	3,81	9,525	1,808	3,18	0°	0,4
SN•A 09 03 08S	9,525	3,81	9,525	1,644	3,18	0°	0,8
SN•A 09 03 12S	9,525	3,81	9,525	1,479	3,18	0°	1,2
SN•A 12 04 04S	12,7	5,16	12,7	2,466	4,76	0°	0,4
SN•A 12 04 08S	12,7	5,16	12,7	2,301	4,76	0°	0,8
SN•A 12 04 12S	12,7	5,16	12,7	2,137	4,76	0°	1,2
SN•A 12 04 16S	12,7	5,16	12,7	1,972	4,76	0°	1,6

5.3 Insert shape C with fixing hole (inserts for turning)

See Figure 3 and Table 3.

NOTE For the dimensions of l_1, see Table 13.

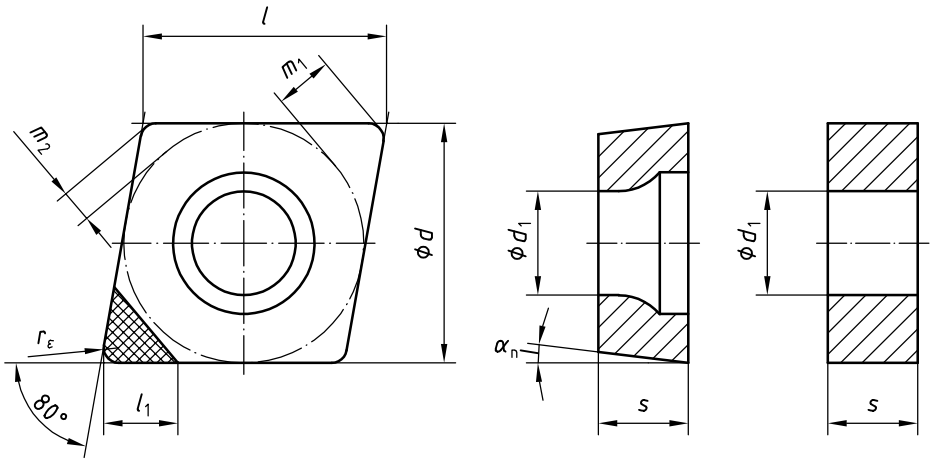


Figure 3

Table 3

Designation	d	d_1	l ≈	m_1	m_2	s	α_n	r_ε
CC•W 06 02 02S	6,35	2,8	6,45	1,652	0,908	2,38	7°	0,2
CC•W 06 02 04S	6,35	2,8	6,45	1,544	0,848	2,38	7°	0,4
CC•W 06 02 08S	6,35	2,8	6,45	1,323	0,727	2,38	7°	0,8
CC•W 09 T3 02S	9,525	4,4	9,67	2,535	1,392	3,97	7°	0,2
CC•W 09 T3 04S	9,525	4,4	9,67	2,426	1,333	3,97	7°	0,4
CC•W 09 T3 08S	9,525	4,4	9,67	2,206	1,212	3,97	7°	0,8
CC•W 09 T3 12S	9,525	4,4	9,67	1,985	1,091	3,97	7°	1,2
CC•W 12 04 04S	12,7	5,5	12,9	3,308	1,818	4,76	7°	0,4
CC•W 12 04 08S	12,7	5,5	12,9	3,088	1,697	4,76	7°	0,8
CC•W 12 04 12S	12,7	5,5	12,9	2,867	1,576	4,76	7°	1,2
CC•W 12 04 16S	12,7	5,5	12,9	2,646	1,454	4,76	7°	1,6
CN•A 09 03 04S	9,525	3,81	9,67	2,426	1,333	3,18	0°	0,4
CN•A 09 03 08S	9,525	3,81	9,67	2,206	1,212	3,18	0°	0,8
CN•A 12 04 04S	12,7	5,16	12,9	3,308	1,818	4,76	0°	0,4
CN•A 12 04 08S	12,7	5,16	12,9	3,088	1,697	4,76	0°	0,8
CN•A 12 04 12S	12,7	5,16	12,9	2,867	1,576	4,76	0°	1,2
CN•A 12 04 16S	12,7	5,16	12,9	2,646	1,454	4,76	0°	1,6
CP•W 06 02 02S	6,35	2,8	6,45	1,652	0,908	2,38	11°	0,2
CP•W 06 02 04S	6,35	2,8	6,45	1,544	0,848	2,38	11°	0,4
CP•W 06 02 08S	6,35	2,8	6,45	1,323	0,727	2,38	11°	0,8
CP•W 09 03 02S	9,525	4,4	9,67	2,534	1,392	3,18	11°	0,2
CP•W 09 03 04S	9,525	4,4	9,67	2,426	1,333	3,18	11°	0,4
CP•W 09 03 08S	9,525	4,4	9,67	2,206	1,212	3,18	11°	0,8
CP•W 09 T3 02S	9,525	4,4	9,67	2,534	1,392	3,97	11°	0,2
CP•W 09 T3 04S	9,525	4,4	9,67	2,426	1,333	3,97	11°	0,4
CP•W 09 T3 08S	9,525	4,4	9,67	2,206	1,212	3,97	11°	0,8
CP•W 09 T3 12S	9,525	4,4	9,67	1,985	1,091	3,97	11°	1,2

5.4 Insert shape D with fixing hole (inserts for turning)

See Figure 4 and Table 4.

NOTE For the dimensions of l_1, see Table 13.

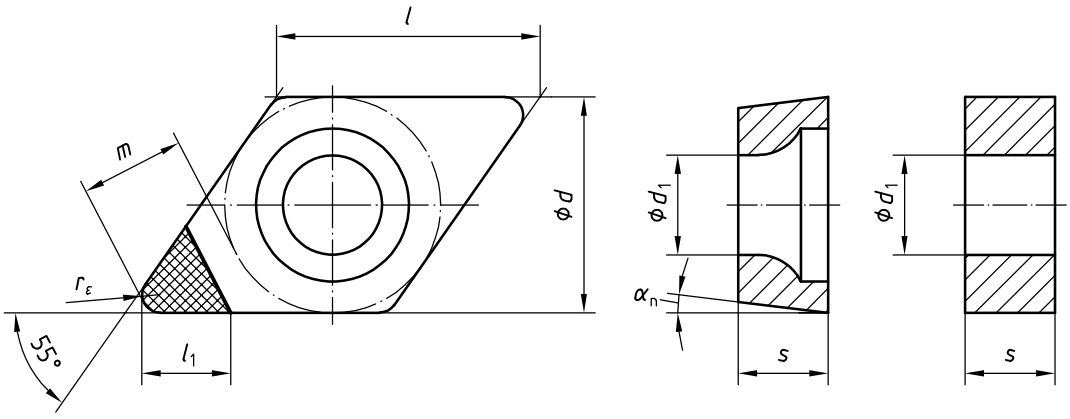


Figure 4

Table 4

Designation	d	d_1	l ≈	m	s	α_n	r_ε
DC•W 07 02 02S	6,35	2,8	7,75	3,464	2,38	7°	0,2
DC•W 07 02 04S	6,35	2,8	7,75	3,238	2,38	7°	0,4
DC•W 07 02 08S	6,35	2,8	7,75	2,776	2,38	7°	0,8
DC•W 11 T3 02S	9,525	4,4	11,6	5,315	3,97	7°	0,2
DC•W 11 T3 04S	9,525	4,4	11,6	5,089	3,97	7°	0,4
DC•W 11 T3 08S	9,525	4,4	11,6	4,626	3,97	7°	0,8
DC•W 11 T3 12S	9,525	4,4	11,6	4,164	3,97	7°	1,2
DN•A 11 04 04S	9,525	3,81	11,6	5,089	4,76	0°	0,4
DN•A 11 04 08S	9,525	3,81	11,6	4,626	4,76	0°	0,8
DN•A 15 04 04S	12,7	5,16	15,5	6,939	4,76	0°	0,4
DN•A 15 04 08S	12,7	5,16	15,5	6,477	4,76	0°	0,8
DN•A 15 04 12S	12,7	5,16	15,5	6,014	4,76	0°	1,2
DN•A 15 06 04S	12,7	5,16	15,5	6,939	6,35	0°	0,4
DN•A 15 06 08S	12,7	5,16	15,5	6,477	6,35	0°	0,8
DN•A 15 06 12S	12,7	5,16	15,5	6,014	6,35	0°	1,2
DN•A 15 06 16S	12,7	5,16	15,5	5,551	6,35	0°	1,6

5.5 Insert shape V with fixing hole (inserts for turning)

See Figure 5 and Table 5.

NOTE For the dimensions of l_1, see Table 13.

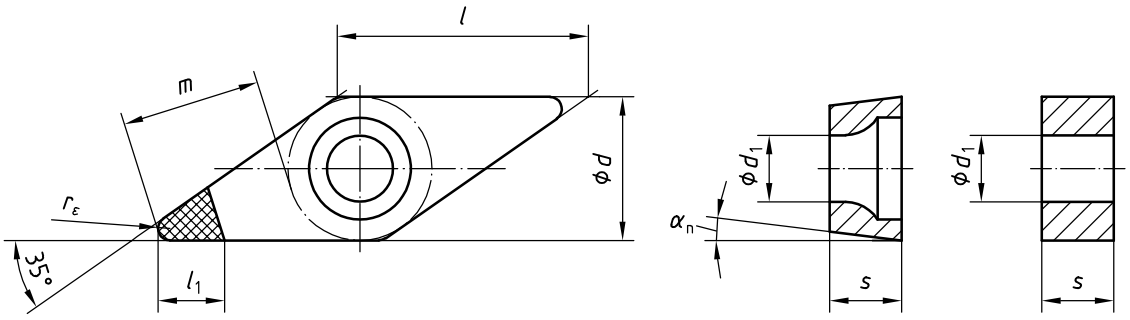


Figure 5

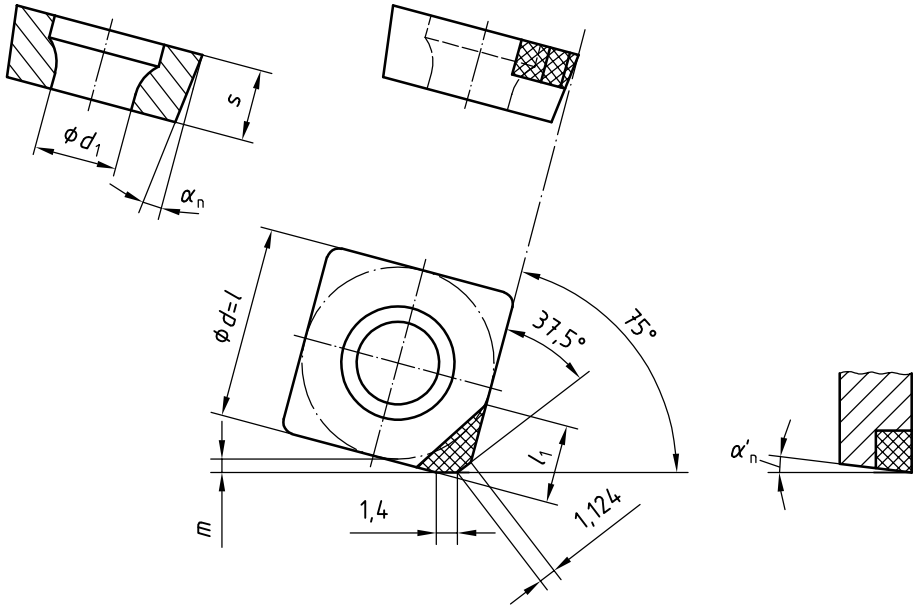
Table 5

Designation	d	d_1	l ≈	m	s	α_n	r_ε
VC•W 11 03 02S	6,35	2,8	11,1	6,911	3,18	7°	0,2
VC•W 11 03 04S	6,35	2,8	11,1	6,460	3,18	7°	0,4
VC•W 11 03 08S	6,35	2,8	11,1	5,537	3,18	7°	0,8
VC•W 16 04 02S	9,525	4,4	16,6	10,603	4,76	7°	0,2
VC•W 16 04 04S	9,525	4,4	16,6	10,154	4,76	7°	0,4
VC•W 16 04 08S	9,525	4,4	16,6	9,231	4,76	7°	0,8
VC•W 16 04 12S	9,525	4,4	16,6	8,306	4,76	7°	1,2
VB•W 16 04 02S	9,525	4,4	16,6	10,602	4,76	5°	0,2
VB•W 16 04 04S	9,525	4,4	16,6	10,152	4,76	5°	0,4
VB•W 16 04 08S	9,525	4,4	16,6	9,229	4,76	5°	0,8
VB•W 16 04 12S	9,525	4,4	16,6	8,306	4,76	5°	1,2
VN•A 16 04 04S	9,525	3,81	16,6	10,152	4,76	0°	0,4
VN•A 16 04 08S	9,525	3,81	16,6	9,229	4,76	0°	0,8
VN•A 16 04 12S	9,525	3,81	16,6	8,306	4,76	0°	1,2

5.6 Insert shape S with fixing hole (inserts for milling)

See Figure 6 and Table 6.

NOTE For the dimensions of l_1, see Table 13.



NOTE Right-hand type is shown in the figure (R).

Figure 6

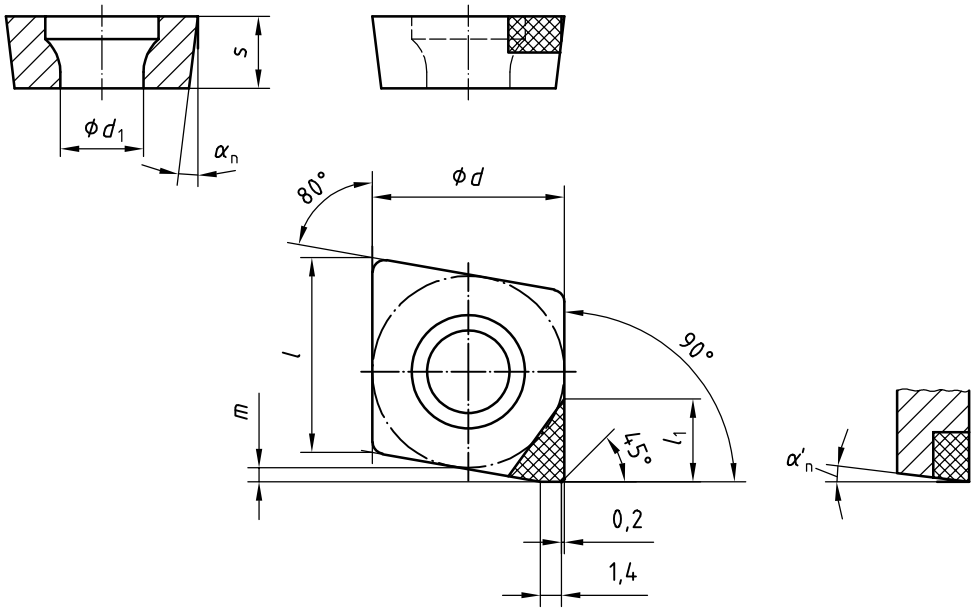
Table 6

Designation	d	d_1	l ≈	m	s	α_n	α'_n
SC•W 09 T3 ECR	9,525	4,4	9,525	0,543	3,97	7°	7°
SC•W 12 04 ECR	12,7	5,5	12,7	0,900	4,76	7°	7°
SP•W 09 T3 EDR	9,525	4,4	9,525	0,543	3,97	11°	15°
SP•W 12 04 EDR	12,7	5,5	12,7	0,900	4,76	11°	15°

5.7 Insert shape C with fixing hole (inserts for milling)

See Figure 7 and Table 7.

NOTE For the dimensions of l_1, see Table 13.



NOTE Right-hand type is shown in the figure (R).

Figure 7

Table 7

Designation	d	d_1	l ≈	m	s	α_n	α'_n
CC•W 09 T3 PCR	9,525	4,4	9,67	0,631	3,97	7°	7°
CC•W 12 04 PCR	12,7	5,5	12,9	0,936	4,76	7°	7°
CP•W 09 T3 PDR	9,525	4,4	9,67	0,631	3,97	11°	15°
CP•W 12 04 PDR	12,7	5,5	12,9	0,936	4,76	11°	15°

5.8 Insert shapes C, R, S and T without fixing hole (inserts for turning)

See Figure 8 and Table 8.

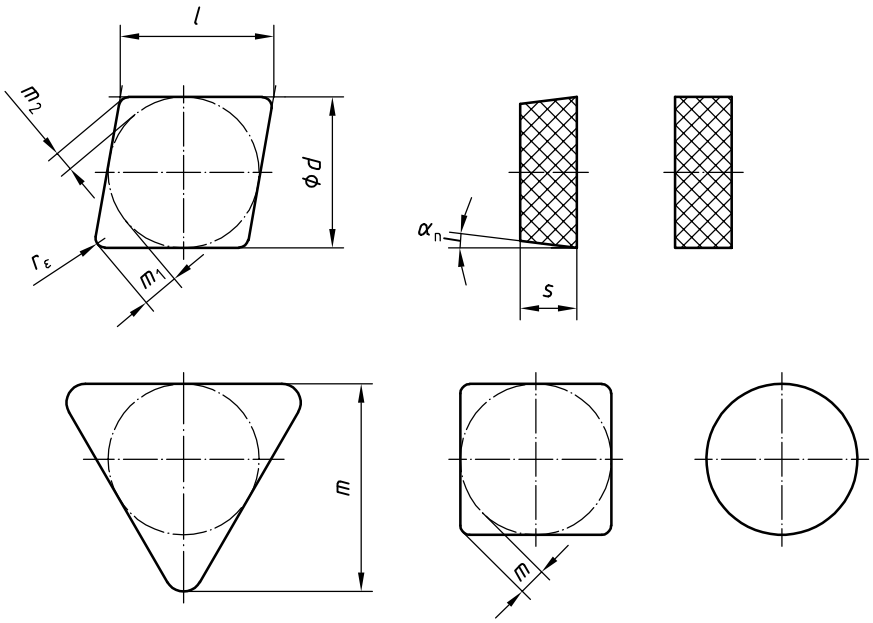


Figure 8

Table 8

Designation	d	l ≈	m	m_1	m_2	s	α_n	r_ε
CN•N 09 03 04S	9,525	9,67	—	2,426	1,333	3,18	0°	0,4
CN•N 09 03 08S	9,525	9,67	—	2,206	1,212	3,18	0°	0,8
CN•N 09 03 12S	9,525	9,67	—	1,985	1,091	3,18	0°	1,2
CN•N 09 03 16S	9,525	9,67	—	1,764	0,970	3,18	0°	1,6
CN•N 12 04 04S	12,7	12,9	—	3,308	1,818	4,76	0°	0,4
CN•N 12 04 08S	12,7	12,9	—	3,088	1,697	4,76	0°	0,8
CN•N 12 04 12S	12,7	12,9	—	2,867	1,576	4,76	0°	1,2
CN•N 12 04 16S	12,7	12,9	—	2,646	1,454	4,76	0°	1,6
RC•N 09 03 00S	9,525	—	—	—	—	3,18	7°	—
RC•N 12 04 00S	12,7	—	—	—	—	4,76	7°	—
RN•N 09 03 00S	9,525	—	—	—	—	3,18	0°	—
RN•N 12 03 00S	12,7	—	—	—	—	3,18	0°	—
RN•N 12 04 00S	12,7	—	—	—	—	4,76	0°	—
SN•N 09 03 04S	9,525	9,525	1,808	—	—	3,18	0°	0,4
SN•N 09 03 08S	9,525	9,525	1,644	—	—	3,18	0°	0,8
SN•N 09 03 12S	9,525	9,525	1,479	—	—	3,18	0°	1,2
SN•N 09 03 16S	9,525	9,525	1,315	—	—	3,18	0°	1,6
SN•N 12 03 04S	12,7	12,7	2,466	—	—	3,18	0°	0,4

Table 8 *(continued)*

Designation	d	l ≈	m	m_1	m_2	s	α_n	r_ε
SN•N 12 03 08S	12,7	12,7	2,301	—	—	3,18	0°	0,8
SN•N 12 03 12S	12,7	12,7	2,137	—	—	3,18	0°	1,2
SN•N 12 03 16S	12,7	12,7	1,972	—	—	3,18	0°	1,6
SN•N 12 04 04S	12,7	12,7	2,466	—	—	4,76	0°	0,4
SN•N 12 04 08S	12,7	12,7	2,301	—	—	4,76	0°	0,8
SN•N 12 04 12S	12,7	12,7	2,137	—	—	4,76	0°	1,2
SN•N 12 04 16S	12,7	12,7	1,972	—	—	4,76	0°	1,6
SP•N 09 03 04S	9,525	9,5	1,808	—	—	3,18	11°	0,4
SP•N 09 03 08S	9,525	9,5	1,644	—	—	3,18	11°	0,8
SP•N 09 03 12S	9,525	9,5	1,479	—	—	3,18	11°	1,2
SP•N 12 03 08S	12,7	12,7	2,301	—	—	3,18	11°	0,8
SP•N 12 03 12S	12,7	12,7	2,137	—	—	3,18	11°	1,2
SP•N 12 04 08S	12,7	12,7	2,301	—	—	4,76	11°	0,8
SP•N 12 04 12S	12,7	12,7	2,137	—	—	4,76	11°	1,2
SP•N 12 04 16S	12,7	12,7	1,973	—	—	4,76	11°	1,6
TB•N 06 01 02S	3,969	6,87	5,755	—	—	1,59	5°	0,2
TB•N 06 01 04S	3,969	6,87	5,557	—	—	1,59	5°	0,4
TB•N 06 01 08S	3,969	6,87	5,160	—	—	1,59	5°	0,8
TN•N 11 03 02S	6,35	11	9,322	—	—	3,18	0°	0,2
TN•N 11 03 04S	6,35	11	9,128	—	—	3,18	0°	0,4
TN•N 11 03 08S	6,35	11	8,731	—	—	3,18	0°	0,8
TN•N 11 03 12S	6,35	11	8,334	—	—	3,18	0°	1,2
TN•N 11 03 16S	6,35	11	7,937	—	—	3,18	0°	1,6
TN•N 16 04 04S	9,525	16,5	13,891	—	—	4,76	0°	0,4
TN•N 16 04 08S	9,525	16,5	13,494	—	—	4,76	0°	0,8
TN•N 16 04 12S	9,525	16,5	13,097	—	—	4,76	0°	1,2
TN•N 16 04 16S	9,525	16,5	12,700	—	—	4,76	0°	1,6
TP•N 11 03 04S	6,35	11	9,128	—	—	3,18	11°	0,4
TP•N 11 03 08S	6,35	11	8,731	—	—	3,18	11°	0,8
TP•N 11 03 12S	6,35	11	8,334	—	—	3,18	11°	1,2
TP•N 16 03 04S	9,525	16,5	13,891	—	—	3,18	11°	0,4
TP•N 16 03 08S	9,525	16,5	13,494	—	—	3,18	11°	0,8
TP•N 16 04 02S	9,525	16,5	14,089	—	—	4,76	11°	0,2
TP•N 16 04 04S	9,525	16,5	13,891	—	—	4,76	11°	0,4
TP•N 16 04 08S	9,525	16,5	13,494	—	—	4,76	11°	0,8
TP•N 16 04 12S	9,525	16,5	13,097	—	—	4,76	11°	1,2
TP•N 16 04 16S	9,525	16,5	12,700	—	—	4,76	11°	1,6

5.9 Insert shapes S and T without fixing hole (inserts for milling)

See Figure 9 and Table 9.

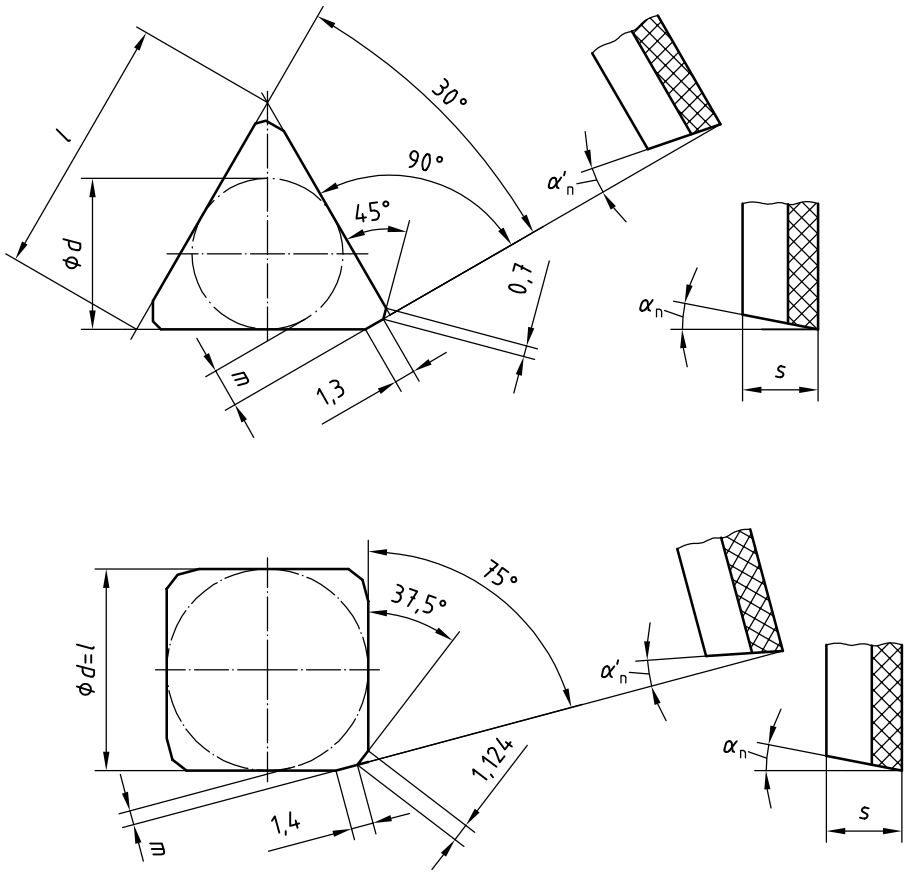


Figure 9

Table 9

Designation	d	l ≈	m	s	α_n	α'_n
SN•N 09 03 ENR	9,525	9,525	0,543	3,18	0°	0°
SN•N 12 04 ENR	12,7	12,7	0,900	4,76	0°	0°
SP•N 09 03 EPR	9,525	9,525	0,543	3,18	11°	11°
SP•N 12 04 EPR	12,7	12,7	0,900	4,76	11°	11°
TN•N 11 03 PNR	6,35	11	1,288	3,18	0°	0°
TC•N 16 04 PCR	9,525	16,5	2,450	4,76	7°	7°
TP•N 16 04 PPR	9,525	16,5	2,450	4,76	11°	11°

5.10 Insert shapes S and T without fixing hole (inserts for milling)

See Figure 10 and Table 10.

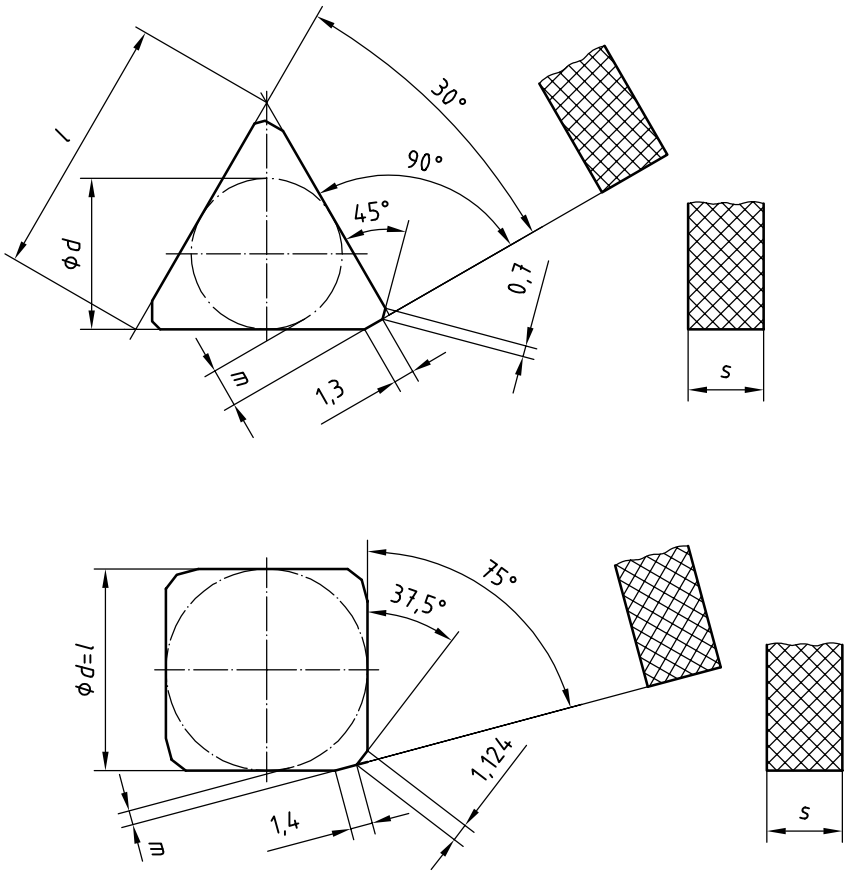


Figure 10

Table 10

Designation	d	l ≈	m	s	α_n
SN•N 09 03 EN	9,525	9,525	0,543	3,18	0°
SN•N 12 04 EN	12,7	12,7	0,900	4,76	0°
TN•N 11 03 PN	6,35	11	1,288	3,18	0°
TN•N 16 04 PN	9,525	16,5	2,450	4,76	0°

5.11 Insert shape W with fixing hole (inserts for turning)

See Figure 11 and Table 11.

NOTE For the dimensions of l_1, see Table 13.

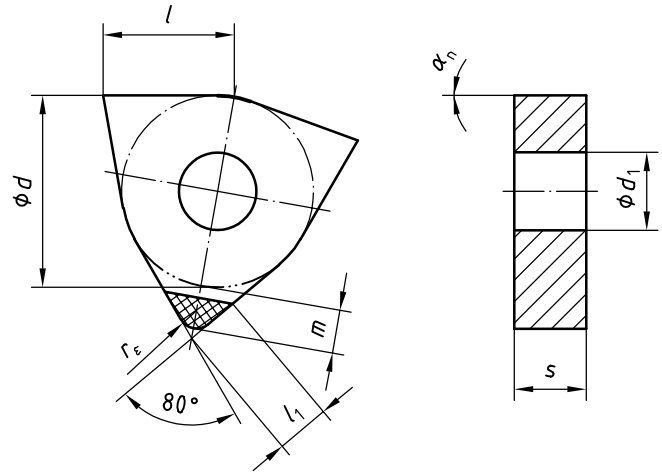


Figure 11

Table 11

Designation	d	d_1	l ≈	m	s	α_n	r_ε
WN•A 06 04 04	9,525	3,81	6,52	2,426	4,76	0°	0,4
WN•A 06 04 08	9,525	3,81	6,52	2,203	4,76	0°	0,8
WN•A 06 04 12	9,525	3,81	6,52	1,980	4,76	0°	1,2
WN•A 08 04 04	12,7	5,16	8,69	3,307	4,76	0°	0,4
WN•A 08 04 08	12,7	5,16	8,69	3,084	4,76	0°	0,8
WN•A 08 04 12	12,7	5,16	8,69	2,862	4,76	0°	1,2

5.12 Insert shape W without fixing hole (inserts for turning)

See Figure 12 and Table 12.

NOTE For the dimensions of l_1, see Table 13.

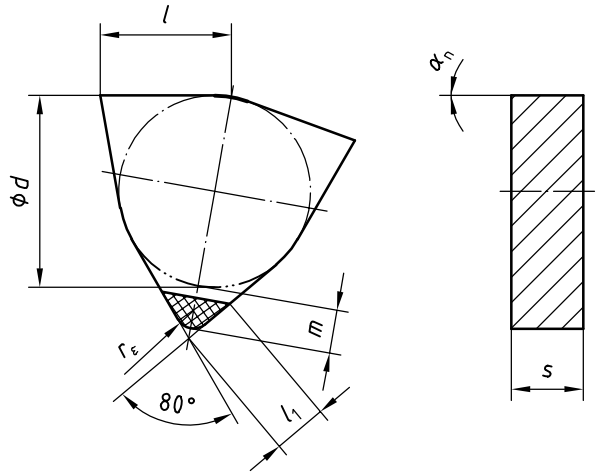


Figure 12

Table 12

Designation	d	l ≈	m	s	α_n	r_ε
WN•N 06 04 04	9,525	6,52	2,426	4,76	0°	0,4
WN•N 06 04 08	9,525	6,52	2,203	4,76	0°	0,8
WN•N 06 04 12	9,525	6,52	1,980	4,76	0°	1,2
WN•N 08 04 04	12,7	8,69	3,307	4,76	0°	0,4
WN•N 08 04 08	12,7	8,69	3,084	4,76	0°	0,8
WN•N 08 04 12	12,7	8,69	2,862	4,76	0°	1,2

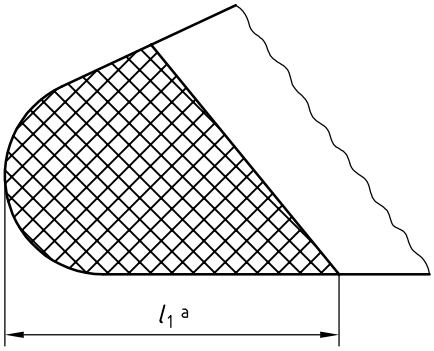
6 Cutting edge length, l_1, of tipped inserts

6.1 General

l_1 is defined as the length along the major cutting edge from the end of the tip to the furthest point perpendicular to the major cutting edge.

6.2 Inserts with radius

See Figure 13.

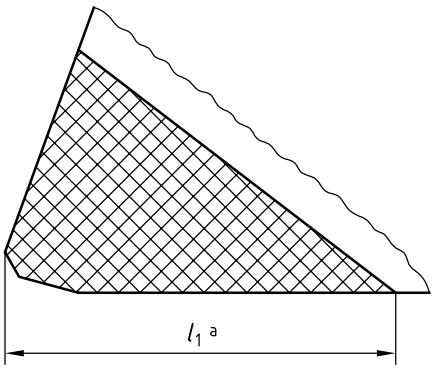


a For the dimensions of l_1, see Table 13.

Figure 13

6.3 Inserts with wiper edge

See Figure 14.



a For the dimensions of l_1, see Table 13.

Figure 14

Table 13

Cutting edge length l_1 min	
short	long
0,8	3,0

7 Base material, cutting material

Base material is selected at the manufacturer's option or upon agreement.

Cutting edges made of BL, BH, BC are in accordance with ISO 513.

8 Measurements

Measurements are taken in accordance with ISO 3365 and ISO 6987.

9 Marking

Indexable inserts shall be visibly and durably marked with

— the symbol for the corner radius r_ε;

— the group of chip removal and group of application in accordance with ISO 513 or the cutting material grade;

— the name or trademark of the manufacturer.

Additional marking is at the manufacturer's option or upon agreement. Different marking is upon agreement.

If there is not sufficient space on the indexable insert to indicate the group of chip removal, group of application and the manufacturer's name, the insert can be marked with the manufacturer's cutting material grade instead. However, in such cases the group of chip removal and group of application shall be indicated clearly and visibly on the packaging.

ICS 25.100.01

Price based on 18 pages