

INTERNATIONAL STANDARD

ISO
2804

Second edition
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Wire, bar or tube drawing dies — As-sintered pellets of hardmetal (carbide) — Dimensions

*Filières de tréfilage et d'étirage — Noyaux bruts en carbures métalliques
durs — Dimensions*



Reference number
ISO 2804:1996(E)

Foreword

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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.

International Standard ISO 2804 was prepared by Technical Committee ISO/TC 29, *Small tools*.

This second edition cancels and replaces the first edition (ISO 2804:1973), (clause 3) of which (designation) has been technically revised.

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Introduction

The standardization of the dimensions of as sintered pellets has been carried out in order to improve co-operation between pellet manufacturers and drawing die manufacturers.

The select dimensions will improve the machining conditions of drawing tool manufacturers in order to obtain drawing dies in conformity with ISO 1684.

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Wire, bar or tube drawing dies — As-sintered pellets of hardmetal (carbide) — Dimensions

1 Scope

This International Standard lays down a series of outside diameter sizes d_{02} , a range of bore sizes and certain internal dimensions with their tolerances, for as-sintered pellets of hardmetal, for wire, bar and tube drawing dies. It also gives the designation of as-sintered pellets.

It is only concerned with as-sintered pellets with cylindrical bores intended to be used for application groups A to F as defined in ISO 1684.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1684:1975, *Wire, bar and tube drawing dies with hardmetal (carbide) core — Specifications*.

3 As-sintered pellets of hardmetal for steel wire drawing dies (code-letter A) for non-ferrous wire drawing dies (code-letter B)

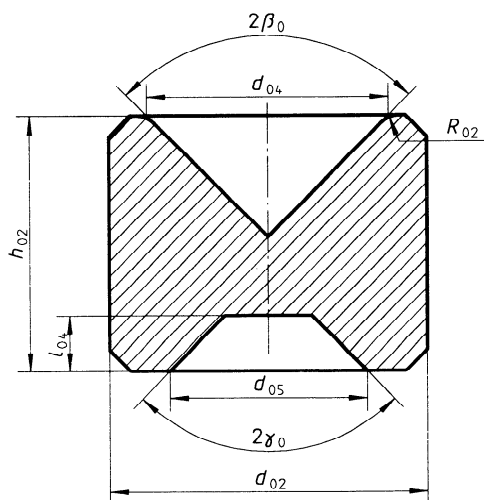
3.1 Dimensions

See figure 1 a), b) and c) and table 1.

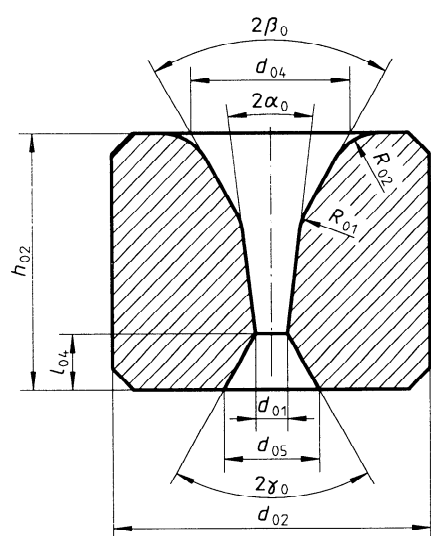
Table 1 — Dimensions

Type	d_{02}	d_{01}	$2\alpha_0$ $\pm 1^\circ$	h_{02}	$2\beta_0$ $\pm 2^\circ$	$2\gamma_0$ $\pm 4^\circ$	d_{04}	d_{05}
	mm	mm	degrees	mm	degrees	degrees	mm	mm
I	8	—	—	4	90	90	4,2	2,2
II	8	0,1	10	4	90	90	3,6	2,2
II	8	0,3	10	4	90	90	3,6	2,2
I	10	—	—	8	90	90	7,6	6,2
II	10	0,1	10	8	90	90	5,5	3,5
II	10	0,3	10	8	90	90	6	3,5
II	10	0,6	12	8	90	90	6	4
II	10	1	12	8	90	90	6	4
II	10	1,5	12	8	90	90	6	4,5
II	12	0,2	10	10	90	90	7	4,5
II	12	0,6	12	10	90	90	7	4,5
II	12	1	12	10	90	90	7	5
II	12	1,4	12	10	90	90	7	5
II	12	1,8	12	10	90	90	8	5
II	14	0,2	10	12	60	75	7	5
II	14	0,6	12	12	60	75	7	5
II	14	1	12	12	60	75	7	5
II	14	1,4	12	12	60	75	7	5
II	14	1,8	12	12	60	75	8	5,5
II	14	2,4	14	12	60	75	8	6
II	16	0,3	10	13	60	75	8	5
II	16	0,6	12	13	60	75	8	5
II	16	1	12	13	60	75	8,5	5
II	16	1,4	12	13	60	75	9	5,5
II	16	1,8	12	13	60	75	9	6
II	16	2,2	14	13	60	75	9,5	6,5
II	16	2,6	14	13	60	75	9,5	6,5
II	16	3	14	13	60	75	9,5	7
II	20	1	12	17	60	60	8,5	6
II	20	1,6	12	17	60	60	8,5	6,5
II	20	2,2	14	17	60	60	10	6,5
II	20	2,8	14	17	60	60	10	7
II	20	3,4	14	17	60	60	11	8
II ¹⁾	20	4	16	17	60	60	12	8,5
II ¹⁾	20	4,6	16	17	60	60	12,5	9
II	25	2	12	20	60	60	11,5	7
II	25	2,7	14	20	60	60	12	7,5
II	25	3,4	14	20	60	60	13	8
II ¹⁾	25	4,1	16	20	60	60	13,5	8,5
II ¹⁾	25	4,8	16	20	60	60	14	9
II ¹⁾	25	5,5	16	20	60	60	14,5	10
III	25	6,5	16	20	60	60	15,5	11
II	30	3	14	24	60	60	15	9
II	30	3,7	14	24	60	60	16	9
II ¹⁾	30	4,5	16	24	60	60	17	10
II ¹⁾	30	5,5	16	24	60	60	18	10
III	30	6,5	16	24	60	60	18	12
III	30	8	16	24	60	60	19	13,5
III	30	9,5	16	24	60	60	20	16

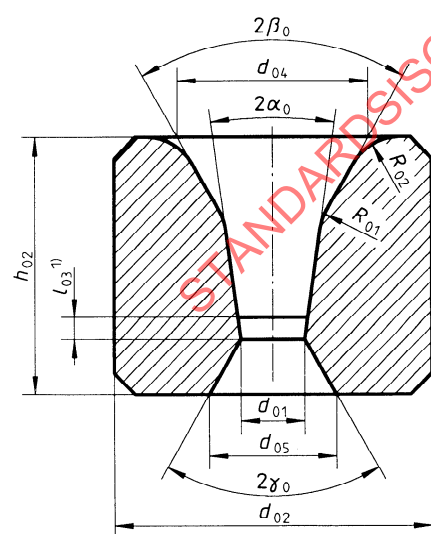
1) When diameter d_{01} is greater than 4 mm, type II may be replaced by type III in national standards.



a) Type I



b) Type II



1) $l_{03} \approx 0,3d_{01}$

c) Type III

NOTE — The values of dimensions l_{04} , R_{01} and R_{02} shall be agreed by the customer and the supplier.

Figure 1 — As-sintered pellets for wire drawing dies

3.2 Tolerances to be applied to d_{02} , d_{01} and h_{02}

See tables 2, 3 and 4 respectively.

Table 2 — Tolerances on d_{02}

Values in millimetres

d_{02}	Tolerances
$8 \leq d_{02} \leq 16$	+ 0,6 + 0,2
$20 \leq d_{02} \leq 30$	+ 0,7 + 0,2

Table 3 — Tolerances on d_{01}

Values in millimetres

d_{01}	Tolerances
$0,1 \leq d_{01} < 0,3$	0 - 0,075
$0,3 \leq d_{01} < 0,5$	0 - 0,10
$0,5 \leq d_{01} < 2$	0 - 0,15
$2 \leq d_{01} < 4$	0 - 0,20
$4 \leq d_{01} < 6$	0 - 0,25
$6 \leq d_{01} < 10$	0 - 0,30

Table 4 — Tolerances on h_{02}

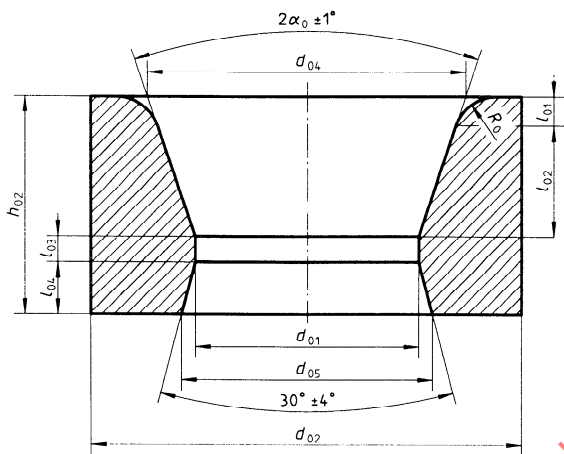
Values in millimetres

h_{02}	Tolerances
$4 \leq h_{02} \leq 10$	$\pm 0,2$
$12 \leq h_{02} \leq 17$	$\pm 0,3$
$20 \leq h_{02} \leq 24$	$\pm 0,4$

4 As-sintered pellets of hardmetal for steel round bar drawing dies (code-letter C), non-ferrous round bar drawing dies (code-letter D), steel tube drawing dies (code letter E) and non-ferrous tube drawing dies (code-letter F)

4.1 Dimensions

See figure 2 and tables 5 and 6.



- NOTES
- 1 The values of $2\alpha_0$ and R_0 are not standardized.
 - 2 The values of dimensions d_{04} , d_{05} , l_{01} , l_{02} and l_{03} shall be agreed by the customer and the supplier.

Figure 2 — As-sintered pellet for bar or tube drawing dies

Table 5 — Dimensions

Values in millimetres

d_{02}	$d_{01}^{1)}$ such that, for finished drawing dies one obtains:						h_{02}	l_{04}
	Types of drawing dies							
	Code letter							
	C		D		E and F			
	d_1		d_1		d_1			
	min.	max.	min.	max.	min.	max.		
25	—	—	9	12	10	12	20	5
30	9	13	11	14	11	14	24	5,5
35	12	16	13	18	13	18	24	5,5
40	15	19	17	21	17	22	24	5,5
45	18	22	20	25	21	26	25	6
50	21	25	24	28	24	30	25	6
55	24	28	27	32	28	34	27	6,5
60	27	31	30	36	32	38	27	6,5
65	29	34	34	40	36	42	27	6,5
70	32	37	38	44	40	45	30	7,5
75	35	41	42	48	43	50	30	7,5
80	39	45	46	52	48	55	30	7,5
85	43	49	50	56	53	58	33	8
90	47	53	54	60	56	62	33	8
95	—	—	58	64	60	67	33	8
100	51	61	62	68	65	70	35	8,5
105	—	—	65	72	68	75	35	8,5
110	—	—	—	—	73	78	38	8,5
120	—	—	—	—	74	88	38	9
130	—	—	—	—	84	97	40	9
140	—	—	—	—	93	106	40	9
150	—	—	—	—	102	115	40	9

1) d_{01} shall be determined when ordering, taking account of the minimum machining allowance $d_{01} = d_1 - \text{machining allowance}$ (see table 6).

Table 6 — Machining allowance on d_{01}

Dimensions in millimetres

d_{02}	Machine allowance on d_{01}
$25 \leq d_{02} \leq 80$	0,5
$85 \leq d_{02} \leq 100$	0,6
$105 \leq d_{02} \leq 150$	0,8

4.2 Tolerances to be applied to d_{02} , d_{01} and h_{02}

See tables 7, 8 and 9 respectively.

Table 7 — Tolerances on d_{02}

d_{02} mm	Tolerances	
	mm	%
$25 \leq d_{02} \leq 30$	+ 0,7 + 0,2	—
$35 \leq d_{02} \leq 150$	—	± 1

Table 8 — Tolerances on d_{01}

Values in millimetres

$d_{01}^{1)}$	Tolerances
$d_{01} < 12$	0 - 0,3
$12 \leq d_{01} < 16$	0 - 0,35
$16 \leq d_{01} < 20$	0 - 0,4
$20 \leq d_{01} < 25$	0 - 0,45
$25 \leq d_{01} < 32$	0 - 0,5
$32 \leq d_{01} < 40$	0 - 0,6
$40 \leq d_{01} < 50$	0 - 0,75
$50 \leq d_{01} < 63$	0 - 0,9
$63 \leq d_{01} < 80$	0 - 1,1
$80 \leq d_{01} < 100$	0 - 1,3
$100 \leq d_{01} < 115$	0 - 1,5

1) The tolerance on d_{01} applies to the greatest measured value of d_{01} .

Table 9 — Tolerances on h_{02}

Values in millimetres

h_{02}	Tolerances
$20 \leq h_{02} \leq 27$	$\pm 0,4$
$30 \leq h_{02} \leq 40$	$\pm 0,5$