

Datenblatt | Data sheet

Dimensional/shape accuracy and roughness | DIN 5401:2002-08

Class (Grade)	D_w Nominal dimensions mm		Boundary dimensions ^e μm	t_{Dws} V_{Dws} μm max.	R_a^f μm max.	V_{Dwl}^e μm max.	V_{DWA}^e μm max.	/G ST μm	Sorting range ^e μm		
	over	to									
G3	-	12,7	$\pm 5,32$	0,08	0,01	0,13	-	0,5	- 5 to - 0,5	0	+ 0,5 to + 5
G5	-	12,7	$\pm 5,63$	0,13	0,014	0,25	-	1	- 5 to - 1	0	+ 1 to + 5
G10	-	25,4	$\pm 9,75$	0,25	0,02	0,5	-	1	- 9 to - 1	0	+ 1 to + 9
G16 ^a	-	25,4	$\pm 11,4$	0,4	0,025	0,8	-	2	- 10 to - 2	0	+ 2 to + 10
G20 ^a	-	38,1	$\pm 11,5$	0,5	0,032	1	-	2	- 10 to - 2	0	+ 2 to + 10
G28 ^a	-	50,8	$\pm 13,7$	0,7	0,05	1,4	-	2	- 12 to - 2	0	+ 2 to + 12
G40	-	100	± 19	1	0,06	2	-	4	- 16 to - 4	0	+ 4 to + 16
G80 ^b	-	100	± 14	2	0,1	-	4	4	- 12 to - 4	0	+ 4 to + 12
G100	-	150	$\pm 47,5$	2,5	0,1	5	-	10	- 40 to 10	0	+ 10 to + 40
G200	-	150	$\pm 72,5$	5	0,15	10	-	10	- 60 to - 10	0	+ 10 to + 60
G300 ^a	-	25,4	± 70	10	0,2	-	20	20	- 60 to - 20	0	+ 20 to + 60
G300 ^c	25,4	50,8	± 105	15	0,2	-	30	30	- 90 to - 30	0	+ 30 to + 90
G300	50,8	75	± 140	20	0,2	-	40	40	- 120 to - 40	0	+ 40 to + 120
G500 ^d		25,4	± 75	25	-	-	50	50	- 50	0	+ 50
G500	25,4	50,8	$\pm 112,5$	25	-	-	75	75	- 75	0	+ 75
G500	50,8	75	± 150	25	-	-	100	100	- 100	0	+ 100
G500	75	100	$\pm 187,5$	32	-	-	125	125	- 125	0	+ 125
G500	100	125	± 225	38	-	-	150	150	- 150	0	+ 150
G500	125	150	$\pm 262,5$	44	-	-	175	175	- 175	0	+ 175
G600 ^d	alle		± 200	-	-	-	400	-	-	0	-
G700 ^d	alle		± 1.000	-	-	-	2 000	-	-	0	-

^{a)} By agreement with the manufacturer in exceptional cases the half grade interval values (l_G) can be obtained for G16, G20, G28 and G300.

^{b)} Not specified in ISO 3290; class corresponds to the previous class IV nach DIN 5401:1978-01.

^{c)} Not specified in ISO 3290; class corresponds to the standard accuracy for unhardened stainless balls according to DIN 5401-2:1993-11.

^{d)} Not specified in ISO 3290; classes correspond to the previous classes V to VII according to DIN 5401:1978-01.

^{e)} Values apply to the mean diameter D_{wm} .

^{f)} See DIN EN ISO 4288 (cut-off); for small balls which are no longer covered by this standard, by agreement.

^{g)} Subdivision in increments of l_G .

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Quality

D_w - nominal diameter of the ball

The diameter value used for general designation of a ball size

$V_{D_{ws}}$ - variation of the ball diameter

Difference between the largest and smallest individual diameter D_{ws} of a ball

R_a - surface roughness

For the purposes of this standard, deviations from a geometrically perfect surface, not taking into account shape deviations and waviness.

Note: The limits specified in the table refer to the arithmetic mean of the deviation of the roughness profile from the mean line (R_a).

$V_{D_{wL}}$ - variation of the ball diameter in a batch

Difference between largest and smallest mean ball diameter D_{wm} in a lot.

Note: The parameter applies only to balls of classes G 3 to G200, except for G80.

$V_{D_{wa}}$ - variation of the ball diameter in a grade

Difference between largest and smallest mean ball diameter D_{wm} in one grade.

Note: The parameter is valid only for balls of classes G300 to G700 and G80.

I_G - sorting interval

Value into which the allowable dimension of the nominal diameter of the ball is evenly divided

D_{wm} - mean diameter of a ball

Arithmetic mean of largest and smallest individual ball diameter D_{ws} of a ball

D_{wL} - mean ball diameter of a batch

Arithmetic mean of largest and smallest mean ball diameter D_{wm} in a batch

D_{ws} - single diameter of a ball

Distance between two parallel planes touching the surface of the ball

ST - Sorting tolerance

Range in which D_{wmi} is allowed to move within a sorting.

Note: The sorting tolerance ST is identical in value to sorting interval I_G