

DIN 5401: 2002-08 TOLERANCE, SURFACE ROUGHNESS AND GAUGES FOR STEEL BALLS



| Grade | Nominal diameter Dw (mm) | | Limit deviations (µm) 5) | Ball diameter variation | Roundness error | Surface roughness (6) | Variation of Lot diameter (5) | | Subgauge interval | Subgauges (µm) (7) |
|-------|--------------------------|------|--------------------------|-------------------------|-----------------|-----------------------|-------------------------------|----------------|-------------------|---------------------|
| | From | To | | | | | VDwL Max. (µm) | VDwA Max. (µm) | | |
| G3 | - | 12.7 | ±5.32 | 0.08 | 0.08 | 0.01 | 0.13 | - | 0.5 | -5~-0.5,0,+0.5~+5 |
| G5 | - | 12.7 | ±5.63 | 0.13 | 0.13 | 0.014 | 0.25 | - | 1 | -5~-1,0,+1~+5 |
| G10 | - | 25.4 | ±9.75 | 0.25 | 0.25 | 0.02 | 0.5 | - | 1 | -9~-1,0,+1~+9 |
| G16 | - | 25.4 | ±11.4 | 0.4 | 0.4 | 0.025 | 0.8 | - | 2 | -10~-2,0,+2~+10 |
| G20 | - | 38.1 | ±11.5 | 0.5 | 0.5 | 0.032 | 1 | - | 2 | -10~-2,0,+2~+10 |
| G28 | - | 50.8 | ±13.7 | 0.7 | 0.7 | 0.05 | 1.4 | - | 2 | -12~-2,0,+2~+12 |
| G40 | - | 100 | ±19 | 1 | 1 | 0.06 | 2 | - | 4 | -16~-4,0,+4~+16 |
| G80 | - | 100 | ±14 | 2 | 2 | 0.1 | - | 4 | 4 | -12~-4,0,+4~+12 |
| G100 | - | 150 | ±47.5 | 2.5 | 2.5 | 0.1 | 5 | - | 10 | -40~-10,0,+10~+40 |
| G200 | - | 150 | ±72.5 | 5 | 5 | 0.15 | 10 | - | 10 | -60~-10,0,+10~+60 |
| G300 | - | 25.4 | ±70 | 10 | 10 | 0.2 | - | 20 | 20 | -60~-20,0,+20~+60 |
| G300 | 25.4 | 50.8 | ±105 | 15 | 15 | 0.2 | - | 30 | 30 | -90~-30,0,+30~+90 |
| G300 | 50.8 | 75 | ±140 | 20 | 20 | 0.2 | - | 40 | 40 | -120~-40,0,+40~+120 |
| G500 | - | 25.4 | ±75 | 25 | 25 | - | - | 50 | 50 | -50,0,+50 |
| G500 | 25.4 | 50.8 | ±112.5 | 25 | 25 | - | - | 75 | 75 | -75,0,+75 |
| G500 | 50.8 | 75 | ±150 | 25 | 25 | - | - | 100 | 100 | -100,0,+100 |
| G500 | 75 | 100 | ±187.5 | 32 | 32 | - | - | 125 | 125 | -125,0,+125 |
| G500 | 100 | 125 | ±225 | 38 | 38 | - | - | 150 | 150 | -150,0,+150 |
| G500 | 125 | 150 | ±262.5 | 44 | 44 | - | - | 175 | 175 | -175,0,+175 |
| G600 | ALL | ALL | ±200 | - | - | - | - | 400 | - | - |
| G700 | ALL | ALL | ±1000 | - | - | - | - | 2000 | - | - |

1. In some cases and subject to agreement, half the gauge interval values may be used for grades G16, G20, G28 and G300.
2. Not specified in ISO 3290.
3. Not specified in ISO 3290.
4. Not specified in ISO 3290.
5. Values relate to the mean diameter of a ball, D_{wm}.
6. See DIN EN ISO 4288. For smaller ball sizes (not covered by this standard), values are subject to agreement.
7. Graded in intervals equal to IG.