



# Balls

The sphere is a symbol of perfection that guides MPS in the ball manufacturing process.

### Steel in revolution

It takes several days of machining, starting from an extruded steel wire, to achieve the perfect sphere. The thermal treatment lends the stainless steel outstanding physical characteristics and a hardness of minimum 58 HRC. The final polishing stage leaves a mirror-finish on the surface of the ball and a precision beyond imagination.

### Sub-millimetric dimensions

MPS specializes in the manufacturing of balls measuring less than a millimeter in diameter. The smallest sphere manufactured by MPS has a diameter of 0.150 mm.

### Sub-micron tolerances

MPS manufactures "Grade 3" balls, the highest quality defined by the ISO 3290/DIN 5401 norm.

	Grade 3 (ISO 3290/DIN 5401)
Material	Stainless steel: AISI 440C
Spherical variation	0.08 µm
Diameter variation within a batch	0.13 µm
Density	7.7 g/cm <sup>3</sup>
Hardness	min. 58 HRC
E-module	21'400 Mpa
Linear coefficient of thermal expansion	10.4 x 10 <sup>-6</sup> K <sup>-1</sup>
Bending strength	1930 Mpa

Designation
0.200X/G3
0.250X/G3
0.300X/G3
0.397X/G3
0.500X/G3
0.600X/G3
0.794X/G3
1.000X/G3
1.150X/G3
1.250X/G3
1.450X/G3
1.500X/G3
1.588X/G3

### EXAMPLE OF PART NUMBER DEFINITION

**0.200X/G3** Nominal ball diameter in [mm]  
**0.200X/G3** AISI 440C stainless steel  
**0.200X/G3** Grade 3 quality to ISO 3290/DIN 5401

### SPECIFIC CALIBERS

MPS balls can also be purchased in specific calibres, i.e. in increments of 1 µm.

### EXAMPLES OF SPECIFIC CALIBERS

**1.250X/G3-M2** "M" stands for "Minus"; 2 µm from nominal (1.248 mm)  
**1.250X/G3-NO** "N" stands for "Nominal"; 0 µm (1.250 mm)  
**1.250X/G3-P3** "P" stands for "Plus"; 3 µm from nominal (1.253 mm)

Larger diameters up to Ø 2.778 mm available until stocks are exhausted.

Data subject to change without notice.