



球坯尺寸规范

Specification for ball blank dimensions

热轧轴承钢球坯尺寸和精度要求 Size and accuracy requirements of hot rolled balls:

钢球公称直径 Nominal diameter of steel ball		基准尺寸 Datum dimension	棒料尺寸 Bar diameter	尺寸范围 Size range		球型偏差 Spherical deviation	每吨粒数 Grains per ton≈	备注 remarks
in	mm			最小值 min	最大值 max			
25/32	19.8438	21.0	20	20.8	21.8	0.5	25500	
13/16	20.6375	21.8	21	21.6	22.6		22800	
7/8	22.225	23.4	22.4	23.2	24.2		18500	
15/16	23.8125	25.2	24	25	26		14800	
	24	25.2	24	25	26		14800	
1	25.4	26.7	25.5	26.5	27.5		12500	
1-1/16	26.9875	28.3	27.2	28.3	29.3		10500	
1-1/8	28.575	30.2	28.8	30	31		8700	
1-3/16	30.1625	31.6	30.5	31.4	32.4		7550	
1-1/4	31.75	33.3	32	33.1	34.1		6460	
1-5/16	33.3375	35.0	33.5	34.8	35.8		5570	
	34	35.7	34	35.5	36.5	5240		
1-3/8	34.925	36.8	35.4	36.6	37.6	0.6	4760	
1-7/16	36.5125	38.5	37	38.3	39.3		4160	
1-1/2	38.1	40.0	38.5	39.8	40.8		3710	

注：吨粒数允许±3%偏差

Note: deviation of ±3% per ton is allowed

高速热锻轴承钢球坯尺寸和精度要求 Dimension and precision requirements of high-speed hot forging balls:

序号 NO.	钢球公称直径 Nominal diameter of steel ball		基准尺寸 Datum dimension	棒料尺寸 Bar diameter	尺寸范围 Size range D1、D2		球型偏差 Spherical deviation	每吨粒数 Grains per ton	备注 remarks
	in	mm			最小值 min	最大值 max			
1		34	36	25.5	35.8	36.6	0.4	5050	
2	1-3/8	34.925	36.8	25.5 (26)	36.6	37.4		4878	
3	-	36.5125	38.5	28.8~30.5	38.3	39.1		4149	
4		37	39	28.8~30	38.8	39.6		4032	
5	1-1/2	38.1	40.1	28.8~30.5	39.9	40.7		3636	
6	-	40	42	32(30.5)	41.8	42.6		3208	
7	1-5/8	41.257	43.3	32(34)	43.1	43.9		2898	
		41.275 小	43.0	32(34)	42.8	43.6	2985		

8	1-11/16	42.8625	44.9	32(34)	44.7	45.5	0.6	2597	
		42.8625 小	44.5	32(34)	44.3	45.1		2666	
9	1-3/4	44.45	46.5	32(37)	46.3	47.1		2370	
		44.45 小	46.1	32	45.9	46.7		2444	
10		45	47.0	32(37)	46.8	47.6		2272	
		45 小	46.5	32(37)	46.3	47.1		2370	
11	1-7/8	47.625	49.6	37(34)	49.4	50.2		1941	
		47.625 小	49.1	37(34)	48.9	49.7		2008	
12		48.419	50.5	35	50.3	51.1		1852	
13		50	52.0	37	51.8	52.6		1695	
14	2	50.8	52.8	37	52.6	53.4		1624	
		50.8 小	52.4	37	52.2	53.0		1661	
15	2-1/8	53.975	56	40(45)	55.8	56.6		1358	
16		55	57.5	40 (45)	57.3	58.1		1250	
		55 小	57	40 (45)	56.8	57.6	1282		
17		57.15	59.6	45	59.2	60.4	1130		
18		58.738	61	45	60.6	61.8	1063		
19		60	62.5	45 (50)	62.1	63.3	983		
20	2-1/2	63.5	66	50	65.6	66.8	835		
21		65	67.5	50	67.1	68.3	782		

注：吨粒数允许±1%偏差

Note: deviation of ±1% per ton is allowed

热模压毛坏球尺寸和精度要求 Dimension and precision requirements of Mould pressing balls:

序号 NO.	钢球公称直径 Nominal diameter of steel ball		基准尺寸 Datum dimension	棒料尺寸 Bar diameter	尺寸范围 Size range D1、D2		球型偏差 Spherical deviation	每吨粒数 Grains per ton≈	备注 remarks
	in	mm			最小值	最大值			
1	2 1/8	53.975	56	40(45)	55.6	56.6	0.6	1358	
2		55	57.5	40 (45)	57.1	58.3		1250	
3	2 1/4	57.15	59.6	40 (45)	59.2	60.4		1130	
4		60	62.5	45	62.1	63.3		983	
5	2 1/2	63.5	66	45 (50)	65.6	66.8		835	
6		65	67.5	45 (50)	67.1	68.3		782	
		65 小	67	45 (50)	66.6	67.8	798		

7		66.675	69.7	50	69.3	69.9		713	
8		69.85	73.0	50 (51.3,55)	72.6	73.8		615	
9		70	73.0	50 (51.3,55)	72.6	73.8		615	
		70 小	72.5	50 (51.3,55)	72.1	73.3		629	
10		75	78.0	55 (51.3,50)	77.6	78.8		508	
11	3	76.2	79.2	55 (51.3,50)	78.8	80		482	
		76.2 小	78.7	55 (51.3,50)	78.3	79.5		492	
12		80	83	55 (60)	82.6	83.8		422	
		80 小	82.5	55 (60)	82.1	83.3		432	
13		82.55	86	60(55)	85.6	86.8		385	
14		85	89	60	88.6	89.8		345	
15		85 小	88	60	87.6	88.8		354	
16		90	94	60	93.6	94.8		292	
17		90 小	93	60	92.6	93.8		300	

注：吨粒数允许±1%偏差

Note: deviation of ±1% per ton is allowed

模压球坯和高速机球坯测量规定：

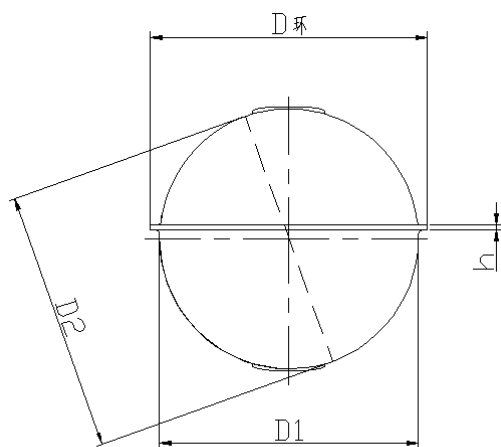
Regulations for measurement of moulded and high speed machine billets:

1) 直径测量：避开环带和极点区域，通过球心

Diameter measurement: avoid the zone and pole area, through the center of the ball.

2) 两级台阶高度总和≤2mm，环带厚度乘于宽度的数值≤4.5

The total height of the two steps is less than or equal to 2 mm, and the value of the annulus thickness multiplied by the width is less than or equal to 4.5



环带厚度 Annulus thickness——h

环带宽度 Annulus width——(D环—D1) /2

本规范中，模压毛球坯退火状态密度使用 $\rho = 7.81\text{g/cm}^3$ ，体积计算： $V = 4/3 \pi \cdot R^3$ ； $\pi = 3.14159265$
单粒球重量： $m = \rho V$ ；

In this specification, the annealing state density of molded blank ball is $\rho = 7.8\text{g/cm}^3$, and the volume calculation is $v = 4 / 3 \Pi \cdot R^3$; $\Pi = 3.14159265$

Weight of single pellet: $m = \rho V$;

毛坯球球吨粒数按照标准数量接收，允许数量偏差按照上表执行。

The number of blank balls per ton is received according to the standard quantity, and the allowable quantity deviation is implemented according to the table above.