



# Datasheet of product

document code:	QA/AR/25
Revision no.:	00
Revision date:	15-Jan-2020

## Product information

Product:	Grinding ball
Manufacturing process:	Forged and rolled-forged
Heat treatments:	Quenched and tempered

## Material designation

Material standard	Europe	Germany		USA	France	Italy	Grait Britain	Sweden	Japan
	EN	DIN	WR	AISI/SAE/ASTM	AFNOR	UNI	BS	SS	JIS
1060	C60E	Ck60	1.1221	1060	XC60	C60	060A62	1678	S58C
70Cr2	70Cr2	70Cr2	1.2007	-----	-----	-----	-----	-----	-----

## Chemical composition

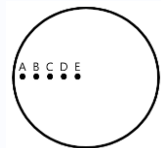
Material	%C	%Cr	%Mn	%Si	%P	%S	%Cu	%Ni	%Mo	%Sn
1060	0.57-0.65	≤0.4	0.60-0.90	≤0.4	≤0.03	≤0.035	≤0.30	≤0.4	≤0.1	≤0.06
70Cr2	0.65-0.75	0.55-0.70	0.75-0.90	0.20-0.30	≤0.03	≤0.03	≤0.30	≤0.4	≤0.1	≤0.06

## Diameters and tolerances

Conditional diameter	nominal diameter	Man. process	limit deviation	surface area (cm <sup>2</sup> )	volume (cm <sup>3</sup> )	Mass (kg)	quantity in one ton
20	20	Rolled-forged	±1.0	12.57	4.19	0.036	30300
25	25	Rolled-forged		19.63	8.18	0.070	15625
30	31.5	Rolled-forged	±2.0	28.27	14.14	0.120	7812
35	36.5	Rolled-forged		38.48	22.45	0.191	5025
40	41.5	Rolled-forged		50.27	33.51	0.285	3401
45	46.5	Rolled-forged		63.62	47.71	0.406	2421
50	52.0	Rolled-forged		78.54	65.45	0.556	1724
55	57.0	Rolled-forged	±3.0	95.03	87.11	0.740	1314
60	62.0	Rolled-forged		113.10	113.10	0.961	1020
65	68.0	Rolled-forged		132.73	143.79	1.222	774
70	73.0	Rolled-forged		153.94	179.59	1.527	625
80	83.0	Rolled-forged		201.06	268.08	2.279	425
90	94.0	Forged	±4.0	254.47	381.70	3.244	293
100	104.0	Forged		314.16	523.60	4.451	216
110	114.0	Forged	±5.0	380.13	696.91	5.924	164
120	125.0	Forged		452.39	904.78	7.691	124
150	156.0	Forged	±6.0	706.85	1767.14	13.872	71

## Hardness

Surface hardness (HRC)	58-62	Coefficients of volumetric hardness calculation	
Volumetric hardness (HRC)	55-62	A (surface)	0.289
		B (3/4R)	0.437
		C (1/2R)	0.203
		D (1/4 R)	0.063
		E (center)	0.009



## Metallographic analysis

The structure is tempered martensitic with low percentage of austenite.

## Pictures

