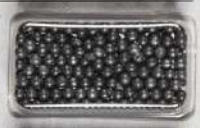
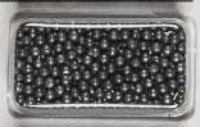
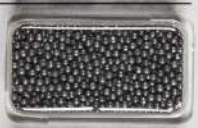
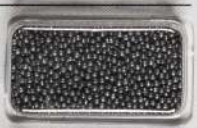
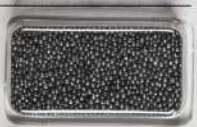
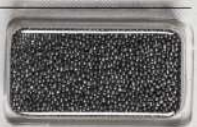
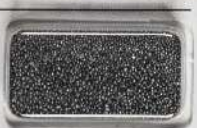
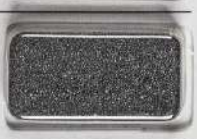
ERVIN AMASTEEL®

The World Standard for Quality

SAE SPECIFICATIONS FOR CAST STEEL SHOT AND GRIT SCREENINGS

SAE Size No.	Screen Opening in	mm	SAE J444 SHOT Tolerances	
S780	.1110	2.80	All Pass No. 7 Screen	
	.0787	2.00	85% min on No.10 Screen	
	.0661	1.70	97% min on No.12 Screen	
S660	.0937	2.36	All Pass No. 8 Screen	
	.0661	1.70	85% min on No.12 Screen	
	.0555	1.40	97% min on No.14 Screen	
S550	.0787	2.00	All Pass No. 10 Screen	
	.0555	1.40	85% min on No.14 Screen	
	.0469	1.18	97% min on No.16 Screen	
S460	.0787	2.00	All Pass No. 10 Screen	
	.0661	1.70	5% max on No.12 Screen	
	.0469	1.18	85% min on No.16 Screen	
	.0394	1.00	96% min on No. 18 Screen	
S390	.0661	1.70	All Pass No. 12 Screen	
	.0555	1.40	5% max on No. 14 Screen	
	.0394	1.00	85% min on No. 18 Screen	
	.0331	.850	96% min on No. 20 Screen	
S330	.0555	1.40	All Pass No. 14 Screen	
	.0469	1.18	5% max on No. 16 Screen	
	.0331	.850	85% min on No. 20 Screen	
	.0278	.710	96% min on No. 25 Screen	
S280	.0469	1.18	All Pass No. 16 Screen	
	.0394	1.00	5% max on No. 18 Screen	
	.0278	.710	85% min on No. 25 Screen	
	.0234	.600	96% min on No. 30 Screen	
S230	.0394	1.00	All Pass No. 18 Screen	
	.0331	.850	10% max on No. 20 Screen	
	.0234	.600	85% min on No. 30 Screen	
	.0197	.500	97% min on No. 35 Screen	
S170	.0331	.850	All Pass No. 20 Screen	
	.0278	.710	10% max on No. 25 Screen	
	.0165	.425	85% min on No. 40 Screen	
	.0139	.355	97% min on No. 45 Screen	
S110	.0234	.600	All Pass No. 30 Screen	
	.0197	.500	10% max on No. 35 Screen	
	.0117	.300	80% min on No. 50 Screen	
	.0070	.180	90% min on No. 80 Screen	
S70	.0165	.425	All Pass No. 40 Screen	
	.0139	.355	10% max on No. 45 Screen	
	.0070	.180	80% min on No. 80 Screen	
	.0049	.125	90% min on No. 120 Screen	

SAE Size No.	Screen Opening in	mm	SAE J444 GRIT Tolerances	
G10	.1110	2.80	All Pass No. 7 Screen	
	.0787	2.00	80% min on No.10 Screen	
	.0661	1.70	90% min on No.12 Screen	
G12	.0937	2.36	All Pass No. 8 Screen	
	.0661	1.70	80% min on No.12 Screen	
	.0555	1.40	90% min on No.14 Screen	
G14	.0787	2.00	All Pass No. 10 Screen	
	.0555	1.40	80% min in No.14 Screen	
	.0469	1.18	90% min on No.16 Screen	
G16	.0661	1.70	All Pass No. 12 Screen	
	.0469	1.18	75% min on No.16 Screen	
	.0394	1.00	85% min on No. 18 Screen	
G18	.0555	1.40	All Pass No. 14 Screen	
	.0394	1.00	75% min on No.18 Screen	
	.0278	.710	85% min on No. 25 Screen	
G25	.0469	1.18	All Pass No. 16 Screen	
	.0278	.710	70% min on No. 25 Screen	
	.0165	.425	80% min on No. 40 Screen	
G40	.0394	1.00	All Pass No. 18 Screen	
	.0165	.425	70% min on No. 40 Screen	
	.0117	.300	80% min on No. 50 Screen	
G50	.0278	.710	All Pass No. 25 Screen	
	.0117	.300	65% min on No. 50 Screen	
	.0070	.180	75% min on No. 80 Screen	
G80	.0165	.425	All Pass No. 40 Screen	
	.0070	.180	65% min on No. 80 Screen	
	.0049	.125	75% min on No. 120 Screen	
G120	.0117	.300	All Pass No. 50 Screen	
	.0049	.125	60% min on No. 120 Screen	
	.0029	.075	70% min on No. 200 Screen	

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SAE SPECIFICATIONS FOR CAST STEEL SHOT AND GRIT SCREENINGS

The following are paraphrased as condensations of the Society of Automotive Engineers SAE specifications and include all of the essential features of these specifications for:

Cast Steel Shot	**J827**
Cast Steel Grit	**J1993**
Cast Steel Shot and Grit Sizes	**J444**

Chemical Analysis

Carbon	.80 – 1.2%	**Silicon**	.4% min
Manganese		**Sulfur**	.05% max
S-70 – S-110	.35 – 1.2%	**Phosphorus**	.05% max
S-170	.50 – 1.2%		
S-230 & larger shot, all grit	.60 – 1.2%		

ERVIN AMASTEEL® EXCEEDS ALL SAE SPECIFICATIONS

☑ Microstructure

The microstructure of cast steel shot and grit shall be uniform Martensite, tempered to a degree consistent with the hardness range, with fine well-distributed carbides, if any.

☑ Hardness

The hardness may be determined by any of the various methods applicable to small sections such as Micro Hardness Tester with a Knoop indenter, at loads determined to provide reliable conversion to Rockwell C.

Shot – Ninety percent of random hardness check performed on a representative sample shall fall within the range of 402-558 Knoop hardness number (40-51 HRC).

Grit – Ninety percent of random hardness check performed on a representative sample shall fall within the following ranges. S hardness range of 402-558 Knoop hardness number (40-51 HRC), M hardness range of 495-650 Knoop (47-56 HRC), L hardness range 612-754 Knoop (54-61 HRC), and H hardness of 732 Knoop minimum (60 HRC).

☑ Density

The density of cast steel shall be not less than 7.3 gm/cc grit and 7 gm/cc for shot.

☑ General Appearance

The cast steel shot shall be as nearly spherical as commercially possible and no more than 20% of the shot particles shall have objectionable characteristics.

☑ Voids for Shot

No more than 10% of cast steel shot particles shall contain voids as determined at 10x magnification. A void must be greater than 10% of the area of the abrasive particle to be considered objectionable.

☑ Shrinkage

No more than 10% of cast steel shot particles shall contain shrinkage as determined at 10x magnification. Shrinkage is an internal cavity with irregular dendritic surfaces, whose area is larger than 40% of the particle area.

☑ Cracks

No more than 15% of cast steel shot and 40% of the cast steel grit particles shall have cracks as determined at 10x magnification. A crack is a linear discontinuity whose length is greater than 3x its width and radial in direction.

☑ Particle Shape of Shot

When examined at 10x magnification, no more than 5% of the shot particles will have a length that is in excess of twice the cross section.

☑ Mechanical Tests

See SAE J445 for methods of checking uniformity of shipments of shot or grit to determine relative fatigue life and energy transfer of different types of shot or grit.

ERVIN AMASTEEL® Special Hardness

M hardness – 90% min 495-650 KHN (47-56 HRC)
L hardness – 90% min 612-754 KHN (54-61 HRC)
H hardness – 90% min 732 KHN (60 HRC min)

AMASTEEL is also available in other hardness ranges.

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