

# SURFACE VEHICLE RECOMMENDED PRACTICE

Submitted for recognition as an American National Standard

**SAE** J444

**REAF**  
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## CAST SHOT AND GRIT SIZE SPECIFICATIONS FOR PEENING AND CLEANING

This SAE Recommended Practice pertains to blast cleaning and shot peening and provides for standard cast shot and grit size numbers. It supersedes the previous SAE Recommended Practice, Shot for Peening. For shot, this number corresponds with the aperture size of the nominal screen. For grit, this number corresponds with the number of the nominal screen with the prefix G added. These screens are in accordance with the National Bureau of Standards series as given in ASTM E 11, Specification for Sieves for Testing Purposes.

The accompanying shot and grit classifications and size designations were formulated by representatives of shot and grit suppliers, equipment manufacturers, and automotive users who constituted the Shot Peening Division of the Iron and Steel Technical Committee.

- ∅ Shot should be round and solid. When used for peening or cleaning round, solid shot withstands breakage better than irregularly shaped or porous particles.
- ∅ As used in the actual peening process, it is highly desirable that the shot be reasonably spherical and reasonably solid. It must be within the desired size limits.
- ∅ Since it may be more economical for the user to mechanically season the shot, the degree of control of shape and quality of shot may be established by agreement between the user and the shot supplier.

### Testing Procedure

1. (a) A rotating and tapping type of testing machine shall be used.  
(b) The shaking speed shall be 275-295 rpm.  
(c) The taps per minute shall be 145-160, when tapping machines are used.
2. The weight of the sample shot shall be 100 g, to be obtained from a representative quantity.
- ∅ 3. Screening sieves shall be in accordance with the National Bureau of Standards series as given in ASTM E 11. They shall be of the 203 mm (8 in) diameter series, of either standard 25 mm (1 in) or 51 mm (2 in) height.
4. The time of test shall be 5 min ± 5 s for shot size up to and including U. S. Standard Screen size 35; and 10 min ± 5 s for finer screen sizes.
5. Any alternate method agreed upon between the supplier and the user which gives equivalent results will be acceptable.

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*Grit for Cleaning* - See Table 2.

$\phi$  **Cross References:**

SAE J827 - Cast Steel Shot; for information on Composition and Shapes.

SAE J445 - Metallic Shot and Grit Mechanical Testing; for information on Shot Quality Determination.

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The  $\phi$  is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. If the symbol is next to the report title, it indicates a complete revision of the report.

TABLE 1 - Cast Shot Specifications for Shot Peening or Blast Cleaning

NSB Screen Num- bers	Screen Size		Screen Opening Sizes and Screen Numbers with Maximum and Minimum Cumulative Percentage Allowed on Corresponding Screens SAE Shot Number													
	Standard* (mm)	(in)	S1320	S1110	S930	S780	S660	S550	S460	S390	S330	S280	S230	S170	S110	S70
4	4.75	(0.187)	All Pass													
5	4.00	(0.157)	90% min													
6	3.35	(0.132)	97% min													
7	2.80	(0.111)		All Pass												
8	2.36	(0.0937)			90% min											
10	2.00	(0.0787)			97% min											
12	1.70	(0.0661)				All Pass										
14	1.40	(0.0555)					All Pass									
16	1.18	(0.0468)						All Pass								
18	1.00	(0.0394)							All Pass							
20	0.850	(0.0331)								All Pass						
25	0.710	(0.0278)									All Pass					
30	0.600	(0.0234)										All Pass				
35	0.500	(0.0197)											All Pass			
40	0.425	(0.0165)												10% max		
45	0.355	(0.0139)												85% min		
50	0.300	(0.0117)												97% min		
80	0.180	(0.0071)													80% min	
120	0.125	(0.0049)													90% min	
200	0.075	(0.0029)													90% min	

\* Corresponds to ISO Recommendations