

400 Commonwealth Drive, Warrendale, PA 15096-0001

SURFACE VEHICLE RECOMMENDED PRACTICE

SAE J444

REV. MAY93

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Superseding J444 AUG84

An American National Standard

(R) CAST SHOT AND GRIT SIZE SPECIFICATIONS FOR PEENING AND CLEANING

1. Scope—This SAE Recommended Practice pertains to blast cleaning and shot peening and provides for standard cast shot and grit size numbers. For shot, this number corresponds with the opening of the nominal test sieve, in ten thousandths of inches¹, preceded by an S. For grit, this number corresponds with the sieve designation of the nominal test sieve with the prefix G added. These sieves are in accordance with ASTM E 11.

The accompanying shot and grit classifications and size designations were formulated by representatives of shot and grit suppliers, equipment manufacturers, and automotive users.

- 2. References
- **2.1 Applicable Publication**—The following publication forms a part of this specification to the extent specified herein.
- 2.1.1 ASTM PUBLICATION—Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.
 - ASTM E 11—Standard Specifications for Wire Cloth Sieves for Testing Purposes
- **2.2** Related Publications—The following publications are provided for information purposes only and are not a required part of this document. The latest issue of SAE publications shall apply.
- 2.2.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J445—Metallic Shot and Grit Mechanical Testing—For Information on Shot Durability Determination

SAE J827—Cast Steel Shot—For Information on Composition and Shapes

SAE J1993—Cast Steel Grit—For Information on Composition and Shapes

SAE J2175—Low Carbon Steel Shot—For Information on Composition and Shapes

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^{1.} Example: S-550 indicates a cast steel shot identified by a nominal sieve opening of 0.0555 in.

3. Testing Procedure—Sieve Analysis

3.1 Equipment

- 3.1.1 A rotating and tapping type of testing machine shall be used.
- 3.1.1.1 The shaking speed shall be 275 to 295 rpm.
- 3.1.1.2 The taps per minute shall be 145 to 160 when tapping machines are used.

3.2 Sieves

3.2.1 The testing sieves shall be in accordance with ASTM E 11. They shall be of the 203 mm (8 in) diameter series, of either 25 mm (1 in) or 51 mm (2 in) height.

3.3 Procedure

- 3.3.1 A 100 g sample of the shot or grit shall be obtained from a representative quantity.
- 3.3.2 The sample shall be placed on the top sieve of a stack of three or four sieves, depending on media and size (Figures 1 and 2). Nest the selected sieves and fit a pan to the bottom sieve.
- 3.3.3 The sample shall be run in the testing machine for 5 min \pm 5 s for sizes using sieve designation 35 or coarser and 10 min \pm 5 s for sizes using sieve designation finer than 35.
- 3.3.4 The stack of sieves shall be removed from the testing machine and the percentage of total weight shall be recorded for the media remaining on each sieve.
- **3.4** Any alternate method agreed upon by the supplier and the user which gives equivalent results will be acceptable.

CAST SHOT SPECIFICATIONS FOR SHOT PEENING OR BLAST CLEANING

Sieve Opening Standard	Sieve Desig- nation	Nominal Sieve Opening		Test Sig	ve Openin	g Size and	Designatio	n With Max	imum and h	and Minimum Cum SAE Bhot Number	imufativa Po	ircentages A	Mowed on C	Test Sieve Opening Size and Designation With Maximum and Minhmum Cumulative Percentages Allowed on Corresponding Test Sieves SAE Shot Number	Test Sleves	
(mm)		(In)	\$1320	\$1110	\$930	\$780	8860	8550	8460	8390	\$330	8280	\$230	8170	8110	870
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4.00	so.	(0.157)	1	All Pass	ı	ı	ı	1	1	ŧ	ı	t	1	1	ı	1
3.35		(0.132)	90% min	1	All Pass	ı	ı	I	ı	ı	I	1	ı	ı	1	t
2.80	. ~	(0.111)	97% min	90% min	ı	All Pass	1	ı	I	I	1	ı	1	í	ı	ı
2.36	80	(0.0937)	1	97% min 90% min	90% min	l	All Pass	ı	ı	;	ı	ı	l	1	1	ſ
2.00	01	(0.0787)	I	1	97% min	85% min	1	All Pass	All Pass	1	1	1	ı	ı	ı	ı
1.70	12	(0.0661)	ı	1	ı	97% mln	85% min	ı	5% max	All Pass	ı	ı	ı	ı	ı	I
1.40	4	(0.0555)	ı	1	ı	ı	97% min	85% min	1	5% max	All Pass	ı	ı	1	ı	I
1.18	9	(0.0469)	l	ı	ı	1	ı	97% min	85% min	ı	5% max	All Pass	1	1	1	1
1.00	85	(0.0394)	ı	1	1	1	1	ı	96% min	85% min	I	5% max	All Pass	ł	ŧ	ŧ
0.850	ଷ	(0.0331)	ı	ı	ı	ı	ı	ı	ı	96% min	85% mln	ı	10% max	All Pass	ŀ	ſ
0.710	52	(0.0278)	ı	ı	ı	ı	1	ı	ı	ı	96% min	85% min	ı	10% max	ı	1
0.600	8	(0.0234)	1	ı	ı	ı	ı	1	ı	1	1	96% min	85% min	ı	All Pass	ı
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0.300	ß	(0.0117)	ı	ı	1	1	ı	ſ	1	ı	ı	ı	ı	ı	80% min	ı
0.180	8	(0.0070)	ı	1	ı	ı	ı	ı	1	1	1	1	ı	t	90% mln	80% min
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Corresponds to ISO Recommendations	1s to ISO	Recommen	dations													

FIGURE 1—CAST SHOT SPECIFICATIONS FOR SHOT PEENING OR BLAST CLEANING

CAST GRIT SPECIFICATIONS FOR BLAST CLEANING

(in) G10 G12 G14 G16 G18 G26 G40 GBO GBO G170 (0.187) — <t< th=""><th>Sieve Desig- nation</th><th>Nominal Slave Opening</th><th>T.</th><th>Test Sieve Opening Size and Designation With Maximum and Minimum Cumulative Percentages Allowed on Corresponding Test Sieves SAE Orit Number</th><th>ing Size and</th><th>Designation</th><th>With Maximu</th><th>im and Minimum Cum SAE Grit Number</th><th>ium Cumulati Number</th><th>ve Percentag</th><th>es Allowed o</th><th>n Correspon</th><th>ding Test Sie</th><th>8 6 ></th></t<>	Sieve Desig- nation	Nominal Slave Opening	T.	Test Sieve Opening Size and Designation With Maximum and Minimum Cumulative Percentages Allowed on Corresponding Test Sieves SAE Orit Number	ing Size and	Designation	With Maximu	im and Minimum Cum SAE Grit Number	ium Cumulati Number	ve Percentag	es Allowed o	n Correspon	ding Test Sie	8 6 >
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FIGURE 2—CAST GRIT SPECIFICATIONS FOR BLAST CLEANING

' Corresponds to ISO Recommendations

	SAE J444 Revised MAY93
4.	Notes
4.1	Marginal Indicia —The change bar (I) located in the left margin is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. An (R) symbol to the left of the document title indicates a complete revision of the report.
	PREPARED BY THE SAE FATIGUE, DESIGN, AND EVALUATION COMMITTEE

Rationale—Not applicable.

Relationship of SAE Standard to ISO Standard—Not applicable.

Application—This SAE Recommended Practice pertains to blast cleaning and shot peening and provides for standard cast shot and grit size numbers. For shot, this number corresponds with the opening of the nominal test sieve, in ten thousandths of inches, preceded by an S. For grit, this number corresponds with the sieve designation of the nominal test sieve with the prefix G added. These sieves are in accordance with ASTM E 11.

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ASTM E 11—Standard Specifications for Wire Cloth Sieves for Testing Purposes

Developed by the SAE Fatigue, Design, and Evaluation Committee