

ZINC ALLOY INGOT AND DIE CASTING COMPOSITIONS

Foreword—This Document has not changed other than to put it into the new SAE Technical Standards Board Format.

1. **Scope**—SIMILAR SPECIFICATIONS—UNS Z33521, former SAE 903, ingot is similar to ASTM B 240-79, Alloy AG40A; and UNS Z33520, former SAE 903, die casting is similar to ASTM B 86-76, Alloy AG40A. UNS Z35530, former SAE 925, ingot is similar to ASTM B 240-79, Alloy AC41A; and UNS Z35531, former SAE 925, die casting is similar to ASTM B 86-82a, Alloy AC41A.

2. **References**

2.1 **Applicable Publications**—The following publications form a part of the specification to the extent specified herein. Unless otherwise indicated the latest revision of SAE publications shall apply.

2.1.1 ASTM PUBLICATION—Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM B 86-76—Specification for Zinc-Alloy Die Castings

ASTM B 86-82a—Specification for Zinc-Alloy Die Castings

ASTM B 240-79—Specification for Zinc Alloys in Ingot Form for Die Castings

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TABLE 1—ZINC ALLOY INGOT AND DIE CASTING COMPOSITIONS

	Composition ⁽¹⁾⁽²⁾ , %						
	Al	Cu	Mg	Fe	Pb	Cd	Sn
Ingot (UNS Z33521)	3.9–4.3	0.10	0.025–0.05	0.075	0.004	0.003	0.002
Castings (UNS Z33520)	3.5–4.3	0.25 ⁽³⁾	0.020–0.05 ⁽⁴⁾	0.10	0.005	0.004	0.003
SAE 903							
Ingot (UNS Z35530)	3.9–4.3	0.75–1.25	0.03–0.06	0.075	0.004	0.003	0.002
Castings (UNS Z35531)	3.5–4.3	0.75–1.25	0.03–0.08	0.10	0.005	0.004	0.003
SAE 925							

1. Percentages given are maximum except where indicated as a range. Zinc is remainder.
2. Zinc alloy die castings may contain nickel, chromium, silicon, and manganese in amounts up to their solubility (0.02, 0.02, 0.035, and about 0.5%, respectively) at the freezing temperature. No harmful effects have ever been noted due to the presence of these elements in these concentrations and, therefore, analyses are not required for these elements.
3. For the majority of commercial applications, a copper content in the range of 0.25 to 0.75% will not adversely affect the serviceability of die castings and should not serve as a basis for rejection.
4. Magnesium may be as low as 0.005% provided that at least 0.005% nickel is present, and lead, cadmium, and tin do not exceed 0.0030, 0.0020, and 0.0010%, respectively.

PREPARED BY THE SAE CAST ALUMINUM COMMITTEE