
International Standard 3115

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Castings in magnesium alloys containing zirconium — Chemical composition and mechanical properties

Pièces moulées en alliages de magnésium contenant du zirconium — Composition chimique et caractéristiques mécaniques

Second edition — 1981-07-01

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UDC 669.721.5'296-14

Ref. No. ISO 3115-1981 (E)

Descriptors : magnesium alloys, castings, zirconium, chemical composition, mechanical properties, tensile properties.

Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3115 was developed by Technical Committee ISO/TC 79, *Light metals and their alloys*, and was circulated to the member bodies in April 1980.

It has been approved by the member bodies of the following countries:

Brazil	Ireland	Romania
Canada	Italy	South Africa, Rep. of
Egypt, Arab Rep. of	Japan	Spain
France	Korea, Dem. P. Rep. of	Sweden
Germany, F. R.	Korea, Rep. of	United Kingdom
India	Norway	USSR

The member body of the following country expressed disapproval of the document on technical grounds :

USA

This second edition cancels and replaces the first edition (i.e. ISO 3115-1974) and International Standard ISO 2119-1972.

Castings in magnesium alloys containing zirconium — Chemical composition and mechanical properties

1 Scope and field of application

This International Standard specifies

- the chemical composition and the minimum mechanical properties of castings in magnesium-zirconium-silver-rare earth alloy;
- the chemical composition and the minimum mechanical properties of castings in a series of magnesium-zinc-zirconium alloys.

The values may be checked on test pieces made in accordance with ISO 2377.

2 References

ISO/R 190, *Tensile testing of light metals and their alloys*.¹⁾

ISO/R 2107, *Light metals and their alloys — Temper designations*.

ISO 2092, *Light metals and their alloys — Code of designation based on chemical symbols*.

ISO 2377, *Magnesium alloy sand castings — Reference test bar*.

3 Requirements

3.1 Chemical composition

3.1.1 The chemical composition of castings in magnesium-zirconium-silver-rare earth alloy shall be as given in table 1.

3.1.2 The chemical composition of castings in magnesium-zinc-zirconium alloys shall be as given in table 2.

Table 1

	Chemical composition, %							
Alloy	Ag	Zn max.	RE ¹⁾	Zr	Th	Cu max.	Ni max.	Total other impurities max.
Mg-Ag3RE2Zr	2,0 to 3,0	0,2	1,8 to 2,8	0,40 to 1,0	—	0,10	0,01	0,30

1) Didymium-rich rare earths (RE)

Table 2

Alloy	Chemical composition, %						
	Zn	Zr	Rare earths (RE) ¹⁾	Th	Cu max.	Ni max.	Total other impurities max.
Mg-RE3Zn2Zr	0,8 to 3,0	0,40 to 1,0	2,5 to 4,0	—	0,10	0,01	0,30
Mg-Zn5Zr	3,5 to 5,5	0,40 to 1,0	—	—	0,10	0,01	0,30
Mg-Zn4REZr	3,5 to 5,0	0,40 to 1,0	0,75 to 1,75	—	0,10	0,01	0,30
Mg-Zn6Th2Zr	5,0 to 6,2	0,40 to 1,0	—	1,5 to 2,3	0,10	0,01	0,30
Mg-Th3Zn2Zr	1,7 to 2,5	0,40 to 1,0	0,10 max. ²⁾	2,5 to 4,0	0,10	0,01	0,30
Mg-Zn6Zr	5,5 to 6,5	0,60 to 1,0	—	—	0,10	0,01	0,30

1) In french, TR is used to indicate rare earths (RE).

2) Analysis is not usually carried out, but, if required, the result shall be less than the maximum indicated value.

1) The revision of ISO/R 190 will be incorporated in ISO 6892.