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ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 164

iTeh STANDARD PREVIEW
COMPOSITION OF ALUMINIUM ALLOY CASTINGS
(standards.iteh.ai)

ISO/R 164:1960

<https://standards.iteh.ai/catalog/standards/sist/bb5cbac8-f507-41c8-b854-68cada7b4633/iso-r-164-1960>

1st EDITION
July 1960

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Printed in Switzerland

Also issued in French and Russian. Copies to be obtained through the national standards organizations.

BRIEF HISTORY

The ISO Recommendation R 164, *Composition of Aluminium Alloy Castings*, was drawn up by Technical Committee ISO/TC 79, *Light Metals and Their Alloys*, the Secretariat of which is held by Association Française de Normalisation (AFNOR).

The Secretariat of the Technical Committee, in August 1954, drew up and circulated a first draft proposal dealing with compositions of aluminium alloy castings.

This draft proposal was briefly examined during the first meeting of the Technical Committee, held in Paris, in January 1955. A first list was drawn up containing the types of compositions to be studied with a view to their standardization.

The Secretariat thereafter circulated two further draft proposals in succession.

At the second meeting of the Technical Committee, held in Paris, in October 1956, the latter of these two draft proposals was thoroughly examined; after having been subjected to a fairly large number of modifications, it constituted the basis for an agreement reached among the delegations present.

The final text of this draft proposal was then submitted, by correspondence, to the members of the Technical Committee for their approval, and was adopted by a majority of them as a Draft ISO Recommendation.

On 21 November 1958, the Draft ISO Recommendation (No. 258) was distributed to all the ISO Member Bodies and was approved, subject to some amendments, by the following Member Bodies:

Australia	India	Romania
Austria	Israel	Spain
Belgium	Italy	Sweden
Canada	Netherlands	Switzerland
France	New Zealand	Union of South Africa
Germany	Norway	United Kingdom
Hungary	Poland	U.S.S.R.

Two Member Bodies opposed the approval of the Draft: Brazil, Denmark.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in July 1960, to accept it as an ISO RECOMMENDATION.

ISO Recommendation R 164

ISO/R 164 - 1960 (E)

ERRATA

November 1961

COMPOSITION OF ALUMINIUM ALLOY CASTINGS

1st Edition — July 1960

First Printing — January 1961

ERRATA

Page 3, table 2:

add an asterisk after the symbols

A1-Si5 Fe A1-Si5 Mg Fe A1-Si5 Cu3 Fe
A1-Si8 Cu3 Fe A1-Si12 Fe A1-Si12 Cu Fe

and add the following footnote:

** For pressure die casting.*

Page 4, table 3:

add an asterisk after the symbol

<https://standards.iteh.ai/catalog/standards/sist/1955c0ac8-f507-41c8-b854-619c71463150/iso-r-164-1960>
A1-Mg6 Fe

and add the following footnote:

** For pressure die casting.*

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COMPOSITION OF ALUMINIUM ALLOY CASTINGS

CHEMICAL COMPOSITION (PER CENT)

1. Alloys in which copper is the principal alloying element

Alloy	Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Be	Al
Al-Cu4 Ni2 Mg2	min.	3.5	1.2	—	—	—	1.7	—	—	—	—	—	The remainder
	max.	4.5	1.8	0.7	0.7	0.6	2.3	0.1	0.05	0.05	0.2	0.2	
Al-Cu4 Mg Ti	min.	4.0	0.15	—	—	—	—	—	—	0.05	—	—	
	max.	5.0	0.35	0.35	0.40	0.10	0.05	0.20	0.05	0.05	0.35	—	
Al-Cu4 Ti	min.	4.0	—	—	—	—	—	—	—	0.05	—	—	
	max.	5.0	0.05	0.35	0.40	0.10	0.10	0.2	0.05	0.05	0.35	—	

2. Alloys in which silicon is the principal alloying element

Alloy	Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Be	Al
Al-Si5	min.	—	4.0	—	—	—	—	—	—	—	—	—	The remainder
	max.	0.10	6.0	0.8	0.5	0.1	0.1	0.1	0.1	0.20	—	—	
Al-Si5 Fe	min.	—	4.0	—	—	—	—	—	—	—	—	—	
	max.	0.10	6.0	1.3	0.5	0.1	0.1	0.1	0.1	0.20	—	—	
Al-Si5 Mg	min.	—	4.0	—	—	—	—	—	—	—	—	—	
	max.	0.1	6.0	0.6	0.6	0.1	0.1	0.1	0.05	0.2	—	—	
Al-Si5 Mg Fe	min.	—	4.0	—	—	—	—	—	—	—	—	—	
	max.	0.1	6.0	1.3	0.6	0.1	0.1	0.1	0.05	0.2	—	—	
Al-Si5 Cu1	min.	1.0	4.5	—	—	—	—	—	—	—	—	—	
	max.	1.5	6.0	0.8	0.5	0.3	0.5	0.2	0.1	0.2	—	—	
Al-Si5 Cu3	min.	2.0	4.0	—	0.2	—	—	—	—	—	—	—	
	max.	4.5	6.5	1.0	0.7	0.3	0.5	0.1	0.05	0.2	—	—	
Al-Si5 Cu3 Fe	min.	2.0	4.0	—	0.2	—	—	—	—	—	—	—	
	max.	4.5	6.5	1.3	0.7	0.3	0.5	0.3	0.2	0.2	—	—	
Al-Si6 Cu4	min.	3.0	5.0	—	0.2	—	—	—	—	—	—	—	
	max.	5.0	7.0	1.3	0.6	0.3	2.0	0.2	0.1	0.2	—	—	
Al-Si8 Cu3 Fe	min.	2.5	7.0	—	—	—	—	—	—	—	—	—	
	max.	4.5	9.5	1.3	0.6	0.3	1.2	0.3	0.2	0.2	—	—	
Al-Si10 Mg	min.	—	9.0	—	—	—	—	—	—	—	—	—	
	max.	0.10	11.0	0.70	0.6	0.1	0.1	0.05	0.05	0.15	—	—	
Al-Si12	min.	—	11.0	—	—	—	—	—	—	—	—	—	
	max.	0.10	13.5	0.70	0.5	0.1	0.1	0.1	0.05	0.15	—	—	
Al-Si12 Fe	min.	—	11.0	—	—	—	—	—	—	—	—	—	
	max.	0.10	13.5	1.3	0.5	0.1	0.1	0.1	0.05	0.15	—	—	
Al-Si12 Cu	min.	—	11.0	—	—	—	—	—	—	—	—	—	
	max.	1.2	13.5	0.8	0.5	0.2	0.5	0.1	0.1	0.2	—	—	
Al-Si12 Cu Fe	min.	—	11.0	—	—	—	—	—	—	—	—	—	
	max.	1.2	13.5	1.3	0.5	0.2	0.5	0.1	0.1	0.2	—	—	

3. Alloys in which magnesium is the principal alloying element

Alloy		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Be	Al
Al-Mg3	min.	—	2.0	—	—	—	—	—	—	—	—	—	—	The remainder
	max.	0.10	4.5	0.5	0.5	0.6	0.05	0.2	0.05	0.05	0.2	0.1		
Al-Mg3 Si	min.	—	2.0	—	—	—	—	—	—	—	—	—	—	
	max.	0.10	4.5	1.3	0.5	0.6	0.05	0.2	0.05	0.05	0.2	0.4		
Al-Mg5 Si1	min.	—	4.0	0.5	—	—	—	—	—	—	—	—	—	
	max.	0.10	6.0	1.5	0.5	0.5	0.05	0.2	0.05	0.05	0.2	—		
Al-Mg6	min.	—	4.5	—	—	—	—	—	—	—	—	—	—	
	max.	0.10	7.0	0.50	0.5	0.6	0.05	0.2	0.05	0.05	0.2	0.5		
Al-Mg6 Fe	min.	—	4.5	—	—	—	—	—	—	—	—	—	—	
	max.	0.10	7.0	0.50	1.3	0.6	0.05	0.2	0.05	0.05	0.2	0.5		
Al-Mg9 Si	min.	—	7.0	—	—	—	—	—	—	—	—	—	—	
	max.	0.1	10.0	1.0	1.0	0.5	0.1	0.1	0.05	0.05	0.2	—	0.3	
Al-Mg10	min.	—	9.0	—	—	—	—	—	—	—	—	—	—	
	max.	0.10	11.0	0.30	0.3	0.3	0.10	0.10	0.05	0.05	0.15	—	0.05	

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4. Alloy in which zinc is the principal alloying element

Alloy		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Be	Al
Al-Zn5 Mg	min.	—	0.20	—	—	—	—	4.5	—	—	0.10	0.15	—	The remainder
	max.	0.35	0.70	0.30	1.0	0.4	0.05	6.0	0.05	0.05	0.30	0.60	—	

NOTE: It is the responsibility of the supplier to ensure that any element not specifically limited by this ISO Recommendation is not present in an amount such as is generally accepted as having an adverse effect on the product.

If the purchaser's requirements necessitate limits for any element not specified, these should be agreed upon between supplier and purchaser.