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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

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CLASSIFICATION
OF ALUMINIUM BRONZES AND SPECIAL ALUMINIUM BRONZES

1st EDITION

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BRIEF HISTORY

The ISO Recommendation R 428, *Classification of Aluminium Bronzes and Special Aluminium Bronzes*, was drawn up by Technical Committee ISO/TC 26, *Copper and Copper Alloys*, the Secretariat of which is held by the Deutscher Normenausschuss (DNA).

Work on this question by the Technical Committee began in 1960 and led, in 1962, to the adoption of a Draft ISO Recommendation.

In December 1962, this Draft ISO Recommendation (No. 545) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies:

Australia	Germany	Romania
Belgium	Greece	Spain
Brazil	India	Sweden
Canada	Iran	Switzerland
Chile	Italy	Turkey
Denmark	Japan	United Kingdom
Finland	Netherlands	U.S.S.R.
France	Poland	Yugoslavia

No Member Body opposed the approval of the Draft.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in March 1965, to accept as an ISO RECOMMENDATION.

ISO Recommendation R 428 March 1965

CLASSIFICATION OF ALUMINIUM BRONZES AND SPECIAL ALUMINIUM BRONZES

1. SCOPE

This ISO Recommendation relates to the chemical composition and forms of semi-manufactured products of the following wrought copper alloys:

Aluminium bronzes,
Special aluminium bronzes,

currently available in commercial quantities.
It is intended as a classification and not as a specification for the various types. For the Classification principles, see Appendix.

2. GENERAL

The chemical compositions given below show only the main constituent elements and usual impurities. 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.

3. CHEMICAL COMPOSITION (PER CENT)

The following Classification of Aluminium bronzes includes the alloys most usually manufactured, but it should be realised that there are many differing compositions for the same end-use. In particular, attention is called to the possible substitution of manganese for iron, either wholly or in part. The introduction of such changes can have an appreciable effect on the mechanical or other properties of these alloys and, therefore, in cases where deviations from the given compositions are required, the manufacturer should be consulted.

3.1 Aluminium bronzes

TABLE 1

Designation	Al	Mn	Ni	As	Cu	Maximum impurities			Average density*
						Fe	Zn	Total	kg/dm³
Cu A15	4.0-7.0	0-0.5	0-0.5	0-0.4	The remainder	0.5	0.5	0.6	8.2
Cu A18	7.0-9.0	0-0.5	0-0.5	—		0.5	0.5	0.6	7.8

* For information only.

3.2 Special aluminium bronzes

TABLE 2

Designation	Al	Fe	Ni	Mn	Cu	Maximum impurities		Average density*
						Zn	Total	kg/dm³
Cu Al8 Fe3	6.5-8.5	1.5-3.5	0-1.0	0-0.8	The remainder	0.5	0.6	7.7
Cu Al10 Fe3	8.5-11.0	2.0-4.0	0-1.0	0-2.0		0.5	0.6	7.7
Cu Al10 Fe5 Ni5	8.5-11.5	2.0-6.0	4.0-6.0	0-1.5		0.5	0.6	7.6

* For information only.

4. FORMS OF SEMI-MANUFACTURED PRODUCTS

TABLE 3

Alloy	Plate, Sheet	Strip	Rod, Bar	Sections*	Tube	Wire	Forgings
Aluminium bronzes							
Cu A15	x	x	(x)	(x)	(x)	(x)	
Cu A18	(x)	x	x		(x)	(x)	(x)
Special aluminium bronzes							
Cu A18 Fe3	x	(x)	x		(x)	(x)	(x)
Cu Al10 Fe3	(x)		x	x	(x)		x
Cu Al10 Fe5 Ni5	(x)		x	(x)	(x)		x

* sections or shapes made by extruding, or by a combination of extruding and drawing.

x indicates the main forms manufactured.

(x) indicates forms manufactured in smaller quantities, e.g. in certain countries only or for special purposes.

If no symbol is given, the form is not considered of importance for that alloy, but it does not necessarily indicate that such a product cannot be manufactured.