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KES

Aluminum Alloy Cast-Forged Products

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1. Scope of Application

This shall regulate aluminum alloy cast-forged products.

2. Classification

Cast-forged products shall be classified as shown in table 1 according to their chemical ingredients.

Table 1 Classification

Classification		Symbol	Alloy type	Remark	
Alloy alloy name	Classification according to manufacturing method			Property of alloy	Main usage
TAC8H	Closed forge	TAC8HCFD	Aluminum-silicon copper-magnesium manganese type	THC8H has high strength, heat resisting and anti wear property low expansion coefficient	Rocker arm

3. Quality

- 3.1 Cast-forged products should not be repaired by insertion or welding.
- 3.2 Follow table 2 for chemical ingredients of cast-forged products
- 3.3 Mechanical property of cast-forged products shall be as follows.
 - 3.3.1 Without special indication, separate and indicate mechanical properties of cast-forged test sample for a exemplary case.
 - 3.3.2 Follow table 3 for mechanical properties of test samples for tensional test.
 - 3.3.3 With the admission of KIA, the hardness test of cast-forged product can be used for their tensional test. In this case, follow table 3 for the Brinel hardness.

Table 2 Chemical ingredient

Alloy name	Chemical ingredient %											
	Copper	Sulfur	Magnesium	Zinc	Iron	Manganese	Nickel	Titan	Lead	Silicon	Chrome	Aluminum
TAC8H	2.0	9.0	0.3	≦	≦	0.2	≦	≦	≦	≦	≦	The rest
	-	-	-	0.50	0.60	-	0.50	0.20	0.10	0.10	0.10	
	3.5	11.0	1.3			0.6						

- Remark 1.** Manganese should be more than half of iron.
2. Total amount of impurities should be less than 2.0 %.

Table 3 Mechanical property of cast-forged test sample

Symbol	Compre- ssion rate(%)	Quality symbol	Standard value						
			Tensional test		Brinell hardness HB(10/500/ 30)	Solution		Process	
			Tensional strength Kgf/ mm ² { N/mm ² }	Elongation rate (%)		Tem. (℃)	Hour (h)	Tem. (℃)	Hour (h)
TAC8H	0	F	≧ 12 { 118 }	≧ 1	About 75	—	—	—	—
	0	T6	≧ 20 { 196 }	—	About 110	About 500	About 6	About 180	About 6
TAC8H CFD	20	T6	≧ 23 { 225 }	—	About 110				
	40	T6	≧ 27 { 265 }	≧ 1	About 110				

4. Shape, Dimension, Weight and Allowance Difference

Follow the indication on the drawing for shape, dimension, and weight of cast-forged products and discuss their allowance with KIA and producers.

5. Test

5.1 Evaluation

Follow one of the following methods for evaluation method.

- JIS H 1305 Radiating spectrum analysis method for aluminum and aluminum alloy according to photoelectric measurement method
- JIS H 1306 Atomic extinction analysis method for aluminum and aluminum alloy.

5.2 Elongation test

5.2.1 Test sample

To forge the cast manufactured from cast molder of a test sample shown in Fig. 1, take out circular pole type material. Shape a circular pole with the cast molder for a