Die-casting (Technology assistance)

Category and Part Number of the die-casting alluminium alloy				
Part Number	References			
	Alloy	Similar Alloy	Features	Application
ADC 1	AI-Si	AA A 413.0	High corrosion resistance, easy to die cast, but with low durability under pressure.	Car frame, front wheel disc, inner liner for auto bread baker.
ADC 3	AI-Si-Mg	AA A 360.0	Excellent anti-impact value and anti-pressure ability, high corrosion resistance, but difficult for die casting.	Fly wheel cover, crank case and fly wheel for car, impeller blade for boats.
ADC 5	AI-Mg	AA 518.0	Excellent corrosion resistance, high anti-impact value, but difficult for die casting.	machine arm, impeller blade for boat, fishing tackle, wrench, spool, thread roller.
ADC 6	AI-Mg	AA 515.0	Excellent corrosion resistance, but not easy for die casting.	Vehicle brake handle, impeller blade for boats. Crank case, water pump, disk unit.
ADC 10	AI-Si-Cu	AA B 380.0	Excellent mechanical properties, easy for cutting and die casting	Carburetor, cylinder, cylinder lid, absorber, engine gear box, side cover, agricultural gear box, crank case lid, otor, needle machine frame, needle machine head, fishing tackle, pivot, upper lid and lower lid of gas adjuster, divider.
ADC 10 Z	AI-Si-Cu	AA A 380.0	Excellent mechanical properties, but with low corrosion resistance and friable after die casting.	
ADC 12	AI-Si-Cu	AA 383.0	Excellent mechanical properties, easy for cutting and die casting.	
ADC 12 Z	AI-Si-Cu	AA 383.0	Corrosion resistance, easy for die casting.	
ADC 14	AI-Si-Cu	AA B390.0	Excellent instant abrasion resistance, easy for die casting, high durability under pressure, but with low extensibility.	Oil pump for cars, inserted parts for vehicles, parts for clutch case.

Chemical Composition of the die-casting alluminium alloy

Part No.	References								
	Cu	Si	Mg	Zn	Fe	Mn	Ni	Sn	Al
ADC 1	Below 1.0	11.0-13.0	Below 0.3	Below 0.5	Below 1.3	Below 0.3	Below 0.5	Below 0.1	Alternative
ADC 3	Below 0.6	9.0-10.0	0.4-0.8	0Below 0.5	Below 1.3	Below 0.3	Below 0.5	Below 0.1	Alternative
ADC 5	Below 0.2	Below 0.3	4.0-8.5	Below 0.1	Below 1.8	Below 0.3	Below 0.1	Below 0.1	Alternative
ADC 6	Below 0.1	Below 1.0	2.5-4.0	Below 0.4	Below 0.8	0.4-0.6	Below 0.1	Below 0.1	Alternative
ADC 10	2.0-4.0	7.5-9.5	Below 0.3	Below 1.0	Below 1.3	Below 0.5	0Below 0.5	Below 0.3	Alternative
ADC 10 Z	2.0-4.0	7.5-9.5	Below 0.3	Below 0.3	Below 1.3	Below 0.5	Below 0.5	Below 0.3	Alternative
ADC 12	1.5-3.5	9.6-12.0	Below 0.3	Below 1.0	Below 1.3	Below 0.5	0Below 0.5	Below 0.3	Alternative
ADC 12 Z	1.5-3.5	9.6-12.0	Below 0.3	Below 0.3	Below 1.3	Below 0.5	Below 0.5	Below 0.3	Alternative
ADC 14	4.0-5.0	16.0-18.0	0.45-0.65	Below 1.5	Below 1.3	Below 0.5	Below 0.3	Below 0.3	Alternative

The die casting ability and other performances of the alluminium alloy

		Solidification Temperature Range(° C)	die casting ability			
			heat – resisting & fragility	air tightness	Mold Filling Ability	
Ordinary Application	ADC 1	570-580	1	1	1	2
	ADC 10	540-590	2	2	2	1
	ADC 12	520-580	2	2	1	3
Specific Application	ADC 3	580-600	1	1	1	3
	ADC 5	540-620	5	5	4	5
	ADC 14	510-650	4	4	1	2

Physical Properties Of Die-Casting Aluminum Alloy								
Item		Category	Ordinary Alloy			Specific Alloy		
		Part No.	ADC 1	ADC 10	ADC 12	ADC 3	ADC 5	ADC 14
physical properties	Density		2.55	2.71	2.70	2.63	2.57	2.75
	Melting Point	K	858	883	835	873	913	923
	Specific Heat	J/gk	0.96	0.96	0.96	0.96	0.96	
	Thermal Expansion Coefficient	(180-300° C)K	21X10	22X10	22X10	22X10	25X10	19.2X10
		LACS%	31	23	23	29	24	

Category And Part Number Of The Die-Casting Aluminum Alloy		
Part Number	References	
	Alloy	JIS HS302
AD 1.1	AI-Si	ADC 1
AD 1.2		
AD 3.1	AI-Si-Mg	ADC 3
AD 3.2		
AD 5.1	AI-Mg	ADC 5
AD 5.2		
AD 6.1	AI-Mg	ADC 6
AD 6.2		
AD 10.1	AI-Si-Cu	ADC 10
AD 10.2		
AD 10 Z.1	AI-Si-Cu	ADC 10 Z
AD 12.1	AI-Si-Cu	ADC 12
AD 12.2		
AD 12 Z.1	AI-Si-Cu	ADC 12 Z
AD 14.1	AI-Si-Cu	ADC 14
AD 14.2		

The die casting ability and other performances of the alluminium alloy									
特 性 / JIS / 合 金 / 編 號		Solidification Temperature Range(° C)	Other Performances						
			corrosion resistance	machining performances	grinding ability	electrodata	anodizing appearance	Acidification intensity of the chemical mold	High Temperature Strength
Ordinary Application	ADC 1	570-580	3	4	5	3	5	3	3
	ADC 10	540-590	4	3	3	1	3	5	2
	ADC 12	520-580	4	3	3	2	4	4	2
Specific Application	ADC 3	580-600	2	3	3	1	3	3	1
	ADC 5	540-620	1	1	1	5	1	1	4
	ADC 14	510-650	3	5	5	3	5	5	3

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