

Mg, Si 가 (matrix) (金屬間化合物) Cu, Zn, 가 1, (調質) 2, (展 伸材) 3, 4, 5 가 가 가 6

< 1 >

		JIS		JIS
	Al-Cu	A2XXX	A1	A1XXX
	Al-Mg-Si	A6XXX	Al-Mg	A3XXX
	Al-Zn	A7XXX	Al-Si	A4XXX
			Al-Mg	A5XXX
	Al-Cu	AC1A	Al-Si	AC3A
	Al-Cu-Si	AC2A, 2B	Al-Mg	AC7A
	Al-Si-Mg	AC4A, 4C		
	Al-Si-Cu	AC4B		
	Al-Si-Mg-Cu	AC4D		
	Al-Cu-Ni-Mg	AC5A		
	Al-Mg	AC7B		
	Al-Si-Cu-Ni-Mg	AC8A, 8B		
	Al-Si-Cu-Mg	AC8C		

< 2 > JIS

F		
R		
O	가	가
H	H1n	가 가
	H2n	가
	H3n	가
T	T2	T21
	T3	가 (精度) 가 가 가 가 가 T3 T36
	T4	가 4 가 7N01 1 가 T4 T42
	T5	가 6063 가 () 가
	T6	가 T6 T62
	T8	가 가 가

) JIS

W : 가 W
T1 :

T9 : , 가 9 가
T10 : T5 가 T3, T4, T6, T8

TX51 : 1 3%
TX52 : 1 5%
TX53 :

()

		()		() ¹⁾
2011	T 3 T 8	520 530 "	"	- 160 14h
2014	T 4, T 42, T 3	495 505	"	-
	T 4, T 42	"	"	-
	T 4	"	"	-
	T 6, T 62	"	"	170 180 8 12h
	T 6, T 62	"	"	150 160 17 20h ⁴⁾
	T 6	"	"	170 180 8 12h " "
2017	T 4, T 42, T 3	495 510	"	-
	T 4, T 42	"	"	-
	T 4	"	"	-
2117	T 4	475 500		-
2018	T 61	505 520	(熱湯)	165 175 8 12h
2218	T 61	505 515	(")	165 175 8 12h
2025	T 4, T 42, T 3, T 36	490 500	"	-
	T 4, T 42	480 500	"	-
	T 4, T 42	490 500	"	-
	T 4	"	"	-
	T 62	490 500	"	190 195 16h
	T 62	"	"	" 11 13h ⁵⁾ " 16h
2028	T 6	510 520		165 175 6 14h
2N01	T 6	520 530		160 170 12 20h
4032	T 6	505 520		165 175 8 12h
6061	T 4, T 42	515 550	"	-
	T 4	"	"	-
	T 6, T 62	"	"	170 180 7.5 8.5h
	T 6	"	"	" "
6063	T 5	-	-	205 1h
	T 6	515 525	²⁾	170 8h
6151	T 6	510 525	³⁾	165 175 8 12h
7075	T 6, T 62	460 500		115 125 22h
	T 6, T 62	460 470		" "
	T 6	460 475		" 24 28h
7N01	T 4	450		-
	T 5	-		120 24h
	T 6	450		" "

- 1) 가 12mm 가 12mm 가 30 가 .
- 2) 1.3mm 490 500 가 .
- 3) 460 500 .
- 4) .
- 5) 가 6mm .

1080	340	4 10	5083	340	4 10	1)
1070		"	5154		"	
1050		"	5N01		"	
1100		"	2014	340	4 10	2)
1200		"	2017		"	
3003	4 10		2024		"	
3203		"	6061		"	
5005	340	4 10	7075	340	4 10	3)
5052		"	7N01	4 10		
5056		"				

) 1) _0FH .

2) 4 10 가 1 .

260 28 . 260

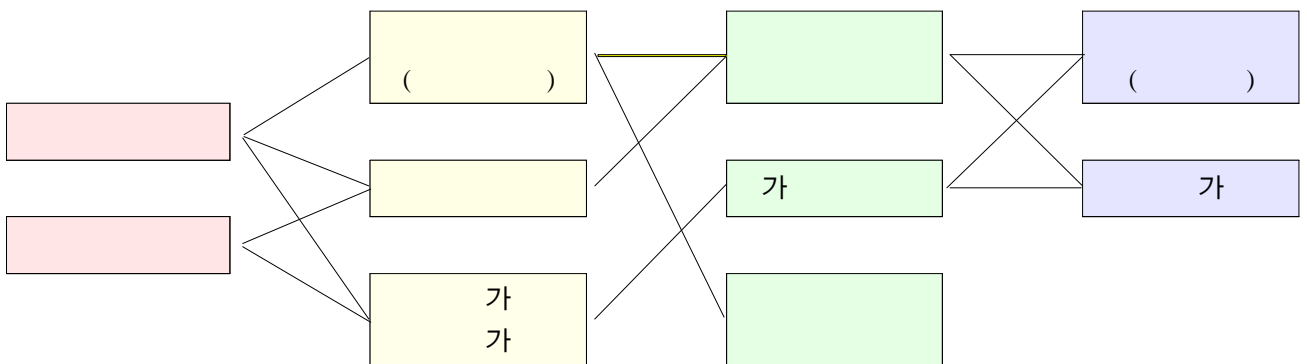
3) 4 10 455 가 (가 가
가 .) 2 230 가

6 .

< 5 >

	()	(h)	()	(h)	()	(h)	()	(h)
AC1A - T 6	515	10	160	8	515	10	160	8
AC2A - T 6	" 510	" 8	" 160	" 10	" 510	" 8	" 160	" 10
AC2A - T 6	" 500	" 10	" 160	" 5	" 500	" 10	" 160	" 5
AC4A - T 6	" 525	" 10	" 170	" 9	" 525	" 10	" 170	" 9
AC4A - T 6	" 500	" 10	" 160	" 7	" 500	" 10	" 160	" 7
AC4A - T 6	-	-	" 225	" 5	-	-	" 225	" 5
- T 6	525	8	" 160	" 6	525	8	" 160	" 6
- T 6 1	" 525	" 8	" 170	" 7	" 525	" 8	" 170	" 7
AC4D - T 5	-	-	" 225	" 5	-	-	" 225	" 5
- T 6	525	10	" 160	" 10	525	10	" 160	" 10
AC5A - T 6	" 520	" 7	" 200	" 5	" 520	" 7	" 200	" 5
- T 7	" 520	" 7	" 300	" 4	" 520	" 7	" 320	" 4
AC7B - T 4	" 430	" 18	-	-	" 430	" 18	-	-
AC8A - T 5	-	-	180	8	-	-	-	-
- T 6	520	4	" 170	" 10	-	-	-	-
AC8B - T 5	-	-	" 180	" 8	-	-	-	-
- T 6	520	4	" 170	" 10	-	-	-	-
AC8C - T 5	-	-	" 180	" 8	-	-	-	-
- T 6	520	4	" 170	" 10	-	-	-	-

< 6 >



1. (溶體化)

()

500

가

가

()

()가

가 () 가 ()

(靜的)

가 ()

가 (因子)

(1)

가

(2)

가 (冷媒)

(3)

()
()가

(4)

(Young's modules), , , 가

(A)

1)

(溫水)
1 ()
. 80 , , (衝風) 20%

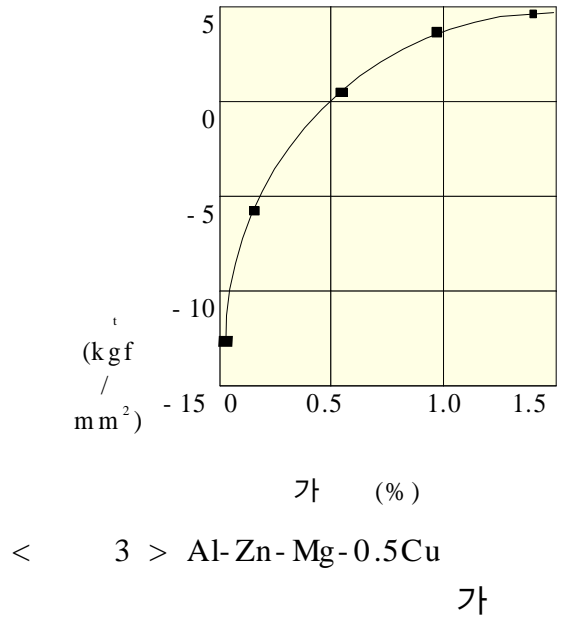
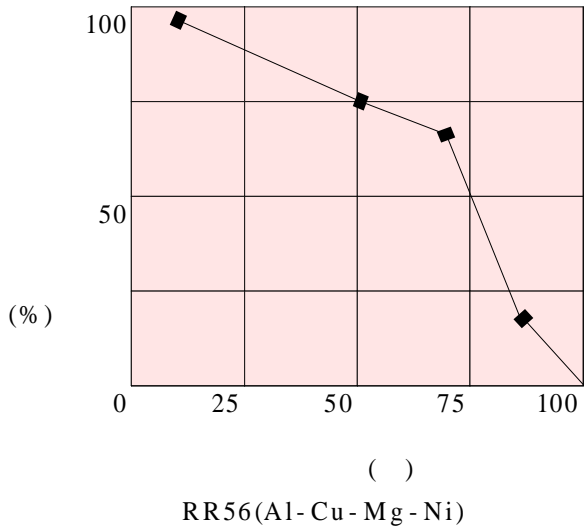
2)

(polyalkylene glycol)
가 가 (逆用解性)
가
가 70 90

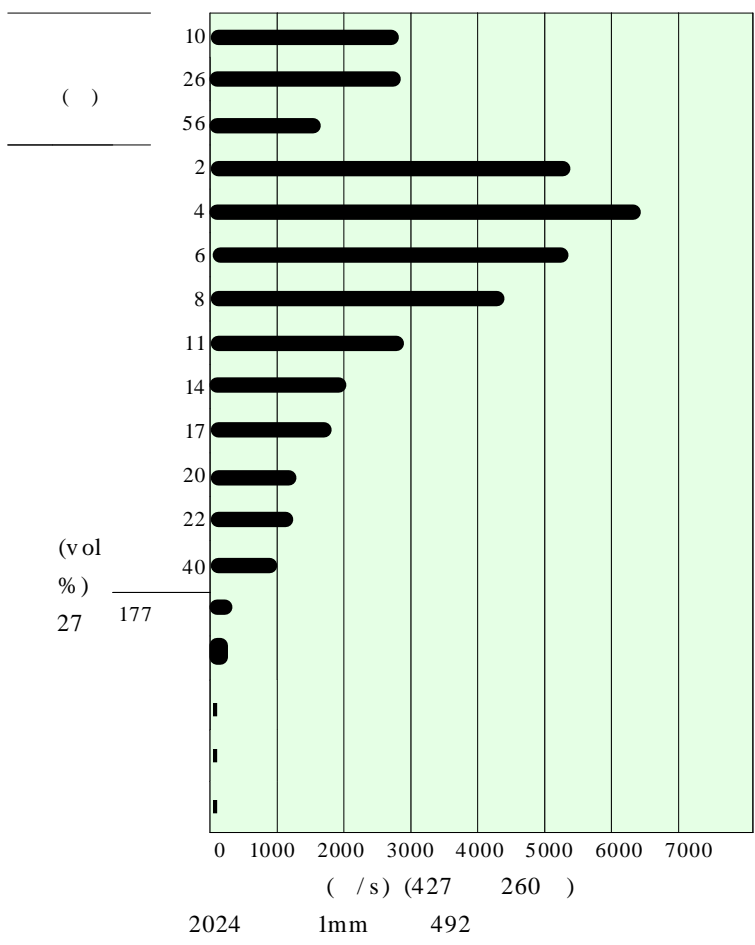
가

2

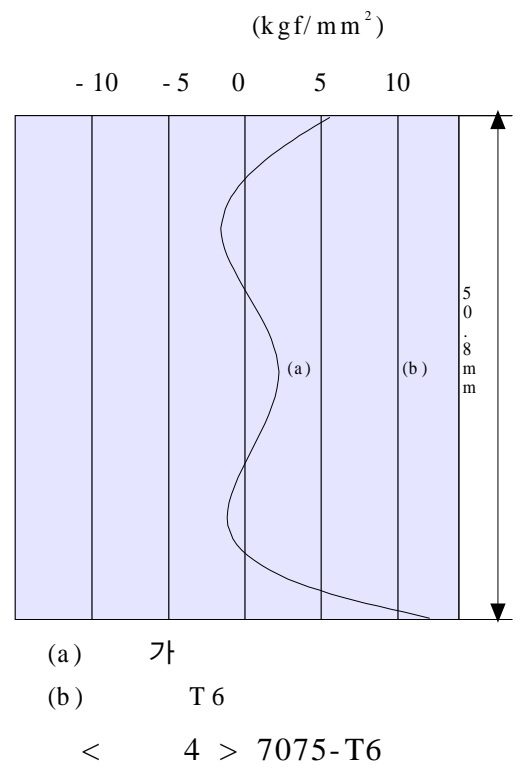
()



< 1 >



< 2 >



(B)

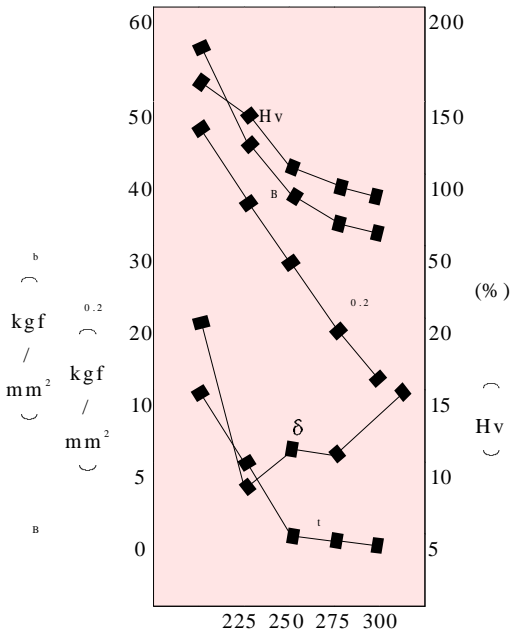
1)

가 (圓周) 3 (館) 가 (外表面)
0.5%

2) 가 (uphill quenching)

(-196)

가 (熱履歴) 가
4 7075 가



< 5 > A2024 TD-T3 (φ63 × φ58) 가

< 7 > Al-Zn-Mg-0.5Cu

	B (kgf/mm²)	0.2 (kgf/mm²)	(%)	l (kgf/mm²)
x 3 120 x 24h	53.7	49.0	9.7	- 12.5
x 3 120 x 24h 180 x 3h	53.6	48.8	10.0	- 8.2

3)

() 가 5 A2024-T3
120 x 24 7075 Al-Zn-Mg 7
180 x 3 2

1.

(B)

(b 1- ank)

6

(眞圓度)

O F

가

가

2 (相)

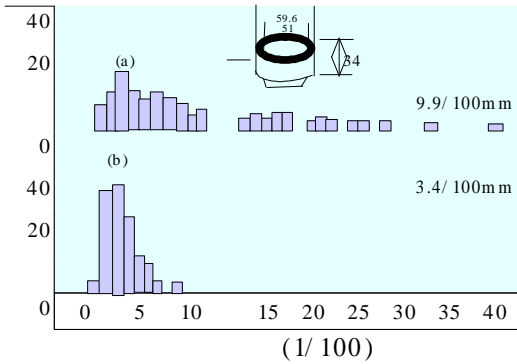
가

7 2014, 2024, 6061, 7075

8 2014, 6061, 7075

(析出相)

가

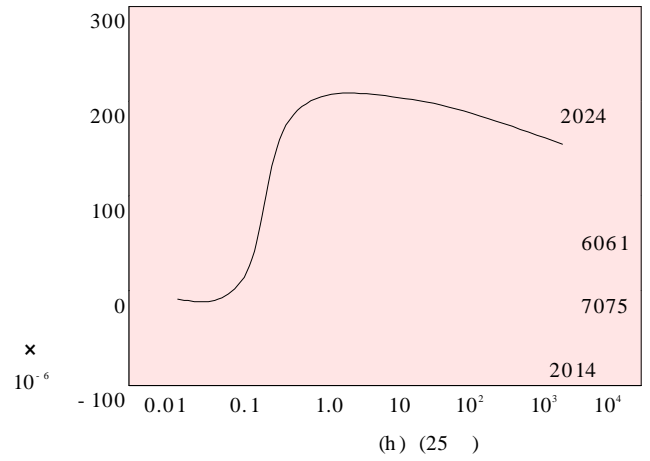


1 1000

: 100

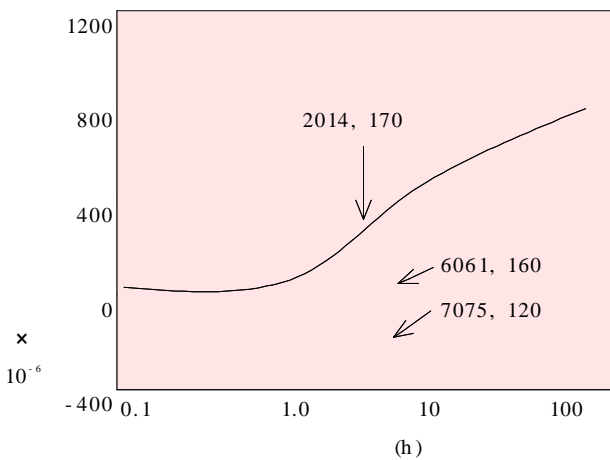
(a)

(b)

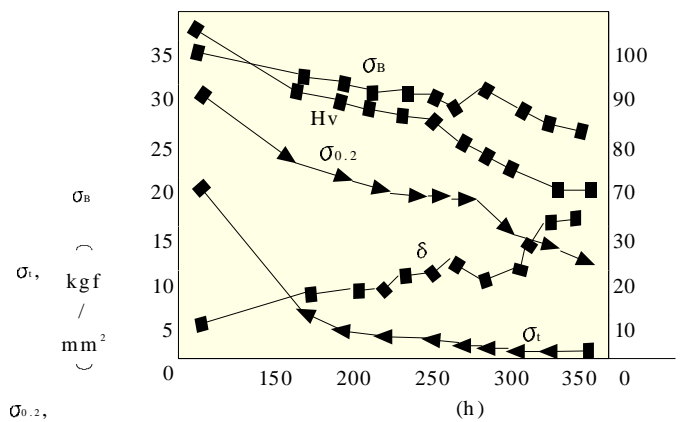


< 6 > Al-Mg-Si

< 7 >



< 8 > T6



< 9 > A5056TD-H₁₂(φ64×φ56)
가

()

< 8 > A5056TD_H12 (φ64×φ56) 가

Al-Si-(Mg)	AC3A, AC4A, AC4C	, 0.08 0.12%
Al-Si-Cu-(Mg)-(Ni)	AC2A, AC2B, AC4B, AC4D, AC8A, AC8B, AC8C	, 0.08 0.12%
Al-Cu	AC1A, 2025	, 0.16%
Al-Mg	AC7B	, 0.15%
Al-Cu-Mg-(Ni)	AC5A, 2024	
Al-Zn-Mg	Ternalloy7, 40 E, 7075	

2. (非)

가 가 가
(硬質)
Al-Mg 가 150 가
9 A5056-H12 가
200 250 H₃₂(32kgf/mm²)

3.

T₅, T₇ 가
가
Cu 가 Cu
T₅ 200 250
가
T₇
(溫水) T₆ T₆
가 가
8 가 가
가 T₄, T₆ T₅, T₇

250 가 (氣孔) .

가 가 .
(冷却槽)

(展神材) 가 , 가 .
, 가 .