



Primary aluminium Casting Alloys

RHEINFELDEN ALLOYS

Leporello



Quick finder for selecting the right alloy

The first step in producing a casting is to select the alloy most suited to the production process and requirements. The table covering these two pages provides an overview of our most common materials, their areas of use and properties. It will help you choose the right casting material. This table is no substitute for the service provided by our technical advisors, but does provide an overview and allows users to access the information as and when they need it.

Areas of use

Alloy	Chemical denomination	Architecture	Fittings	Cars	Builder's hardware	Lighting	Aircraft	Heavy casting	Domestic appliances	Electrical conductors	Air conditioning	Automotive engineering	Manufacture of engines	Art casting	Foodstuffs industry	Mechanical engineering	Model/mould construction	Optics/furniture	Shipbuilding	Chemical industry	Textile industry	Defence engineering	
Anticorodal-04	AlSi0,5Mg								x					x	x		x		x				
Anticorodal-50	AlSi5Mg	x	x			x		x		x			x	x	x	x	x	x	x	x			
Anticorodal-70	AlSi7Mg0,3	x	x	x		x	x	x		x	x	x	x	x	x	x			x	x		x	
Anticorodal-78dv	AlSi7Mg0,3	x		x			x				x	x			x	x			x	x	x	x	
Anticorodal-71	AlSi7Mg0,3								x														
Anticorodal-72	AlSi7Mg0,6	x					x	x			x				x	x	x		x	x		x	
Silafont-30	AlSi9Mg		x	x		x		x	x	x	x	x	x	x	x	x			x		x	x	x
Silafont-36	AlSi10MnMg	x	x	x		x	x	x		x	x				x	x			x				x
Silafont-09	AlSi9		x	x		x		x		x	x				x	x			x				x
Silafont-13	AlSi11	x						x		x					x	x							
Silafont-20	AlSi11Mg	x		x			x				x				x	x							
Silafont-70	AlSi12CuNiMg			x							x												
Silafont-90	AlSi17Cu4Mg			x							x												
Castasil-37	AlSi9MnMoZr	x		x		x	x	x		x	x				x	x			x				x
Castasil-21	AlSi9Sr			x					x	x						x			x				
Unifont-90	AlZn10Si8Mg							x	x							x	x	x			x	x	
Unifont-94	AlZn10Si8Mg			x							x					x		x					
Castadur-30	AlZn3Mg3Cr	x		x		x		x			x		x				x	x					
Castadur-50	AlZn5Mg	x				x		x					x			x	x	x					
Peraluman-30	AlMg3	x	x		x	x		x		x				x	x	x	x	x	x	x			
Peraluman-36	AlMg3Si	x	x		x	x		x	x					x	x	x	x	x		x			
Peraluman-50	AlMg5	x	x		x	x		x		x				x	x			x	x	x			
Peraluman-56	AlMg5Si	x	x			x		x		x				x	x	x		x	x	x			
Magsimal-59	AlMg5Si5Mn	x		x			x	x		x	x				x	x		x	x	x			
Alufont-47	AlCu4TiMg			x							x					x					x	x	
Alufont-48	AlCu4TiMgAg			x							x	x				x							x
Alufont-52	AlCu4Ti			x							x	x				x					x	x	
Alufont-60	AlCu5NiCoSbZr			x								x											x
Thermodur-72	AlMg7Si3Mn			x								x											
Thermodur-73	AlSi11Cu2Ni2Mg2Mn			x								x											
Rotoren-Al 99,7	Al99,7			x		x			x						x		x	x		x			
Aluman-16	AlMn1,6			x						x	x					x							

Tables for selecting alloys

The tables will aid designers in selecting the suitable casting alloy for the casting they are producing.

They contain details of the 0.2% yield tensile strength, elongation and corrosion resistance.

The values indicate the performance of the alloys which can be achieved through appropriate casting technology work in the casting or its sub-sections.

Sand casting, as-cast state

		0.2% yield tensile strength $R_{p0.2}$ [N/mm ²]		
		60–120	90–160	200–230
Elongation A [%]	0.5–3		Silafont-70 Silafont-20	Unifont-90 T1
	3–6	Anticorodal-70/-78 dv Silafont-30 Peraluman-30/-36 Peraluman-50	Anticorodal-50 Peraluman-56 Castadur-50	
	6–13	Silafont-13	Castadur-30	

Sand casting, heat-treated

		0.2% yield tensile strength $R_{p0.2}$ [N/mm ²]		
		90–160	160–300	300–450
Elongation A [%]	0.3–3	Peraluman-56 T6	Anticorodal-50 T6 Anticorodal-72 T6 Silafont-20 T6 Silafont-70 T6	
	2–5		Anticorodal-70/-78 dv T6 Silafont-30 T6 Peraluman-36	Alufont-47 T6 Alufont-48 T6 Alufont-52 T6
	4–8	Anticorodal-70/-78 dv T64 Silafont-13 O Peraluman-30 T6	Anticorodal-50 T4 Alufont-47 T4 Alufont-48 T64 Alufont-52 T64	

Gravity die casting, as-cast state

		0.2% yield tensile strength $R_{p0.2}$ [N/mm ²]		
		70–100	90–180	180–260
Elongation A [%]	0.5–2			Silafont-70 Silafont-90
	2–6	Peraluman-36	Anticorodal-50 Anticorodal-70 Silafont-30 Peraluman-56	Unifont-90 T1
	6–20	Peraluman-30	Silafont-13 Silafont-20 Peraluman-50	

Tables for selecting alloys

Gravity die casting, heat-treated

Elongation A [%]	0.2% yield tensile strength $R_{p0.2}$ [N/mm ²]		
	120–200	200–300	300–450
0.5–4		Anticorodal-50 T6	Silafont-70 T6 Silafont-90 T6 Alufont-36 T6
4–8	Anticorodal-50 T4 Peraluman-56 T6	Anticorodal-70/-78 dv T6 Anticorodal-72 T64 Silafont-30 T6 Silafont-20 T6	Alufont-47 T6 Alufont-48 T6 Alufont-52 T6
8–12	Anticorodal-70/-78 dv T64 Silafont-13 O Peraluman-30 T6	Alufont-47 T4 Alufont-52 T64	

High pressure die casting

Elongation A [%]	0.2% yield tensile strength $R_{p0.2}$ [N/mm ²]		
	80–120	120–220	220–280
0.4–1			Silafont-90
1–5			Unifont-94 T1
5–20	Anticorodal-04 Silafont-36 T4 Aluman-16 Castasil-21	Silafont-09 Silafont-36 T7 Magsimal-59 Castasil-37 Silafont-36 T5	Silafont-36 T6

Corrosion resistance

	Castability			
	average	good	very good	excellent
with surface protection	Alufont-47/-48 Alufont-52/-60 Silafont-90	Silafont-70		
from weathering	Castadur-30/-50		Silafont-30 Unifont-90 Unifont-94 Castasil-37	Silafont-13 Silafont-20 Silafont-09 Silafont-36
from salt water	Anticorodal-04 Peraluman-30/-36 Peraluman-50/-56	Anticorodal-50 Anticorodal-70/-78dv Anticorodal-71 Anticorodal-72	Magsimal-59	

Mechanical properties

For sand and permanent mold castings, the mechanical properties were determined on both separately cast test bars and on samples taken from the castings. For diecastings, only separately cast plates or bars were used. The mechanical property ranges demonstrate the performance of the alloys, as well as the effects of casting method and alloy choice. Maximum values serve only as indication of values that can be achieved within a casting or one part of a casting when the most favorable casting method and the best cast-

Alloy denomination	Chemical denomination	Casting process		0.2%-Yield tensile strength	Ultimate tensile strength	Elongation	Brinell hardness	Fatigue resistance*
		Treatment state		R _{p0.2} N/mm ²	R _m N/mm ²	A %	HBW 5/250-30	σ _{bw} N/mm
Anticorodal-04	AlSi0,5Mg	S	F	60-100 (50)	90-130 (80)	15-20 (10)	35-40 (35)	
		S	T7	160-180 (150)	190-210 (180)	3-5 (3)	70-75 (70)	
		K	F	80-120 (70)	100-140 (90)	18-22 (12)	40-45 (40)	
		K	T7	170-190 (150)	200-220 (190)	3-6 (3)	70-80 (70)	
		D	F	80-120	100-140	7-12	40-45	
Anticorodal-50	AlSi5Mg	S	F	100-130 (90)	140-180 (130)	2-4 (1)	60-70 (55)	60-65
		S	T4	150-180 (120)	200-270 (150)	4-10 (2)	75-90 (70)	70-75
		S	T6	220-290 (160)	260-320 (180)	2-4 (1)	95-115 (85)	70-75
		K	F	120-160 (100)	160-200 (140)	2-5 (1)	60-75 (60)	70-75
		K	T4	160-190 (130)	210-270 (170)	5-10 (3)	75-90 (70)	80-85
		K	T6	240-290 (180)	260-320 (190)	2-7 (1)	100-115 (90)	80-85
Anticorodal-70 42 100	AlSi7Mg0,3	S	F	80-140 (80)	140-220 (140)	2-6 (2)	45-60 (45)	
		S	T64	120-170 (120)	200-270 (200)	4-10 (4)	60-80 (55)	
		S	T6	220-280(200)	240-320 (240)	3-6 (2,5)	80-110 (80)	90-100
		K	F	90-150 (90)	180-240 (180)	4-9 (2)	55-70 (50)	
		K	T64	180-200 (140)	250-270 (220)	8-12 (5)	80-95 (80)	
		K	T6	220-280(200)	290-340 (250)	5-9 (3,5)	90-125 (90)	
Anticorodal-71	AlSi7Mg0,3	S	T7	160-200 (150)	220-250 (210)	2-4 (2)	70-80 (70)	
		K	T7	160-200 (150)	220-250 (210)	4-6 (3)	70-80 (70)	
Anticorodal-72 42 200	AlSi7Mg0,6	S	T6	220-280(220)	250-320 (250)	1-2 (1)	90-110 (90)	90-110
		K	T64	210-240 (150)	290-320 (230)	6-8 (3)	90-100 (90)	
		K	T6	240-280(220)	320-350 (270)	4-6 (2,5)	100-115 (100)	110-115
Silafont-30 43 300	AlSi9Mg	S	F	80-140 (80)	160-220 (150)	2-6 (2)	50-70 (50)	65-75
		S	T6	200-310 (180)	250-330 (220)	2-5 (2)	80-115 (75)	80-100
		K	F	90-150 (90)	180-240 (180)	2-9 (2)	60-80 (60)	80-100
		K	T64	180-210 (140)	250-290 (220)	6-10 (3)	80-90 (80)	
		K	T6	210-310 (190)	290-360 (240)	4-7 (2)	90-120 (90)	90-110
Silafont-36 43 500	AlSi10MnMg	D	F	120-150	250-290	5-11	75-95	80-90
		D	T5	155-245	275-340	4-9	80-110	80-90
		D	T4	95-140	210-260	15-22	60-75	80-90
		D	T6	210-280	290-340	7-12	90-110	80-90
		D	T7	120-170	200-240	15-20	60-75	
Silafont-09 44 400	AlSi9	D	F	120-180	220-280	4-8	55-80	60-70
Silafont-13	AlSi11	S	F	70-120 (70)	150-210 (150)	7-13 (6)	45-60 (45)	55-70
		S	O	60-120 (60)	150-210 (150)	9-15 (8)	45-60 (45)	85-100
		K	F	80-150 (80)	170-240 (160)	7-16 (6)	45-60 (45)	70-90
		K	O	60-120 (60)	180-240 (160)	10-18 (10)	45-65 (45)	90-110
Silafont-20 44 000	AlSi11Mg	S	F	80-140 (70)	170-220 (170)	2-4 (1,5)	50-60 (50)	65-75
		S	T6	120-300 (110)	200-320 (200)	1-3 (0,5)	65-120 (55)	90-120
		K	F	80-130 (80)	180-230 (180)	3-16 (3)	55-75 (55)	80-100
		K	T6	125-320 (120)	210-350 (210)	4-15 (3)	70-125 (70)	100-120
Silafont-70 48 000	AlSi12CuNiMg	S	F	120-170 (110)	130-180 (120)	0,5-1,5 (0,5)	80-90 (80)	75-85
		S	T6	200-300 (190)	220-300 (200)	0,3-1,0 (0,3)	130-160 (130)	95-105
		S	T5	140-190 (140)	160-190 (160)	0,2-1,0 (0,2)	80-90 (80)	
		K	F	190-260 (180)	200-270 (190)	1,0-2,5 (0,5)	90-105 (90)	80-90
		K	T6	320-390(280)	350-400(300)	0,5-2,0 (0,5)	135-160(130)	100-110
		K	T5	185-210 (150)	200-230 (180)	0,5-2,0 (0,5)	90-110 (90)	
Silafont-90	AlSi17Cu4Mg	K	F	170-225 (160)	180-235 (170)	0,4-0,9 (0,3)	110-120 (110)	
		K	T5	160-225 (160)	165-230 (165)	0,4-0,8 (0,3)	105-115 (110)	
		D	T5	220-265	230-295	0,5-1,0	110-120	
Castasil-37	AlSi9MnMoZr	D 2-3mm	F	120-150	260-300	10-14	60-75	
		D 3-5mm	F	100-130	230-280	10-14	60-75	80-95
		D 5-7mm	F	80-110	200-250	10-14	60-75	

ing techniques are used. Values in parentheses represent minimum values for castings with wall thicknesses up to 20 mm. Metal impurities - particularly elevated iron content - influence the properties of aluminium casting alloys. The primary alloys supplied by RHEINFELDEN contain less than 0.15% Fe unless higher values are necessary. The narrow alloying limits of our alloys assure stable casting behaviour and other properties.

Alloy denomination	Chemical denomination	Casting process		0.2%-Yield tensile strength	Ultimate tensile strength	Elongation	Brinell hardness	Fatigue resistance*
		Numerical denomination	Treatment state	R _{p0.2} N/mm ²	R _m N/mm ²	A %	HBW 5/250-30	σ _{bw} N/mm
Castasil-21	AlSi9Sr	D	F	85-100	200-230	6-15	55-70	
Unifont-90	71 100 AlZn10Si8Mg	S	T1	190-230 (170)	220-250 (180)	1-2 (1)	90-100 (90)	80-100
		K	T1	220-250 (220)	280-320 (230)	1-4 (1)	100-120 (95)	90-110
Unifont-94	AlZn10Si8Mg	D	T1	230-280	300-350	1-4	105-120	70-90
Castadur-30	AlZn3Mg3Cr	K	T1	140-160	260-290	10-20	75-85	
Castadur-50	AlZn5Mg	S	T1	160-200	220-280	5-10	75-85	
Peraluman-30	51 100 AlMg3	S	F	70-100 (60)	170-190 (140)	4-8 (4)	50-60 (45)	70-80
		S	T6	140-160 (110)	200-240 (160)	6-8 (5)	65-75 (60)	75-85
		K	F	70-100 (70)	170-210 (150)	9-16 (6)	50-60 (50)	90-100
		K	T6	140-160 (110)	240-260 (180)	15-20 (12)	70-80 (70)	100-110
Peraluman-36	AlMg3Si	S	F	80-100 (70)	140-190 (130)	3-8 (3)	50-60 (45)	60-65
		S	T6	160-220 (140)	220-280 (180)	2-8 (2)	70-90 (65)	75-80
		K	F	70-100 (70)	160-210 (160)	6-14 (5)	50-65 (50)	70-80
		K	T6	160-220 (150)	250-300 (220)	5-15 (5)	75-90 (75)	80-90
Peraluman-50	51 300 AlMg5	S	F	100-120 (90)	190-250 (170)	10-15 (8)	55-70 (50)	60-80
		K	F	100-140 (100)	200-260 (180)	10-25 (8)	60-75 (55)	70-80
Peraluman-56	51 400 AlMg5Si	S	F	110-130 (100)	160-200 (140)	3-4 (2)	60-80 (55)	60-80
		S	T6	110-160 (110)	180-220 (160)	3-4 (2)	70-80 (65)	70-90
		K	F	110-150 (100)	180-240 (150)	3-5 (3)	65-85 (60)	70-80
		K	T6	110-160 (110)	210-260 (200)	3-18 (5)	75-85 (70)	70-90
Magsimal-59	51 500 AlMg5Si2Mn	D	2-4 mm F	160-220	310-340	12-18	> 80	100-110
		D	4-6 mm F	140-170	250-320	9-14	> 80	90-110
		D	6-12 mm F	120-145	220-260	8-12	> 70	
Alufont-47	21 000 AlCu4MgTi	S	T4	220-280 (180)	300-400 (240)	5-15 (3)	90-115 (85)	80-100
		S	T6	240-350 (220)	350-420 (280)	3-10 (1)	95-125 (90)	80-100
		K	T4	220-300 (200)	320-420 (280)	8-18 (5)	95-115 (90)	100-110
Alufont-48	AlCu4MgAgTi	S	T64	200-270 (180)	370-430 (320)	14-18 (7)	105-120 (100)	
		S	T6	410-450 (320)	460-510 (380)	3-7 (2)	130-150 (125)	80-100
		K	T6	410-460 (340)	460-510 (440)	5-8 (3)	130-150 (130)	100-110
Alufont-52	21 100 AlCu4Ti	S	T64	210-240 (180)	300-360 (260)	8-15 (4)	90-100 (90)	80-100
		S	T6	300-420 (280)	400-475 (350)	3-4 (2)	125-145 (120)	80-100
		K	T64	210-250 (190)	360-400 (300)	12-20 (10)	90-120 (90)	100-110
		K	T6	310-400 (300)	420-475 (400)	7-16 (4)	130-145 (130)	100-110
Alufont-60	AlCu5NiCoSbZr	S	T7	145-165 (140)	180-220 (180)	1-1.5 (1)	85-95 (85)	90-100
		S	O	160-180 (160)	180-200 (180)	1-1.5 (1)	80-90 (80)	90-100
Thermodur-72	AlMg7Si3Mn	D	20 °C	190-220	350-370	7-10	80-100	
		D	300 °C/90 min	220-240	350-370	7-9	90-110	
		D	350 °C/90 min	140-160	290-320	9-12	75-90	
		D	380 °C/90 min	120-150	280-310	15-18	75-90	
Thermodur-73	AlSi11Mg2Cu2Ni2	D	20 °C	300	320	1		
		D	225 °C/500 h ¹⁾	155		2		
		D	225 °C/500 h ¹⁾	65		38		
Rotoren-Al 99,7R	Al99,7	D	F	20-40	80-120	10-25	15-25	
Aluman-16	AlMn1,6	D	F	90-120	160-180	8-15	40-60	

The details relating to the casting method use the following abbreviations:

- S Sand casting
- K Gravity die casting
- D High pressure die casting

Treatment state

- F As-cast state
- O Annealed
- T1 Self-aged
- T4 Naturally aged
- T5 Stabilised
- T6 Artificially aged
- T64 Partially aged
- T7 Overaged

¹⁾ Long-term aged and tested at ageing temperature

* Important information relating to the fatigue resistance details can be found in the chapter on the fatigue strength of aluminium castings on page 111 of our full catalogue.

Compositions

Alloys of a consistently high purity are key to producing high-quality castings. The RHEINFELDEN ALLOYS quality system allows this level of purity to be met.

The main alloy components are printed in bold. Individual values in the table are the maximum contents of alloy and accompanying elements. The alloys which RHEINFELDEN ALLOYS supplies sometimes have narrower alloy component ranges and a lower content of impurity than stipulated in the standard. This ensures good uniformity in the casting process and other properties.

European standard EN 1676 for alloyed aluminium in ingots applies. The numerical alloy denomination is based on the European standard (EN). Alloys without these denominations are not included in the EN. Alloys with special compositions can be produced by agreement.

In the case of aluminium-silicon alloys, on request a modified microstructure with sodium (modified subsequently or in advance) or strontium (permanently modified) can be set rather than the granular microstructure. This choice is indicated by the denomination (Na/Sr) in the last column.

Brand name	Chemical Denomination	Number EN 1676	Composition [weight-%]							
			Si	Fe	Cu	Mn	Mg	Zn	Ti	other
Anticorodal-04	AlSi0,5Mg		0,3–0,6	0,8	0,01	0,01	0,3–0,6	0,07	0,01	
Anticorodal-50	AlSi5Mg		5,0–6,0	0,15	0,02	0,10	0,4–0,8	0,10	0,20	
Anticorodal-70	AlSi7Mg0,3	42 100	6,5–7,5	0,15	0,02	0,10	0,30–0,45	0,07	0,18	(Na/Sr)
Anticorodal-78dv	AlSi7Mg0,3	42 100	6,5–7,5	0,15	0,02	0,05	0,30–0,45	0,07	0,18	Sr
Anticorodal-71	AlSi7Mg0,3		6,5–7,5	0,15	0,01	0,01	0,30–0,45	0,07	0,01	(Na/Sr)
Anticorodal-72	AlSi7Mg0,6	42 200	6,5–7,5	0,15	0,02	0,05	0,50–0,70	0,07	0,18	(Na/Sr)
Silafont-30	AlSi9Mg	43 300	9,0–10,0	0,15	0,02	0,05	0,30–0,45	0,07	0,15	(Na/Sr)
Silafont-36	AlSi10MnMg	43 500	9,5–11,5	0,15	0,03	0,5–0,8	0,1–0,5	0,07	0,15	Sr
Silafont-09	AlSi9	44 400	9,5–10,6	0,4	0,02	0,4	0,05	0,10	0,10	
Silafont-13	AlSi11		10,0–13,5	0,15	0,02	0,05	0,05	0,07	0,15	(Na/Sr)
Silafont-20	AlSi11Mg	44 000	10,0–11,8	0,15	0,02	0,05	0,10–0,45	0,07	0,15	(Na/Sr)
Silafont-70	AlSi12CuNiMg	48 000	11,0–13,5	0,15	0,8–1,3	0,05	0,9–1,3	0,10	0,10	0,8–1,3 Ni
Silafont-90	AlSi17Cu4Mg		16,0–18,0	0,3	4,0–5,0	0,15	0,5–0,6	0,10	0,20	
Castasil-37	AlSi9MnMoZr		8,5–10,5	0,15	0,05	0,35–0,6	0,06	0,07	0,15	0,1–0,3 Mo 0,1–0,3 Zr; Sr
Castasil-21	AlSi9Sr		8,0–9,0	0,5–0,7	0,02	0,01	0,03	0,07	0,01	Sr
Unifont-90	AlZn10Si8Mg	71 100	8,5–9,3	0,15	0,03	0,10	0,3–0,5	9,0–10,0	0,15	(Na/Sr)
Unifont-94	AlZn10Si8Mg		8,5–9,5	0,2–0,4	0,03	0,2–0,4	0,3–0,5	9,0–10,0	0,10	
Castadur-30	AlZn3Mg3Cr		0,15	0,2	0,05	0,1–0,2	2,5–3,0	2,2–2,8	0,15	0,2–0,4 Cr; Be
Castadur-50	AlZn5Mg		0,15	0,2	0,05	0,1–0,2	0,4–0,8	4,9–5,8	0,15	0,2–0,4 Cr
Peraluman-30	AlMg3	51 100	0,45	0,15	0,02	0,01–0,4	2,7–3,5	0,10	0,01–0,15	Be
Peraluman-36	AlMg3Si		0,9–1,3	0,15	0,02	0,01–0,4	2,7–3,5	0,10	0,01–0,15	Be
Peraluman-50	AlMg5	51 300	0,30	0,15	0,02	0,01–0,4	4,8–5,5	0,10	0,01–0,15	Be
Peraluman-56	AlMg5Si	51 400	0,9–1,3	0,15	0,02	0,01–0,4	4,8–5,5	0,10	0,01–0,15	Be
Magsimal-59	AlMg5Si2Mn	51 500	1,8–2,6	0,20	0,03	0,5–0,8	5,0–6,0	0,07	0,20	Be
Alufont-47	AlCu4TiMg	21 000	0,15	0,15	4,2–5,0	0,10	0,20–0,35	0,07	0,15–0,25	
Alufont-48	AlCu4TiMgAg		0,05	0,10	4,0–5,0	0,01–0,5	0,15–0,35	0,05	0,15–0,35	0,4–1,0 Ag
Alufont-52	AlCu4Ti	21 100	0,15	0,15	4,2–5,2	0,01–0,5	0,03	0,07	0,15–0,25	
Alufont-60	AlCu5NiCoSbZr		0,20	0,30	4,5–5,2	0,1–0,3	0,10	0,10	0,15–0,30	1,3–1,7 Ni 0,10–0,40 Co 0,10–0,30 Zr & Sb
Thermodur-72	AlMg7Si3Mn		3,0–3,8	0,15	0,05	0,5–0,8	7,0–8,0	0,10	0,20	Be
Thermodur-73	AlSi11Cu2Ni2Mg2Mn		10,0–11,8	0,15	1,8–2,3	0,4	1,8–2,3	0,10	0,10	1,8–2,3 Ni; Sr
Rotoren-Al 99,7R	Al99,7		0,20	0,25	0,01	0,02	0,02	0,07	0,02	Mn+Ti+V+Cr≤0,02%
Aluman-16	AlMn1,6		0,15	0,90	0,03	1,4–1,6	0,05	0,10	0,15	

Physical properties

The details of physical properties relate to heat-treatable alloys in a heat-treated state. They are heavily influenced by fluctuations in the alloy composition and the microstructure state. This explains why some of the measurement ranges are so large. The details for the melt and solidification ranges take into account the initial signs of partial melting resulting from segregation in the cast structure, which may occur in particular when heating up quickly at far below the theoretical equilibrium temperature.

Density (approx.)	Young's modulus	Linear thermal expansion coefficient 20 – 200°C	Thermal conductivity 20 – 200°C	Electrical conductivity		Linear shrinkage			Melt and solidification range
						Sand casting	Gravity die casting	HPDC	
kg/dm ³	kN/mm ²	$\frac{1}{K} \times 10^{-6}$	$\frac{W}{K \times cm}$	m/(Ω × mm ²)	% IACS	%	%	%	°C
2,67	66 – 73	23	2,0	29 – 31,5	50,0 – 54,0	1,1 – 1,2	0,8 – 1,1	0,5 – 0,7	600 – 650
2,67	65 – 75	23	1,5	21 – 26	36,0 – 45,0	1,1 – 1,2	0,8 – 1,1		550 – 625
2,66	69 – 75	22	1,6	21 – 27	36,0 – 46,5	1,1 – 1,2	0,8 – 1,1		550 – 625
2,66	69 – 75	22	1,6	21 – 27	36,0 – 46,5	1,1 – 1,2	0,8 – 1,1		550 – 625
2,66	69 – 75	22	1,8	27 – 29	46,5 – 50,0	1,1 – 1,2	0,8 – 1,1		550 – 625
2,66	71 – 75	22	1,5	20 – 26	34,5 – 45,0	1,1 – 1,2	0,8 – 1,1		550 – 625
2,65	74 – 83	21	1,5	21 – 26	36,0 – 45,0	1,0 – 1,1	0,7 – 1,0		550 – 600
2,64	74 – 83	21	1,5	21 – 26	36,0 – 45,0			0,4 – 0,6	550 – 590
2,65	62 – 78	21	1,4	18 – 24	31,0 – 42,0			0,4 – 0,6	550 – 595
2,64	65 – 81	21	1,4	17 – 27	29,5 – 46,5	1,0 – 1,1	0,7 – 1,0		565 – 585
2,64	76 – 83	21	1,4	18 – 26	31,0 – 45,0	1,0 – 1,1	0,7 – 1,0		565 – 585
2,68	77 – 83	21	1,2	16 – 22	27,5 – 38,0	1,0 – 1,1	0,7 – 1,0	0,4 – 0,6	545 – 600
2,73	77 – 83	18	1,1	14 – 17	24,0 – 29,5	0,6 – 0,8	0,4 – 0,6	0,3 – 0,5	510 – 650
2,69	68 – 75	21	1,3	18 – 22	31,0 – 38,0			0,4 – 0,6	550 – 595
2,65	62 – 78	21	1,7	25 – 28	43,5 – 45,0			0,4 – 0,6	550 – 595
2,85	74 – 80	21	1,2	16 – 20	27,5 – 34,5	1,1 – 1,2	0,8 – 1,1		550 – 650
2,85	74 – 80	21	1,2	16 – 20	27,5 – 34,5			0,5 – 0,8	550 – 650
2,74	70 – 72	24	1,2	17 – 20	29,5 – 34,5	1,0 – 1,4	0,7 – 1,1		555 – 650
2,78	71 – 74	24	1,3	18 – 21	31,0 – 36,0	1,0 – 1,4			555 – 655
2,66	63 – 73	24	1,3	16 – 23	27,5 – 40,0	1,1 – 1,5	0,8 – 1,2		560 – 650
2,66	66 – 74	24	1,2	15 – 23	26,0 – 40,0	1,1 – 1,5	0,8 – 1,2		560 – 650
2,63	63 – 73	24	1,2	15 – 21	26,0 – 36,0	1,0 – 1,4	0,7 – 1,1		545 – 645
2,63	68 – 75	24	1,1	14 – 21	24,0 – 36,0	1,0 – 1,4	0,7 – 1,1		545 – 645
2,63	70 – 80	24	1,1	14 – 16	24,0 – 27,5			0,6 – 1,1	580 – 618
2,75	65 – 72	23	1,3	17 – 23	29,5 – 40,0	1,3 – 1,5	0,8 – 1,2		540 – 650
2,79	65 – 72	23	1,3	17 – 23	29,5 – 40,0	1,3 – 1,5	0,8 – 1,2		525 – 645
2,75	65 – 73	23	1,3	17 – 23	29,5 – 40,0	1,3 – 1,5	0,8 – 1,2		540 – 650
2,84	72 – 76	22,5	1,2	17 – 21	29,5 – 36,0	1,3 – 1,5			545 – 650
2,67	65 – 70	24	2,3	34,5 – 36,5	59,5 – 63	1,5 – 1,8		1,0 – 1,4	655 – 660
2,73	65 – 72	24	1,5	20 – 26	34,5 – 45,0	1,2 – 1,5		0,8 – 1,2	645 – 660

Thermal treatment

Castings cooled in permanent molds take the shortest annealing time. Those cooled in sand take the longest. For AlCu alloys, the annealing time figures apply to castings with wall thickness to 8 mm. Castings with thicker walls should be annealed at temperatures 10 °C lower for 12–18 hours.

F	as-cast state	T5	quenched and artificially aged
O	annealed	T6	artificially aged
T1	self-aged	T64	partially aged
T4	naturally aged	T7	overaged
T5	stabilised		

Alloy	Chemical denomination	State	Solution heat treatment		Quenching water temperature °C	Ageing temperature °C	Ageing duration h
			temperature °C	duration h			
Anticorodal-04	AlSi0,5Mg	T7	520–530	6–8	20	220–240	4–6
Anticorodal-50	AlSi5Mg	T6	520–535	4–8	20	155–160	7–9
Anticorodal-70	AlSi7Mg0,3	T6	520–545	4–10	20	155–165	6–8
		T64	520–545	4–10	20	150–160	2–3
Anticorodal-78dv	AlSi7Mg0,3	T6	520–545	4–20	20	145–160	2–15
Anticorodal-71	AlSi7Mg0,3	T7	520–545	4–8	20	200–230	6–8
Anticorodal-72	AlSi7Mg0,6	T6	520–545	4–10	20	155–165	6–8
Silafont-30	AlSi9Mg	T6	520–535	6–10	20	160–170	6–8
		T5	–	–	Luft	210–230	6–8
Silafont-36	AlSi10MnMg	T6	480–490	2–5	20	155–170	2–6
		T7	480–490	1–5	20	190–230	1–3
		T4	480–490	2–5	20	15–30	120
		T5	–	–	20	155–190	2–5
Silafont-13	AlSi11	O	520–530	6–8	20		
Silafont-20	AlSi11Mg	T6	520–535	6–10	20	130–170	6–8
		T5	–	–	Luft	210–230	5–8
Silafont-70	AlSi12CuNiMg	T6	520–530	5–10	20–80	165–185	5–8
		T5	–	–	Luft	210–220	10–12
Alufont-47	AlCu4TiMg	T4	520–530	8–16	20–80	15–30	120
Alufont-48	AlCu4TiMgAg	T6	525–530	8–16	20–80	160–180	6–7
Alufont-52	AlCu4Ti	T6	525–535	8–16	20–50	160–175	6–7
		T64	525–535	8–10	20–50	135–145	6–7
Thermodur-73	AlSi11Cu2Ni2Mg2Mn	T5			Luft	210–270	10–12



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