

Mechanical Properties of Materials (DIN1725-86)

Material Designation	Casting Method and Supply Status	R _m (σ _b) N/mm ²	R _p (σ _{0.2}) N/mm ²	A (δ _s) %	HBW (HBS) 5/250	Bending Fatigue Limit Load Cycle 50 × 10 ⁶ , N/mm ²
Common Alloy						
GK-ALSi12	Gravity casting, as cast	170-230	80-110	6-12 (3)	50-65 (50)	70-80
GK-ALSi12g	Gravity casting, annealing and hardening	170-230	80-110	1-12 (4)	50-60 (50)	90-100
GK-ALSi12 (Cu)	Gravity casting, as cast	180-240 (160)	90-120 (90)	2-4 (1)	55-75 (55)	70-80
CK-ALSi10Mg	Gravity casting, as cast	180-240 (180)	90-120 (90)	2-6 (2)	60-80 (60)	80-100
CK-ALSi10Mgwa	Gravity casting, precipitation heat treatment	240-320 (220)	210-280 (190)	1-4 (1)	85-115 (80)	100-110
CK-ALSi10Mg (Cu)	Gravity casting, as cast	200-260(180)	100-140(100)	1-3(0.5)	65-85(60)	70-90
CK-ALSi10Mg (Cu) wa	Gravity casting, precipitation heat treatment	240-320(220)	210-280(190)	1-3(0.5)	85-115(80)	90-100
GK-ALSi9Cu3	Gravity casting, as cast	180-240(160)	110-160(100)	1-3(0.5)	70-110(65)	60-80
GK-ALSi6Cu4	Gravity casting, as cast	180-240(160)	120-180(110)	1-3(0.5)	75-110(65)	60-70
Special Alloy (Mainly for corrosion resistant or surface treated castings)						
CK-ALSi5Mg	Gravity casting, as cast	160-240(140)	120-160 (100)	1.5-4 (1)	60-75 (60)	70-75
CK-ALSi5Mgwa	Gravity casting, precipitation heat treatment	260-320(190)	240-290 (80)	1-3 (0.5)	90-110 (90)	80-85
GK-ALMg3	Gravity casting, as cast	150-200 (150)	70-100 (70)	5-12 (4)	50-60 (50)	70-75
GK-ALMg3Si	Gravity casting, as cast	150-200(140)	80-100(80)	4-10(4)	50-65(50)	70-80
GK-ALMg3Siwa	Gravity casting, precipitation heat treatment	220-300(220)	120-180(120)	3-10(3)	65-90(65)	80-90
GK-ALMg3 (Cu)	Gravity casting, as cast	140-200 (140)	90-110 (80)	3-8 (2)	50-65 (50)	70-80
GK-ALMg5	Gravity casting, as cast	180-240 (150)	100-140 (100)	4-10 (2)	60-75 (55)	70-80
GK-ALMg5Si	Gravity casting, as cast	180-240 (150)	110-150 (100)	2-5 (1)	65-85(60)	70-75
GD-ALMg9	Die casting, as cast	200-300	140-220	1-5	70-100	55-65
High-Strength Alloy						
GK-ALSi9Mgwa	Gravity casting, precipitation heat treatment	250-340 (240)	200-280 (190)	4-7 (3)	80-115 (80)	80
GK-ALSi7Mgwa	Gravity casting, precipitation heat treatment	250-340 (240)	200-280 (200)	5-9 (3)	80-115 (80)	90
CK-ALCu4TiTa	Gravity casting, age hardening	320-400 (260)	180-230 (170)	8-18 (4)	90-105 (85)	90-100
CK-ALCu4Tiwa	Gravity casting, precipitation heat treatment	330-400 (280)	220-270 (200)	7-12 (3)	95-110 (90)	90-100
CK-ALCu4TiMgKa	Gravity casting, age hardening	320-420 (280)	220-300 (280)	8-18 (5)	95-115 (90)	90-100