



Mechanical Properties Cross

1050 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa	%	MPa	GPa
O	80	28	40	50	69
H14	110	103	10	70	69
H16	130	124	7	78	69
H18	155	145	6	85	69

2011 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa	%	MPa	GPa
T3	380	298	15	211	70
T6	395	270	17	235	70
T8	410	310	11	240	70,4

1200 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa	%	MPa	GPa
O	100	-	20	-	-
H14	120	-	3	-	-
H24	160	-	5	-	-

2014 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa	%	MPa	GPa
O	186	90	19	125	73,1
T3,T3511	430	267	20	260	73,1
T4,T451	421	270	22	255	72,5
T6,T651	469	414	10	283	73
T8,T851-T8511	483	414	13	290	73,1

2007 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa	%	MPa	GPa
T3	370	240	6	211	70
T4	360	250	7	195	70

2017 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa	%	MPa	GPa
O	179	70	22	124	72
T4,T451	427	276	22	262	72



2024 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa	%	MPa	GPa
0	186	76	22	124	73,1
T4,T451	469	324	19	283	73,1
T6	476	393	10	283	73,1
T851	482	448	7	296	73,1

Alclad 3003 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa	%	MPa	GPa
0	110	41	40	76	69
T14	152	145	16	97	69
T16	179	170	5	104	69
T18	200	185	4	110	69

2124 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa	%	MPa	GPa
T851	485	450	8	-	73,1

Alclad 3004 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa	%	MPa	GPa
0	180	69	25	110	69
H32	214	170	17	118	69
H34	240	200	9	125	69
H36	260	228	9	137	69
H38	280	250	5	145	69

2219 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa	%	MPa	GPa
0	172	76	18	-	73,1
T3,T3511	359	248	17	-	73,1
T8,T851-T8511	455	352	10	-	73,1

3005 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa	%	MPa	GPa
0	130	55	25	83	69
H32	180	165	7	110	69
H34	240	225	4	146	69

2618 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa	%	MPa	GPa
T61	440	370	10	262	75



Mechanical Properties Cross

5052 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation %	Shear Modulus MPa	Elasticity GPa
	Rm MPa	Rp0,2 MPa			
O	193	90	28	124	70
H19 Foil	330	325	4	200	70
H32	225	195	15	138	70
H34	260	215	12	145	70
H36	275	240	9	159	70
H38	290	255	7	165	70

5086 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation %	Shear Modulus MPa	Elasticity GPa
	Rm MPa	Rp0,2 MPa			
O	260	115	22	159	71
H34	320	260	10	186	71
H112	270	130	14	160	71
H116, H32	290	205	12	175	71

5083 Special-Cut blok until 1000 mm thickness

Thickness Strength	Tensile Strength	Yield Strength	Akma Modülü	Elasticity
Rm mm	Rm MPa	Rp0,2 MPa	MPa	GPa
600	250	112	12	70
600-1000	235	110	10	70

5251 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation %	Shear Modulus MPa	Elasticity GPa
	Rm MPa	Rp0,2 MPa			
O	180	-	26	115	70
H22	210	-	14	125	70
H24	230	-	13	135	70
H26	255	-	9	145	70

5083 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation %	Shear Modulus MPa	Elasticity GPa
	Rm MPa	Rp0,2 MPa			
O	290	145	22	170	70
H19	395	370	4	240	70
H32,H323	320	250	10	195	70
H34,H343	345	280	9	210	70
H112	300	190	16	180	70
H116,H321	315	230	16	190	70

5383 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation %	Shear Modulus MPa	Elasticity GPa
	Rm MPa	Rp0,2 MPa			
H321,H116	305	220	10	185	-



Mechanical Properties Cross

5754 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa			
O, H111	215	-	25	140	68
H22	245	-	15	150	68
H24	270	-	14	160	68
H26	290	-	10	170	68

6040 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa			
T6, T651	324	296	15	-	-
T8	324	303	14	207	-
T9	365	345	10	-	-

6005 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa			
T1	170	105	16	105	69
T5	260	240	8	205	69

6060 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa			
T5	260	-	8	205	70

6009 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa			
T4	230	125	25	150	69
T6	340	320	12	200	69

6061 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa			
O	124	55	30	83	68,3
T4,T451	241	145	25	167	68,3
T6,T651	310	276	17	207	68,3

6033 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa			
T6, T651	414	393	13	269	67
T8	400	386	12	262	67

6082 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa			
T4	220	130	18	-	69
T6	324	289	12	215	69



Mechanical Properties Cross

6262 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation %	Shear Modulus MPa	Elasticity GPa
	Rm MPa	Rp0,2 MPa			
T6, T651	310	276	17	207	68
T8	352	338	15	-	68
T9	400	379	10	241	68

7068 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation %	Shear Modulus MPa	Elasticity GPa
	Rm MPa	Rp0,2 MPa			
T6, T6511	710	683	9	365	-
T76, T76511	614	572	9	-	-

7000 Special- Cut block until 500 mm

Heat Treatment (Temper)	Tensile Strength	Akma Modülü	Elongation %	Elasticity GPa
	Rm MPa	MPa		
500	370	325	4	70

7075 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation %	Shear Modulus MPa	Elasticity GPa
	Rm MPa	Rp0,2 MPa			
T651	572	503	11	331	72
T7351	503	434	13	303	72
T7651	503	434	13	303	72

7049 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation %	Shear Modulus MPa	Elasticity GPa
	Rm MPa	Rp0,2 MPa			
T6, T6511	648	592	5	-	72
T74, T74511	586	530	7	296	72
T76, T6511	538	483	7	310	72
T73, T73511	510	411	7	276	72

7175 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation %	Shear Modulus MPa	Elasticity GPa
	Rm MPa	Rp0,2 MPa			
T66	590	520	11	350	72
T74	524	455	11	310	72
T651	586	510	13	-	72
T7351	505	435	13	300	72
T7651	-	-	12	-	72
T736, T736x	550	485	12	326	72
W51	-	-	-	-	-

7050 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation %	Shear Modulus MPa	Elasticity GPa
	Rm MPa	Rp0,2 MPa			
T76, T76511	552	489	11	324	70,3
T74, T74511	524	469	11	303	70,3



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7475 Aluminium Alloys Mechanical Properties

Heat Treatment (Temper)	Tensile Strength	Yield Strength	Elongation	Shear Modulus	Elasticity
	Rm MPa	Rp0,2 MPa	%	MPa	GPa
T651	517	455	11	306	70
T761	490	421	12	290	70

1.2067 Cold Work Tool Steels Chemical Composition

Sembol	%C	%Si	%Mn	%C	%Mo	%Ni	%V	%W
100Cr6	0.95 -	0.15 -	0.25 -	1.35 -	-	-	-	-

1.2080 Cold Work Tool Steels Chemical Composition

Symbol	%C	%Si	%Mn	%C	%Mo	%Ni	%V	%W
X210c12	1.90 -	0.10 -	0.15 -	11.0 -	-	-	-	-

1.2210 Cold Work Tool Steels Chemical Composition

Symbol	%C	%Si	%Mn	%C	%Mo	%Ni	%V	%W
X210c12	1.10 - 1.25	0.15 - 0.30	0.20 - 0.40	0.50 - 0.80	-	-	0.07 - 0.12	-

1.2312 Cold Work Tool Steels Chemical Composition

Symbol	%C	%Si	%Mn	%C	%Mo	%Ni	%V	%W
40CrMnMos	0.35 -	0.30 -	1.40 -	1.80 -	-	-	-	-

1.2316 Cold Work Tool Steels Chemical Composition

Symbol	%C	%Si	%Mn	%C	%Mo	%Ni	%V	%W
X36CrMo17	0.33 -	max 1.00	max	15.0 -	1.00 - 1.30	max 1.00	-	-

1.2379 Cold Work Tool Steels Chemical Composition

Symbol	%C	%Si	%Mn	%C	%Mo	%Ni	%V	%W
X155XrVM0	1.50 -	0.10 -	0.15 -	11.0 -	0.60 - 0.90	-	0.90 - 1.10	-
121	1.60	0.40	0.45	12.0				



Mechanical Properties Cross

1.2436 Cold Work Tool Steels Chemical Composition

Symbol	%C	%Si	%Mn	%C	%Mo	%Ni	%V	%W
X210CrW12	2.00 - 2.25	0.10 - 0.40	0.15 - 0.45	11.0 - 12.0	-	-	-	0.60 - 0.80

1.2550 Cold Work Tool Steels Chemical Composition

Symbol	%C	%Si	%Mn	%C	%Mo	%Ni	%V	%W
60WCrV7	0.55 - 0.65	0.55 - 0.70	0.15 - 0.45	0.90 - 1.20	-	-	0.10 - 0.20	1.80 - 2.10

1.2842 Cold Work Tool Steels Chemical Composition

Symbol	%C	%Si	%Mn	%C	%Mo	%Ni	%V	%W
90MnCrV8	0.85 - 0.95	0.10 - 0.40	1.90 - 2.10	0.20 - 0.50	-	-	0.05 - 0.15	-

1.2343 Hot Work Tool Steels Chemical Composition

Symbol	%C	%Si	%Mn	%C	%Mo	%Ni	%V
X38CrMoV51	0.36 - 0.42	0.90 - 1.20	0.30 - 0.50	4.80 - 5.50	1.10 - 1.40	-	0.25 - 0.50

1.2344 Hot Work Tool Steels Chemical Composition

Symbol	%C	%Si	%Mn	%C	%Mo	%Ni	%V
X40CrMoV51	0.37 - 0.43	0.90 - 1.20	0.30 - 0.50	4.80 - 5.50	1.20 - 1.50	-	0.90 - 1.10

1.2365 Hot Work Tool Steels Chemical Composition

Symbol	%C	%Si	%Mn	%C	%Mo	%Ni	%V
X32CrMoV33	0.28 - 0.35	0.10 - 0.40	0.15 - 0.45	2.70 - 3.20	2.60 - 3.00	-	0.40 - 0.70

1.2713 Hot Work Tool Steels Chemical Composition

Symbol	%C	%Si	%Mn	%C	%Mo	%Ni	%V
55NiCrMoV6	0.50 - 0.60	0.10 - 0.40	0.65 - 0.95	0.60 - 0.80	0.25 - 0.35	1.50 - 1.80	0.07 - 0.12



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1.2714 Hot Work Tool Steels Chemical Composition

Symbol	%C	%Si	%Mn	%C	%Mo	%Ni	%V
56NiCrMoV7	0.50 - 0.60	0.10 - 0.40	0.65 - 0.95	1.00 - 1.20	0.45 - 0.55	1.50 - 1.80	0.07 - 0.12

1.8507 Nitration Steels Chemical Composition

Symbol	%C	%Si	%Mn	%P max	%S max	%Cr	%Mo	%Ni	%Al
34CrAlMo5	0.34 - 0.42	0.20 - 0.50	0.50 - 0.80	0.030	0.035	1.00 - 1.30	0.15 - 0.25	-	0.80 - 1.20

1.8509 Nitration Steels Chemical Composition

Symbol	%C	%Si	%Mn	%P max	%S max	%Cr	%Mo	%Ni	%Al
41CrAlMo7	0.38 - 0.45	0.20 - 0.50	0.030	0.035	1.00 - 1.30	0.25 - 0.40	-	-	0.80 - 1.20

1.8515 Nitration Steels Chemical Composition

Symbol	%C	%Si	%Mn	%P max	%S max	%Cr	%Mo	%Ni	%Al
31CrMo12	0.28 - 0.35	0.15 - 0.40	0.40 - 0.70	0.030	0.035	2.80 - 3.30	0.30 - 0.50	>0.30	-

1.8550 Nitration Steels Chemical Composition

Symbol	%C	%Si	%Mn	%P max	%S max	%Cr	%Mo	%Ni	%Al
34CrAlNi7	0.30 - 0.37	0.15 - 0.40	0.40 - 0.70	0.030	0.035	1,50 - 1.80	0.15 - 0.25	0.85 - 1.15	0.80 - 1.20

1.3202 High Speed Steels Chemical Composition

Symbol	%C	%Si	%Mn	%Co	%Cr	%Mo	%V	%W
H 12-1-4-5	1.30 - 1.45	0.45	0.40	4.50 - 0.50	3.80 - 4.50	0.70 - 1.00	3.50 - 4.00	11.5 - 12.5

1.3207 High Speed Steels Chemical Composition

Symbol	%C	%Si	%Mn	%Co	%Cr	%Mo	%V	%W
H 10-4-3-10	1.20 - 1.35	0.45	0.40	9.50 - 10.5	3.80 - 4.50	3.20 - 3.90	3.00 - 3.50	9.00 - 10.0



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1.3243 High Speed Steels Chemical Composition

Symbol	%C	%Si	%Mn	%Co	%Cr	%Mo	%V	%W
H 6-5-2-5	0.88 - 0.96	0.45	0.40	4.50 - 5.00	3.80 - 4.50	4.70 - 5.20	1.70 - 2.00	6.00 - 6.70

1.3246 High Speed Steels Chemical Composition

Symbol	%C	%Si	%Mn	%Co	%Cr	%Mo	%V	%W
H 7-4-2-5	1.05 - 1.15	0.45	0.40	4.80 - 5.20	3.80 - 5.20	3.60 - 4.00	1.70 - 1.90	6.60 - 7.10

1.3255 High Speed Steels Chemical Composition

Symbol	%C	%Si	%Mn	%Co	%Cr	%Mo	%V	%W
H 18-1-2-5	0.75 - 0.83	0.45	0.40	4.50 - 5.00	3.80 - 4.50	0.50 - 0.80	1.40 - 1.70	17.5 - 18.5

1.3342 High Speed Steels Chemical Composition

Symbol	%C	%Si	%Mn	%Co	%Cr	%Mo	%V	%W
HC 6-5-2	0.95 - 1.05	0.45	0.40	-	3.80 - 4.50	4.70 - 5.20	1.70 - 2.00	6.00 - 6.70

1.3343 High Speed Steels Chemical Composition

Symbol	%C	%Si	%Mn	%Co	%Cr	%Mo	%V	%W
H 6-5-2	0.86 - 0.94	0.45	0.40	-	3.80 - 4.50	4.70 - 5.20	1.70 - 2.00	6.00 - 6.70

1.3344 High Speed Steels Chemical Composition

Symbol	%C	%Si	%Mn	%Co	%Cr	%Mo	%V	%W
H 6-5-3	1.17 - 1.27	0.45	0.40	-	3.80 - 4.50	4.70 - 5.20	2.70 - 3.20	6.00 - 6.70

1.2738 Plastic Mold Steels Chemical Composition

Symbol	%C	%Si	%Mn	%S	%P	%Cr	%Mo	%Ni
H 6-5-3	0.40	0.30	Oca.40	0.001	0.008	2.00	0.25	1.00



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1.2083 Plastic Mold Steels Chemical Composition

Symbol	%C	%Si	%Mn	%S	%P	%Cr	%Mo	%Ni
-	0.40	0.40	0.30	0.001	0.008	12.5	-	-

1.2316 Plastic Mold Steels Chemical Composition

Symbol	%C	%Si	%Mn	%S	%P	%Cr	%Mo	%Ni
-	0.36	0.35	0.90	0.001	0.01	16.0	01.2	0.60

1.2312 Plastic Mold Steels Chemical Composition

Symbol	%C	%Si	%Mn	%S	%P	%Cr	%Mo	%Ni
-	0.40	0.35	01.5	0.05	0.008	1.9	0.12	-

1.2311 Plastic Mold Steels Chemical Composition

Symbol	%C	%Si	%Mn	%S	%P	%Cr	%Mo	%Ni
-	0.40	0.30	01.5	0.001	0.008	1.9	0.20	-

1.1730 Plastic Mold Steels Chemical Composition

Symbol	%C	%Si	%Mn	%S	%P	%Cr	%Mo	%Ni
-	0.45	0.30	0.70	0.01	0.01	-	-	-