ALLOYS FOR PROFILES

ALUMINIUM

MATERIAL CHARACTERISTICS

Heatsinks in this catalogue (if it is not specified optional) are made from aluminium allow EN AW–6060. Numerical designation 6060 at Mg Si 0.5 (upon request on some alloy 6063 profiles).
Physical state T5
Specific weight Kg/dm^3 2.7

EXTRUSION TOLERANCE

The heatsinks are produced with precision CNC machines. Standard regarding manufacturing tolerances are EN 755–9. According to specific customer requirements it is possible to reach extrusion tolerances up to 50% of the EN 755/9 standard.
Whenever there are critical dimensions that must be respected, they must be agreed in advance.

SURFACE TREATMENTS AND FINISHES

SURFACE TREATMENTS
Anodization (black, natural, gold and colored)
Pickling (degreasing – bleaching)
Chromatizing (Alodyne 1000 white)
Nickel–plating
Chromium plating
Silver–plating
Painting
Silk–screening, etc.

SURFACE FINISHES
Barrel finishing
Abrasive blasting – shot peening
Silking
Mechanical brushing, etc.

Please clearly specify if there are esthetic requirements.

COPPER

MATERIAL CHARACTERISTICS

Material composition: according to DIN1787, BS1036
Electrolytic copper CU–ETP 99.9 %

SURFACE TREATMENTS AND FINISHES

SURFACE TREATMENTS
Tinning
Silver–plating
Nickel–plating
Galvanizing (black)

SURFACE FINISHES
Silking
Mechanical brushing

MATERIALS CHARACTERISTICS

ALLOY 6060

PRIMARY ALUMINIUM - MAGNESIUM - SILICON ALLOY FOR ALLOY FORGING
Conventional alloy designation: EN AW - 6060
Numerical designation: 6060
Typical applications: design and systems extrusion

CHEMICAL COMPOSITION IN WEIGHT %

ALLOY	Cu	Fe	Mn	Mg	Zn	Si	Impurity	Al
6060	0,10	0,10 - 0,30	0,10	0,10 - 0,30	0,10	0,30 - 0,60	0,05 - 0,15	Remaining

TYPICAL PHYSICAL PROPERTIES OF EXTRUSION

ALLOY	Physical state *	Density Kg/dm³	Electrical resistance Ohm mm² mm	Thermal conductivity W/mk	Melting range °C	Thermal expansion coefficient 20-100 °Cx10^{-8}/°C	Elasticy coefficient N/mm²
6060	T1 T5 T6	2,70	0,034 0,031 0,033	193 209 201	615 - 655	23	69000

MECHANICAL PROPERTIES OF TYPICAL EXTRUSION

ALLOY	Physical state *	Tensile streght at break Rm N/mm²	Unit load of deviatium from proportionality $Rm_p0.2$ N/mm²	Elongation A %	Brinnell hardness HB
6060	0	140	80		
	F	100		22	40
	T1	125	70	18	45
	T5	185	145	16	60
	T6	205	165	15	70

TECHNOLOGICAL CHARACTERISTICS (INDICATIVE)

Physical state	Plastic deformability cold	Tool machinability	Resistance to atmospheric corrosion	Resistance to marine corrosion	Anodization	Weldability
T1	Good	Not advisable	Excellent	Good	Excellent	Excellent
T5	Good	Good	Excellent	Good	Excellent	Excellent
T6	Sufficient	Good	Excellent	Good	Excellent	Excellent

* PHYSICAL STATE
0 Extrusion blank
F Annealed
T1 Cooled subsequent to hight temperature plastic forging and natural ageing
T5 Cooled subsequent to hight temperature plastic forging and artificial ageing
T6 Solubilized, tempered and artificially aged

MATERIALS CHARACTERISTICS

ALLOY 6063

PRIMARY ALUMINIUM - MAGNESIUM - SILICON ALLOY FOR ALLOY FORGING
Conventional alloy designation: EN AW - 6063
Numerical designation: 6063
Typical applications: design and systems extrusion

CHEMICAL COMPOSITION IN WEIGHT %								
ALLOY	Cu	Fe	Mn	Mg	Zn	Si	Impurity	Al
6063	0,10	0,35	0,10	0,45 - 0,90	0,10	0,40 - 0,60	0,05 - 0,15	Remaining

TYPICAL PHYSICAL PROPERTIES OF EXTRUSION							
ALLOY	Physical state *	Density Kg/dm³	Electrical resistance Ohm mm² mm	Thermal conductivity W/mk	Melting range °C	Thermal expansion coefficient 20-100 °Cx10^{-8}/°C	Elasticy coefficient N/mm²
6063	T6	2,70	0,033	201	615 - 655	23	69000

MECHANICAL PROPERTIES OF TYPICAL EXTRUSION					
ALLOY	Physical state *	Tensile streght at break Rm N/mm²	Unit load of deviatium from proportionality $Rm_p0.2$ N/mm²	Elongation A %	Brinnell hardness HB
6063	T6	245	195	9	80

TECHNOLOGICAL CHARACTERISTICS (INDICATIVE)						
Physical state	Plastic deformability cold	Tool machinability	Resistance to atmospheric corrosion	Resistance to marine corrosion	Anodization	Weldability
T6	Sufficient	Good	Excellent	Good	Excellent	Excellent

* PHYSICAL STATE
T6 Tempered in water followed by artificial ageing