

Mechanical Properties of Aluminum Bus Conductors

The Table below shows the mechanical properties of the aluminum alloys and tempers generally used for bus conductor. From this information, the best combination of properties can be selected for a particular application. For example, where the cost of power is important, high electrical conductivity is a key factor. In outdoor applications, mechanical properties are a prime consideration. Other factors, such as yield strength and tensile strength may be taken into consideration.

Mechanical Properties of Aluminum Bus Conductor & Related Alloys

Product	Alloy and Temper	Thickness in.	Tensile Strength (ksi) at 20°C (68°F)		Typical Ultimate (b)	Typical Yield (b)	Typical (a) Elongation (Percent - in 2 in. or 4 Dia.)
			Minimum Ultimate (b)	Minimum Yield (b)			
Extruded rod, bar tube, pipe	6101-T6	0.125-0.500	29.0	25.0	32.0	28.0	15.0
	6101-T61	0.125-0.749	20.0	15.0			
		0.750-1.499	18.0	11.0			
		1.500-2.000	15.0	8.0			
	6101-T63	0.125-0.500	27.0	22.0			
	6101-T64	0.125-1.000	15.0	8.0			
6101-T65	0.125-0.749	25.0	20.0				
Extruded Pipe (c)	6061-T6	Pipe size 1.0 and over	38.0	35.0	45.0	40.0	10.0 min
	6063-T6	Pipe size, all	30.0	25.0	35.0	31.0	8.0 min

(a) Elongation values apply to specimens of sizes related to product uses.

(b) Values apply to ANSI net stress area of regular or semi-finished bolts.

(c) Values apply to ASTM B241 seamless pipe.