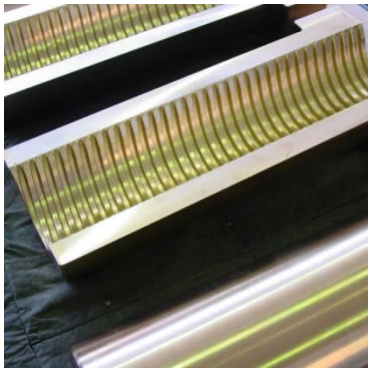
Technical Data Sheet

AMPCO® 18.23

AMPCO® 18.23 is a heat-treated bronze alloy with remarkable high strength known for its exceptional properties. With better physical properties than similar bronze grades such as AMPCO® 18 and AMPCO® 18.136, AMPCO® 18.23 stands out as a superior choice, offering unparalleled toughness and resistance to distortion under high load and impact conditions.

Key Features:

- Heat treated
- High toughness & resistance to distortion
- High strength & hardness
- Good sliding properties
- Wear resistant
- High proportional limit
- Corrosion resistant
- No nickel contamination & no galling against stainless steel

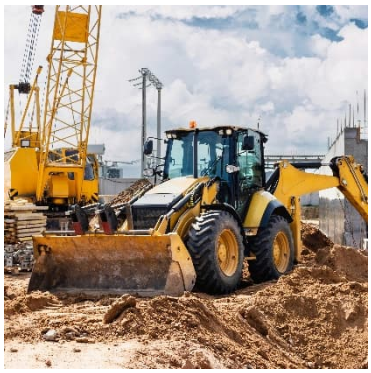


Nominal Composition:

Copper (Cu)	Aluminum (Al)	Iron (Fe)	Others
Balance	10.5%	3.5%	max. 0.5%

Applications:

- Heavy-duty worm gears
- Wiper dies
- Spindle nuts, gear wheels & bearings
- High-stress applications
- Applications in manufacturing, aerospace, marine & heavy equipment industry



AMPCO® 18.23 is used in a wide range of industries where high strength and exceptional performance are essential. This remarkable bronze alloy excels in heavy duty worm gears and similar applications due to its unique combination of toughness, wear resistance, and distortion resistance. Its reliability under heavy loads and in demanding environments makes it a preferred choice for applications in the manufacturing, aerospace, marine, and industrial sectors.

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Mechanical Properties (Nominal values)	Sand Casted	Continuous Casted	Centrifugally Casted
Tensile Strength R_m (ksi)	105	107	110
Yield Strength $R_{p\,0.5}$ (ksi)	53	54	66
Elongation 2" (%)	14	15	16
Brinell Hardness (10/3000)	202	204	207
Rockwell Hardness (HRB)	94	94	95
Compressive Strength R_{mc} (ksi)	150	150	150
Shear Strength R_{cm} (ksi)	58	59	61
Modulus of Elasticity E (ksi)	16000	16000	16000
Charpy a_k (ft·lbs)	10	11	12
Izod a_k (ft·lbs)	15	16	18
Fatigue (100 million cycles) σ_N (ksi)	34	35	36

Physical Properties:

Density ρ (lbs/in³)	Coefficient of Expansion α (in/in/°F)	Thermal Conductivity λ (W/m·K)	Electrical Conductivity (% I.A.C.S.)	Specific Heat c_p (BTU/lb·°F)
0.269	$9 \cdot 10^{-6}$	59	13	0.1

Machining Parameters:

Operation	Cutting Speed v_c (m/min)	Feed f (mm/rev)	Depth a (mm)	Tool Specification
Milling – Roughing	110 - 160	0.1 - 0.4	up to 4	K10 - K20
Milling – Finishing	90 - 115	0.05 - 0.1	0.1 - 0.5	K10 - K20
Turning – Roughing	150 - 200	0.1 - 0.2	up to 2	K10 - K20
Turning – Finishing	180 - 250	0.05 - 0.1	0.1 - 0.2	K10 - K20

Scan the QR Code to view our machining recommendations:

Contact us