

C49260

BISMUTH BRASS

DESCRIPTION

Bismuth Brass C49260 (also known as GEM Brass) is a lead-free, free-cutting brass alloy designed as a safer alternative to traditional leaded brass, offering excellent machinability while complying with RoHS environmental standards. It is widely used in high-speed screw machine work, forging, and general applications where lead-free materials are required.

CHEMICAL COMPOSITION

Elements	Min (%)	Max (%)
Cu	58.00	63.00
Zn	Remainder	
Bi	0.50	1.80
Pb	0.00	0.09
Fe	0.00	0.50
Sn	0.00	0.50
Cd	0.00	0.001
P	0.05	0.15
Si	0.00	0.10

MECHANICAL PROPERTIES ACCORDING TO ASTM B974 C49260 (AS PER TEMPER HO2)

Range (Inch)		From	To	UTS Min (Ksi)	PS Min (Ksi)	Elongation Min (%)	Hardness Min (HRB)	Hardness Max (HRB)
Round(Dia)		0.250	0.500	57	25	7	-	-
		0.500	1.000	55	25	10	-	-
		1.000	2.000	50	20	15	-	-
		2.000	4.000	45	15	20	-	-
Hex(A/F)		0.250	0.500	57	25	7	-	-
		0.500	1.000	55	25	10	-	-
		1.000	2.000	50	20	15	-	-
		2.000	2.500	45	15	20	-	-
Square(A/F)		0.250	0.500	57	25	7	-	-
		0.500	1.000	55	25	10	-	-
		1.000	2.000	50	20	15	-	-
		2.000	2.350	45	15	20	-	-
Octagon (A/F)		0.250	0.500	57	25	7	-	-
		0.500	1.000	55	25	10	-	-
		1.000	2.000	50	20	15	-	-
		2.000	4.000	45	15	20	-	-
Rectangle	Thickness	0.250	0.500	50	25	10	-	-
	Width	0.500	1.000					
	Thickness	0.250	0.500	45	17	15	-	-
	Width	1.000	3.000					
	Thickness	0.500	2.000	45	17	15	-	-
	Width	0.500	2.000					
	Thickness	0.500	2.000	40	15	20	-	-
	Width	2.000	3.000					

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Range (mm)		From	To	UTS Min (MPa)	PS Min (MPa)	Elongation Min (%)	Hardness Min (HRB)	Hardness Max (HRB)
Round (Dia)		6	12	395	170	7	-	-
		12	25	380	170	10	-	-
		25	50	345	140	15	-	-
		50	100	310	105	20	-	-
Hex (A/F)		6	12	395	170	7	-	-
		12	25	380	170	10	-	-
		25	50	345	140	15	-	-
		50	100	310	105	20	-	-
Square (A/F)		6	12	395	170	7	-	-
		12	25	380	170	10	-	-
		25	50	345	140	15	-	-
		50	100	310	105	20	-	-
Octagon (A/F)		6	12	395	170	7	-	-
		12	25	380	170	10	-	-
		25	50	345	140	15	-	-
		50	100	310	105	20	-	-
Rectangle	Thickness	6	12	345	170	10	-	-
	Width	6	25					
	Thickness	6	12	310	115	15	-	-
	Width	25	100					
	Thickness	12	50	310	115	15	-	-
	Width	25	50					
	Thickness	12	50	275	105	20	-	-
	Width	50	100					

PHYSICAL PROPERTIES

Melting Point (Liquidus)	1670 °F (≈ 910 °C).
Machinability	90% (Where C36000 free cutting brass is 100%)
Electrical Conductivity	21.7% IACS at 20°C or 68 °F
Thermal Conductivity	109W/m at at 20°C or 68 °F

FABRICATION PROPERTIES

Technique	Stability
Forgeability Rating	Good
Cold Working	Fair
Hot working	Fair
Soldering	Good
Brazing	Good
Welding	Fair

TYPICAL USES

Plumbing
Sanitary
Electrical
Electronic
Automotive
Industrial