

# C69430

# SILICON BRASS

## DESCRIPTION

C69430: The silicon red brass is specified for underground service lines since it offers great corrosion resistance to all types of potable waters, and has moderate strength and good retention of spring properties. Silicon brasses are part of the subgroup of high strength brasses. Silicon Brass contain less than 20% zinc and less than 6% silicon. The silicon brasses are solid solution strengthened. Silicon brasses are typically chosen because of their high strength and moderately high corrosion resistance.

## CHEMICAL COMPOSITION

Elements	Min (%)	Max (%)
Cu	80.00	83.00
Si	3.50	4.50
Pb	-	0.30
Fe	-	0.20
As	0.03	0.06
Zn	Remainder	

## MECHANICAL PROPERTIES (AS PER TEMPER Ho2)

Range (Inch)	From	To	UTS Min (ksi)	PS Min (Ksi)	Elongation Min (%)	Hardness Min	Hardness Max
Round (Dia)	0.059	1.000	80	40	15	-	-
	1.000	2.000	75	35	15	-	-
	2.000	2.953	65	35	15	-	-
Hex (A/F)	0.118	1.000	80	40	15	-	-
	1.000	2.000	75	35	15	-	-
	2.000	2.755	65	35	15	-	-
Square (A/F)	0.118	1.000	80	40	15	-	-
	1.000	2.000	75	35	15	-	-
	2.000	2.362	65	35	15	-	-

# C69430

# SILICON BRASS

Range (mm)	From	To	UTS Min (Mpa)	PS Min (Mpa)	Elongation Min (%)	Hardness Min	Hardness Max
Round (Dia)	1.5	25	550	250	15	-	-
	25	50	515	240	15	-	-
	50	75	450	240	15	-	-
Hex (A/F)	3	25	550	250	15	-	-
	25	50	515	240	15	-	-
	50	70	450	240	15	-	-
Square (A/F)	3	25	550	250	15	-	-
	25	50	515	240	15	-	-
	50	60	450	240	15	-	-

## PHYSICAL PROPERTIES

Melting Point - Liquidus°F	1685
Melting Point - Solidus°F	1510
Density lb/cu in. at 68°F	0.26
Specific Gravity	8.19
Electrical Conductivity % IACS at 68°F	6.2
Thermal Conductivity Btu/ sq ft/ ft hr/ °F at 68°F	15
Coefficient of Thermal Expansion 68-57210 <sup>-6</sup> per °F (68 – 572°F)	11.2
Specific Heat Capacity Btu/ lb /°F at 68°F	0.09
Modulus of Elasticity in Tension ksi	16000

## FABRICATION PROPERTIES

Technique	Suitability
Soldering	Excellent
Brazing	Excellent
Oxyacetylene Welding	Good
Spot Weld	Good
Seam Weld	Good
Butt Weld	Good
Capacity for Being Cold Worked	Good
Capacity for Being Hot Formed	Excellent
Forgeability Rating	80
Machinability Rating	30

## TYPICAL USES

- Valves Stems