



Structure

TU-GB material is made of strong cast bronze based metal with special solid lubricants embedded. The base metal withstands high load and the solid lubricants provide self-lubrication. The bearing shows excellent performance without pre-lubrication under conditions of extreme high/low temperature with low speed. This material provides a maintenance-free bearing solution, particularly for high load, intermittent or oscillating motion.

Features

1. May work without any oil for long period
2. Extremely high load capacity, good anti-wear and lower friction
3. Particularly appropriate for low speed and high load
4. Suitable for reciprocating, oscillation or intermittent motion where oil film is hard to be formed
5. Good chemical resistant and anti-corrosion characteristics
6. Can be used in wide range of temperature from -40°C $\sim +300^{\circ}\text{C}$

Typical Applications

This kind of bearing can be applied under dry, high temperature, high pressure, corrosive, water or other chemical environments when no oil can be introduced. It is widely used in automotive products line, water engineering, dam gate, plastic industries, successive casting machines, steel rollers in metallurgy industry, mineral machines, ships, turbo generators, hydraulic turbines and injection molding machines...

Main Metal Type								
Grade	650	650S5	650W1	650W3	650S1	650S2	650S3	
Material	CuZn25Al5Mn4				CuSn5Pb5Zn5	CuAl10Ni5Fe5	CuSn12	
Density	7.8				8.9	7.8	8.9	
HB hardness	≥210	≥240	≥210	≥235	≥70	≥100	≥75	
Tensile strength Mpa	≥750	≥800	≥755	≥755	≥250	≥500	≥270	
Yeild strength Mpa	≥450	≥450	≥400	≥400	≥90	≥260	≥150	
Elongation %	≥12	≥8	≥12	≥12	≥13	≥10	≥5	
Coefficient of linear expansion	1.9x10 ⁻⁵ /°C				1.8x10 ⁻⁵ /°C	1.6x10 ⁻⁵ /°C	1.8x10 ⁻⁵ /°C	
Max. temp.	-40~+250°C				-40~+400°C			
Max. load Mpa	50	75	75	100	50			
Max. speed m/s	Dry	0.5	0.1	0.5	0.1	0.5		
	Lubrication	1	0.25	1	0.25	2.5		
Max. PV (N/mm ² *m/s)	Dry	1.65				1		
	Lubrication	3.25				1.65		

The above technical data is recommend from AWWA, better to test under detail condition.

Solid Lubricants		
Lubricant	Features	Typical application
SL1 Graphite+add	Excellent resistance against chemical attacks and low friction. Temp limit 400°C	Suite for general machines and under atmosphere
SL4 PTFE+MOS ₂ +add	Lower in friction and good for water lubrication, Temp. limit 300°C	Suite for water/sea lubrication, like ship, hydraulic turbine, gas turbine etc.

Tech. Data				
Max. load	Static	250N/mm ₂	Temp.	-100°C~+300°C
	Dynamic	100N/mm ₂		Friction coefficient
Max. speed	Dry	0.5m/s	Thermal conductivity	60W(m*k) ₋₁
	Lubrication	1.0m/s	Coef. of thermal expansion	19*10 ⁻⁶ *K ₋₁
Max. PV Bronze alloy hardness		3.25N/mm ₂ *m/s HB>210	Interlay bonding strength	150N/mm ₂