



Global Thermoset Composite Solutions

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# Norplex-Micarta Sleeve Type Bearings

## Fabrication Recommendations

Norplex-Micarta sleeve type bearings ideal low friction bearings for use in high load applications where high compressive strength and low creep is required. Thermoset composite sleeve type bearings have superior load bearing properties when compared to most thermoplastic or metal bearings.

The following recommendations apply to the fabrication and fit of Norplex-Micarta sleeve type bearings. However, every application has specific requirements and customers are urged to apply appropriate engineering reviews when fabricating this material for bearings.

**Running Clearance** – Running clearance is the clearance between the shaft and the bearing. Recommended running clearance is 0.001" per inch of shaft diameter from a minimum base of 0.005".

Example: Your shaft diameter is 5.000"

Running Clearance =  $(5.000 * .001) + 0.005" = 0.010"$

Thus, your bearing should have an ID of 5.010"

**Swelling Allowance** – An additional allowance for radial swelling should be made at a rate of 0.010" per inch of bearing wall thickness.

Example: Your shaft inner diameter is 5.010" and casing diameter is 5.500".

Swelling Allowance =  $(5.500 - 5.010)/2 * 0.010 = 0.00245" \sim 0.003"$

Thus, your bearing should have an OD of  $5.500 - 0.003 = 5.497"$

**Longitudinal Growth Allowance** – Longitudinal growth allowance is only required when both ends of a sleeve type bearing are tightly enclosed. If your bearing applications require tight enclosure, you should allow for longitudinal growth of 0.005" per inch of captured bearing length.

Example: Your bearing enclosure is 6.575" long.

Longitudinal Growth Allowance =  $6.575 * 0.005 = 0.032875" \sim 0.033"$

Thus, your bearing should be  $6.575 - 0.033 = 6.542"$  long.

Remember, Norplex-Micarta sleeve type bearings are excellent thermal insulators and don't shed heat so flow through lube oil or water is strongly encouraged to help keep the bearings cool and minimize heat-related growth. The cooler a composite is the harder it is and this extends the bearing life.

For more information, please contact your Norplex-Micarta salesperson or the Norplex-Micarta manufacturing facility in Postville, Iowa.