



1. ABRASION RESISTANCE TEST

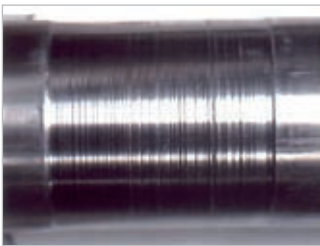
Product Test Laboratory



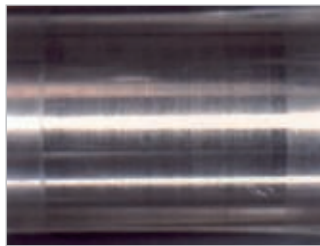
Cutlass Rubber Bearing



AR®1 Bearing



300 series SS Shaft



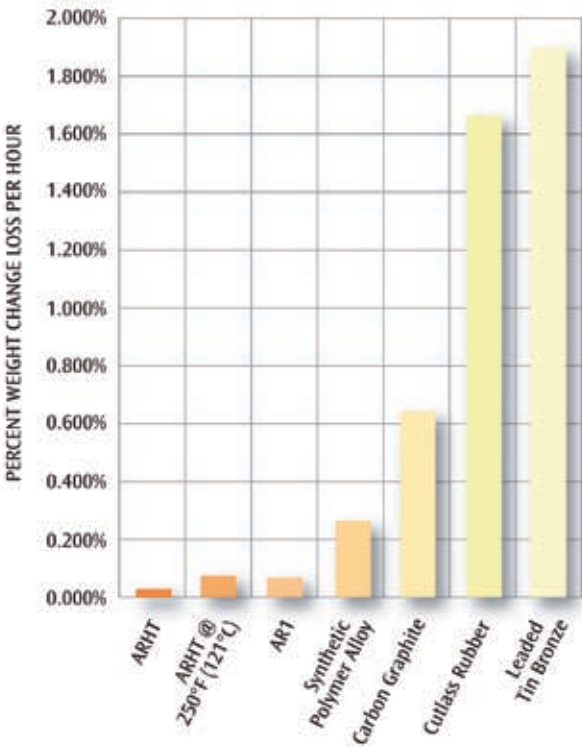
300 series SS Shaft

Test Conditions

Speed: 900 RPM
 Load: 25 psi (0,172 MPa) bearing load
 Shaft: 300 SS shaft
 Media: 95% water, 5% silica sand
 Temperature: all materials: 70°F (21°C)
 AR™HT at 250°F (121°C) in ethylene glycol
 Duration: 8 hour run time

TEST RESULTS – AT A GLANCE

AR® composites are less damaging to the shaft or shaft sleeve in abrasive media over traditional bearing materials such as cutlass rubber.



The chart shows percent weight change (loss) per hour of Greene, Tweed’s AR materials compared to traditional materials. As shown in the data, Greene, Tweed’s ARHT and AR1 are less damaging to the shaft or shaft sleeve in abrasive media than traditional bearing materials.

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2. DRY RUN TESTING

Test Conditions

Test fixture: Vertical bearing test rig
Speed: 3600 RPM
Load: 10.2 psi (0,07 MPa) radial load
Shaft: 316 SS shaft, surface finish of approx. 50 R_a
Media: Air
Temperature: Room temperature
Duration: 2 minutes, 2 runs per material (standard .004"/0.1 mm and increased .008"/0.2 mm clearance)
Parameters: all bearings grooved (since utilized for abrasive conditions)

TEST RESULTS - AT A GLANCE

AR®1/ AR®HT: No change in cross section, inner diameter, or weight loss. Bearings and rod look practically new.

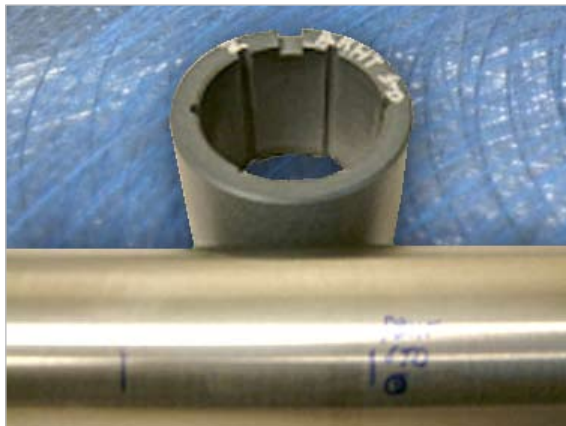
Thordon SXL: Grooves completely filled with excess material. If emptied weight loss values would clearly increase >1%.

Cutlass Rubber: Only for 20 seconds running

AR bearing materials proved to have good dry run capability. They resist abrasion from suspended solids and the embedding of sharp abrasive particles of excess material. Grooves remain unaffected and support cooling effect.

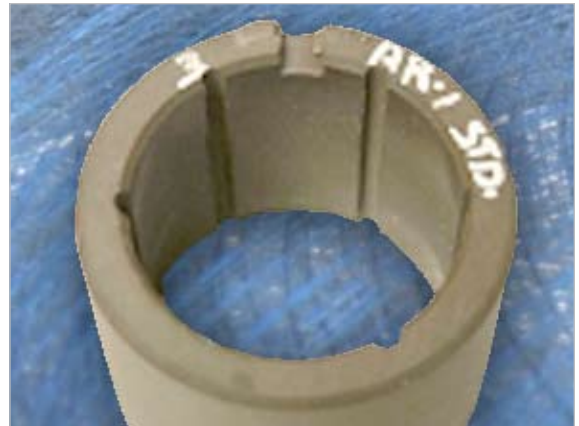
Pictures below show bearings and rods after two minutes of dry testing @ 1666 RPM.

ARHT



Excellent condition of bearing/rod

AR1



Unaffected

Duramax Cutless Rubber



Severe wear; after 20 sec excessive vibration, black smoke & motor rpm dropped drastically.

Thordon SXL



Worn cross section & inner diameter; grooves completely filled with excess material; slivers of material extruding from the grooves.