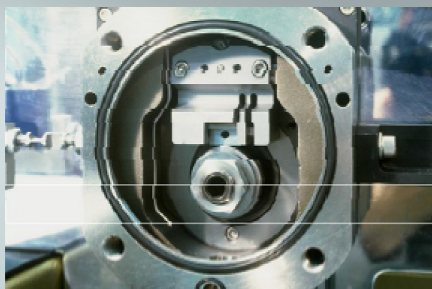
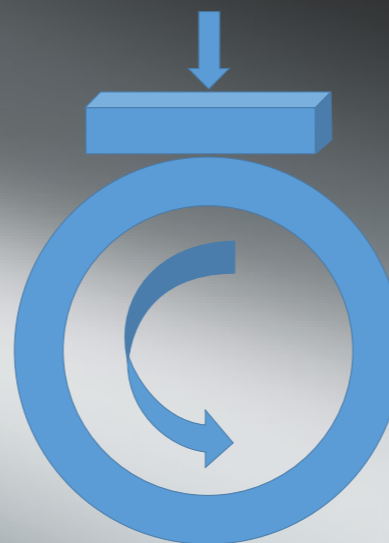


Block-on-Ring (BOR) Galling Resistance Test

BOR Scuffing Test



- Block (bearing) – 8620 carburized
- Ring (pin) – Trivalent Cr
- Grease lubricated – marginal lube
- Room temperature
- Step loading (50 lbf – 1275 lbf)
- Constant velocity – 100rpm (0.18m/s)



BOR is a harsh test that is commonly used method in the industry to investigate resistance of materials and coatings, like in linkage pins. In this test, TripleHard® was compared to hexavalentchromium, which did not resist until the end of the test. That is indicated by the spike in the friction graph. TripleHard® resisted until the end of the test with the maximum load.

Ring (pin)	Block (bearing)
Hard Cr (baseline)	8620
Trivalent Cr	8620

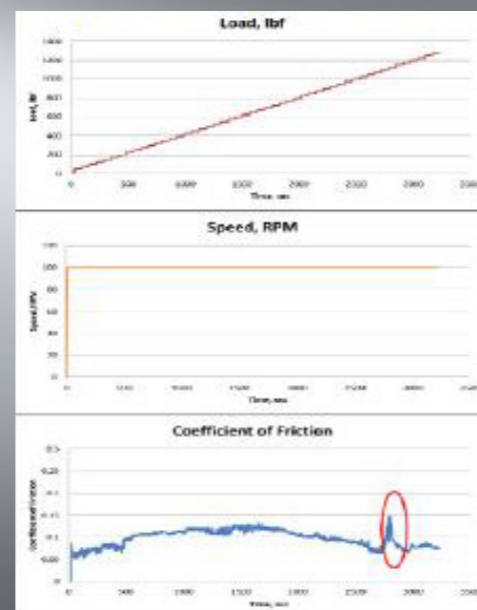
BOR Test Results

Hard Cr Plated rings were prepared using the traditional process and tested as a comparative baseline to Savroc's TripleHard plating.

The 'spike' in friction shown below for the Hard Cr sample is due to galling (i.e., metal to metal adhesion). The Savroc plating did not exhibit any galling up to the maximum loading of 1275 lbf. The estimated contact stress at this maximum loading is ~850 MPa.

Bor Test Results - Hard Cr (baseline) vs. steel

- Grease lubricated – marginal lube
- Grease multi-purpose grease
- Scruffing load: initiation at 1125 lbf



Bor Test Results - TripleHard vs. steel

- Grease lubricated – marginal lube
- Grease: Multi-purpose grease
- Final load: No scuffing up to 1275 lbf
- Contact pressure: ~ 850 MPa

