Tribological properties of brush plated coatings

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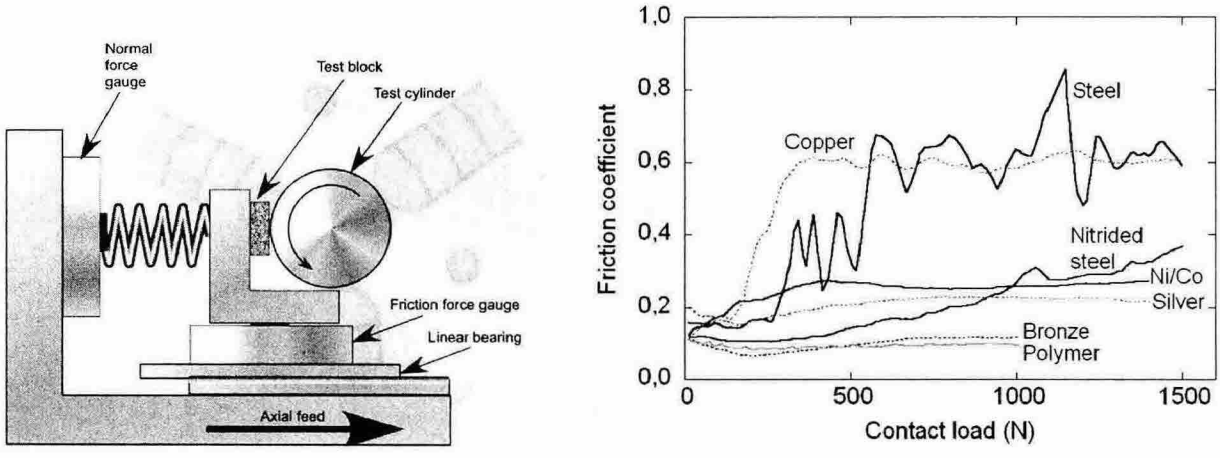
ABSTRACT

Eight different metallic coatings produced by brush plating have been evaluated by different tribological tests, to gain a better understanding of their potential as coatings for mechanical components. Their performance is compared to that of one reference each of hardened steel, nitrided steel, bronze, and two polymers, all traditional bulk materials in tribological components aimed for sliding contact. Special consideration is given to the friction and resistance to seizure in sliding contact against structural steel, but also to the wear resistance. Figure 1 shows one of the tests used, and a corresponding sample diagram of friction recordings.



a) b)

Fig. 1. a) Principal test set up of the block-on-cylinder test used in this investigation. Through the spring loading, it is possible to scan the contact load during each test run.
b) Examples of test results showing different levels of friction and critical loads for seizure of some materials and plated coatings in dry sliding.

It is concluded that some of the brush platings can offer very attractive sliding properties both as to the level of friction, wear resistance and ability to withstand seizure to the mating steel. This category of coatings are relatively easy to apply, and they can be used both in production of new components as well as for maintenance and reparation.