

PoP Centre News

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Delivering design-relevant data on fatigue and wear

The new Power of Powder (PoP) Centre will support customer's application development by generating design-relevant data on the fatigue and friction/wear performance of sintered components. Our third newsletter focuses on the centre's fatigue testing and tribo-engineering services.

“The lack of reliable design-related data on component load capacity and wear properties can be seen as a limiting factor on the growth of PM applications. This situation creates difficulties for customers in the component design process,” says Senad Dizdar, who is responsible for fatigue and wear testing of sintered components at the PoP Centre. “I see my role as a bridge between customers' application requirements and the material expertise of Höganäs,” states Senad.

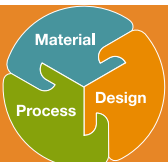
The PoP Centre will extend the range of Höganäs testing services available to customers by not only offering established expertise in material analysis and fatigue testing, but also by adding new wear testing and tribo-engineering capabilities. “We believe that PM components have the wear and fatigue performance necessary to be competitive in a wider range of applications,” continues Senad. “We will strive to fill the information gap by providing customers and OEMs with design-relevant data on the wear performance of sintered components and the load capacity of PM gears.



This information will demonstrate the competitive properties of sintered component surfaces and surface coatings and support gear and tribo-engineering application development.”

The new range of fatigue and wear testing capabilities (see next page) will be demonstrated at the PoP Centre inauguration on October 15. Fatigue testing and tribo-engineering are important elements in the integrated approach of the PoP Centre, which offers support and capabilities in the key areas of material selection, application engineering, component prototyping and process optimization.

Ola Litström, who is head of the PoP Centre, adds: “Our new wear-testing facilities will be a significant help to customers in application development of both PM components and surface coatings. Application-relevant data will help make the ranking of materials more efficient and minimise the number of material candidates, thus cutting time-consuming rig testing. We will be able to choose materials and optimise prototypes' surface properties and surface conditions in a far better way.”



Fatigue and wear testing

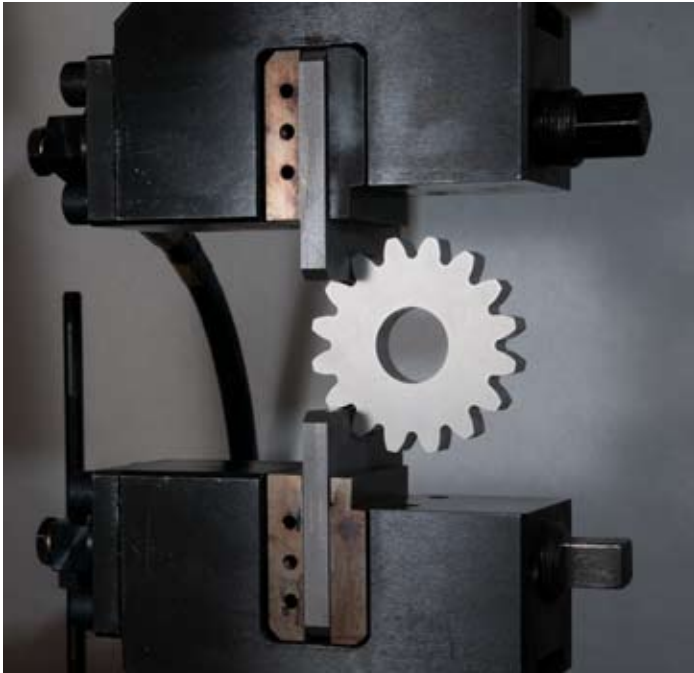
The PoP Centre offers customers the following in-house capabilities:

Fatigue testing

- Gear tooth bending

Test equipment: High-frequency linear pulsator (Zwick Amsler 30 HFP 5100)

We provide an efficient fatigue analysis service based on many years' experience of fatigue testing and proven gear tooth bending test methods.



- Gear pitting resistance

Test equipment: HB-gear pitting test rig (FZG or force-square type)

Pitting resistance testing is carried out on a machine that has been specially developed in-house. Construction of a second machine is being considered in order to reduce lead times.

Wear testing

- Adhesive friction/wear testing

Test equipment: Multi purpose friction and wear tester (Plint TE53Slim)



Testing is carried out on sliding and/or rolling component contacts of machinery for a wide range of materials, lubricants and loadings where adhesive wear is the prevailing wear mode. Tests can be adapted to provide friction and wear characterization of target contacts or friction and wear mapping.

- Abrasive wear testing

Test equipment: Multiplex sand wheel abrasion tester (Plint TE65)

The machine allows accurate abrasive wear testing of exposed parts in material handling, tillage equipment in agriculture and construction equipment dealing with soil, ore, and etc.

External resources

Even though we can cover a broad range of customer needs with our fatigue and wear testing capabilities, if any other tests are required, we have arrangements in place to subcontract via our extensive global academic network.

Future capabilities

“We will strive to continuously upgrade and adapt our capabilities in fatigue and wear testing. We will listen to customers and seek to meet the requirements that will assist them in their future application developments. Expect more support and capabilities to come from Höganäs in the future,” concludes Senad Dizdar.