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Min Tech

Press Notice

re New Materials
at FERDE
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MINISTRY OF TECHNOLOGY

press notice

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29th November 1968

ENGINEERING MATERIALS AND DESIGN EXHIBITION

Mintech's contribution features Tribology and New Materials

The Ministry of Technology's contribution to the Engineering Materials and Design Exhibition at Olympia, which opens on Monday next, 2nd December, 1968, concentrates on two subjects: the major contribution which Mintech is making in work on new and improved materials and the work of the newly established tribology centres.

New Materials

The Explosives Research and Development Establishment, Waltham Abbey, Essex exhibits research on increasing the strength and rigidity of thermoplastics. Results of recent research in thermoplastics containing other fibrous fillers, particularly graded asbestos fibre, may lead to cheaper and stronger materials for use in engineering and building. ERDE also exhibits a new accelerated stress relaxation (fatigue) test which has been developed to obtain fatigue limits in relatively short periods of time.

The National Physical Laboratory, Teddington, Middlesex, exhibits work on macrocyclic polymers. This new class of polymers, invented at NPL, are thermally stable materials with potential application in aircraft components; bearing materials; diamond grinding wheels and brakes.

The Royal Aircraft Establishment, Farnborough, Hampshire, shows research on carbon fibre reinforced plastics. Carbon fibre composites have excellent resistance to fatigue and are of value in weight-saving in aircraft structures fan blades, helicopter blades and space satellites. Other applications range from car bodies to chemical plant components and the demand for carbon fibre for export is growing fast.

Results of research on the behaviour of structural materials at extremely low temperatures is exhibited by the Rocket Propulsion Establishment. Aylesbury, Buckinghamshire. Although the work is primarily for investigating problems association with rocket technology, the general findings can be employed in the storage and transport of liquid methane; steel-making processes; cryosurgery; liquid hydrogen bubble chambers and superconducting devices.

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Tribology

Tribology, the study of what happens when surfaces rub together, is a new engineering concept to save money by using existing information in design. It has been estimated that £500M. could be saved annually in the UK if existing tribology information were applied at the right place at the right time. Research in Tribology is illustrated by exhibits from the National Engineering Laboratory, East Kilbride, Scotland and three centres of Tribology.

NEL has developed journal air bearings which are almost frictionless, extremely quiet, do not generate heat and have almost infinite life. One application is a high-speed air bearing spindle for textile machinery. NEL is also working on a combined theoretical and experimental approach to the behaviour of the oil film in dynamically-loaded bearings. Compliant surface air bearings to provide a cushion of air for moving heavy objects by hand across factory floors are also featured.

Leeds University Industrial Unit of Tribology gives recent case-histories to illustrate its advisory and consultancy service, its research and development, its lubricant testing service and bearing design service; and also shows a simulating machine for human joints for research into osteo-arthritis.

The National Centre for Tribology, Risley exhibits work on pivot designs and materials for magnetic compasses, and improved bearing surfaces for high temperature applications. A novel seal for shafts turning slowly in viscous liquids, moulded plastic air bearings and experimental test rigs are also exhibited.

From the Tribology Centre, University College, Swansea, there are demonstrations of standard test facilities, measuring instruments and research and development facilities, including microcartography of surfaces, and a clutch judder test rig

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