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The I-22 IRYDA training and combat aircraft

This aircraft is an entirely Polish design developed by several scientific institutes. The I-22 IRYDA is a two-seat aircraft designed for the advanced training of military pilots and for performing combat missions. It has two characteristic features that are extremely important for a trainer: it does not get into an accidental spin, e.g. due to a pilot's error, and it is stable at low speeds and safe when stalling, the aircraft maintaining a complete manoeuvrability at all times. IRYDA has an all-metal design based on aluminium alloys, magnesium and alloy steels. See p. 2

A multi-stage centrifugal impeller pump

Pipeline hydraulic conveying of solids is used in many branches of industry. This means of transport is cheaper than road or rail transport and safe to the environment. The Institute of Machinery and Equipment for the Power Industry of the Silesian Technical University, Gliwice has developed a special multi-stage centrifugal impeller pump for the hydraulic transport installations conveying fly ash and slags formed as a result of burning hard or brown coals. The pump features a number of interesting solutions including a disk used to balance the axial force acting on the impellers. See p. 5

CVD diamond — a material of the future

The recent development of different low pressure and relatively low temperature and low cost Chemical Vapour Deposition (CVD) techniques of diamond thin film deposition has opened a new area of its potential application. The CVD diamonds have generally the same properties as natural or HPHT synthetic diamonds. The list of their application is long as a result of the combination of outstanding properties coupled with the possibility of making diamonds in a thin-film form. For details see p. 9

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