



POLISH TECHNICAL REVIEW





POLISH TECHNICAL REVIEW

SIGMA

PUBLISHERS OF TECHNICAL PERIODICALS AND BOOKS SIGMA - AN ENTERPRISE OF THE CENTRAL TECHNICAL ORGANISATION
ul. Biala 4, 00-950 Warsaw, P.O.B. 1004, Tel: 39 11 99. Issued in English, French, German and Russian

CONTENTS

METAL TREATMENT

Determination of the rational scopes of application of n/c machine tools	2
Fixture-type automatic threading machine	2
Automatic compensation of the wear of tools for boring of holes in bodies	5
Equipment for the plastic working of metals in a pulsating magnetic field	7
A composite cast iron inoculant/patent/	8
Equipment for grinding and milling sprocket wheel teeth/patent/	8

ELECTRONICS

The ROSA microcomputer	9
Materials for soldering electronic components	11
A thyristor-based breaker	13

CONTROL-MEASUREMENT EQUIPMENT

A hydraulic systems tester	14
----------------------------------	----

POWER INDUSTRY

An experimental water-tube boiler with a fluidized-bed furnace	15
Generating sets for nuclear power plant emergency power supply	18

PROTECTION OF THE ENVIRONMENT

Installation for purifying waste gases from metallurgical works	20
Water conditioning equipment	22

CHEMISTRY

Shrinkable pipes from irradiation cross-linked polyethylene	23
A molten resin batching equipment/patent/	25

MINING

Oxygen breathing apparatus	26
----------------------------------	----

MEDICAL EQUIPMENT

Inhalation apparatus	27
----------------------------	----

PATENTS

Cleaning of coking plant wastes	29
Production of nickel and magnesium sulphate from serpentinite marbles	29
Holder for fastening cutters in combined cutter loaders	29

BOOKS	30, 31
-------------	--------

ECONOMIC SURVEY	3, 6, 17, 22, 28, 32
-----------------------	----------------------

IN BRIEF	19
----------------	----

PRESS SERVICE	I-VIII
---------------------	--------

Equipment for the plastic working of metals in a pulsating magnetic field

The article on p. 7 deals with the utilization of mechanical forces produced in a pulsating magnetic field for the plastic working of metals. The method makes use of induction coils whose turns are placed at small distance from the surface of the workpieces. The Academy of Mines and Metallurgy in Cracow has developed several such sets of equipment with cylindrical compressing, building or extrusion pancake inductors.

An experimental water-tube boiler with a fluidized-bed furnace

The Research and Development Centre for Boilers and Power Industry at Tarnowskie Góry has built an experimental 4 MW water-tube boiler with a fluidized-bed furnace. It has been installed and tested in one of the Polish coal mines. The boiler design and the results of tests (measurements of thermal and dynamic properties) are discussed in an article on p. 15. The boiler was found to feature high flexibility to heat release variations, short firing up period and ease of maintaining the furnace in the hot stand-by condition. The optimum boiler efficiency conditions were also calculated.

Installation for the purification of metallurgical gases from SO₂

An example of a modern installation for the purification of metallurgical gases (especially in the non-ferrous metals industry) is the one produced on the basis of a process developed by CHEMADEX of a two-stage conversion of SO₂ to SO₃ by the contact method when producing concentrated sulphuric acid in a copper plant. The article contains detailed parameters of the installation's work and points to the progress achieved in the protection of the environment. Page 20.

Shrinkable pipes from irradiation-crosslinked polyethylene

Irradiated, crosslinked polyethylene is a material featuring high heat resistance, low cold creep susceptibility and deformability under load. It is completely resistant to environmental stress corrosion. Its "shape memory" makes possible its application for the manufacture of heat-shrinkable products. The article on p. 23 discusses the process of crosslinking polyethylene, together with the equipment produced in Poland for this purpose.

Programmatic council: K.Badźmiński, S.Gruźewski (President), S.Okoń, Z.Pawlik, T.Wąsac, J.Toeplitz

Editorial staff: J.Toeplitz (chief editor), I.Chmielewska, A.Witkowski (assistant editors), S.Hilscher (managing editor), E.Karska, Z.Schellenberg, J.Wolf

English version: E.Karska

Graphic layout: F.Barącz

Production managers: A.Dziewulska-Kijas, B.Słowińska

Cover photo: ROSA Minicomputer produced by the Electronic Equipment Plant UNITRA UNIMA in Warsaw (article on p. 9)

Subscription orders should be addressed to the Ars Polona-Ruch, 00-950 Warsaw, P.O.B. 1002, Krakowskie Przedmieście 7 or to one of the representatives of this company abroad. The annual subscription rate for 1984 amounts to US \$ 48.- (£30.-) or the equivalent in other currencies. In the socialist countries, catalogue prices of the local distribution centres apply.

Printing office: SIGMA - Warsaw

Index no 36915