generally used for engineering purposes. This booklet discusses improved ceramic dielectric materials for electrical or electronic purposes, improved stoneware for chemical engineering purposes and chemical porcelain for industrial applications.

120 AC GENERATORS—Electric Machinery Mfg Co, 821 Second Ave S E, Minneapolis 14, Minn. 16-page booklet, Vol. 3, No. 3a, tells about the new packaged Regulectric ac generator. Photos, diagrams and tables are included.

121 SAFETY CORD SWIVEL—Burlington Instrument Co, Burlington, Iowa. 4-page bulletin discusses Burlington safety cord swivel that prevents twisting, curling and dangerous knots in electrical appliance and hand tool cords.

122 HIGH-FREQUENCY CONDUCTORS—Titeflex, Inc, 500 Frelinghuysen Ave, Newark 5, N. J. Folder describes Titeflex water-cooled, flexible leads for use in conducting high-frequency currents.

123 SWITCHGEAR EQUIPMENT — Square D Co, 4040 Rivard St, Detroit 11, Mich. 24-page catalog No. 130 covers safety switches, service equipment, multi-breakers, circuit breakers, lighting and power panelboards, etc. This catalog includes size, capacity and dimensional data, together with current prices.

124 RENEWABLE FUSES — Ware Brothers, 4450 W Lake St, Chicago 24, Ill. 16-page booklet describes construction of Ware Hi-Leg renewable fuses. Prices and dimensions are included.

125 MAGNETIC PULLEY—Erlet Mfg Co, 1765 E 12th St, Erie, Pa. 8-page bulletin No. 501-A describes how tramp iron or other ferrous metal contamination may be automatically removed from materials traveling on conveyor belts.

126 PERMANENT MAGNETIC SEPARATORS—Homer Mfg. Co, 436 N Main St, Lima, Ohio. 4-page folder shows typical Homer permanent magnetic separator applications for various industries.

127 FLUORESCENT LAMP BALLASTS—Apparatus Dept, General Electric Co, Schenectady, N. Y. 28-page bulletin No. GEA-4550 discusses various ballasts for fluorescent lamps. Photos, diagrams and tables are included.

128 COMBINATION STARTER—Electric Machinery Mfg Co, Minneapolis 13, Minn. 8-page bulletin No. 3100-PRD-193 discusses features of Hi-Fuse control for motor operation and protection.

129 DRY TRANSFORMERS — Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa. 12-page booklet No. B-4009 describes a complete line of dry transformers designed to provide efficient operation of motors, lights and other electrical equipment requiring 120 to 240 v.

130 UNIT SUBSTATIONS—Allis-Chalmers Mfg Co, Milwaukee 1, Wis. 16-page bulletin No. 11D6926 covers Allis-Chalmers multicircuit unit substations.

131 STORAGE BATTERIES — Gould Storage Battery Corp, Trenton 7, N. J. 16-page brochure tells about a complete research laboratory with pilot manufacturing plant where advance-design batteries are constantly created and proved before production.

GEAR AND CHAIN DRIVES

134 POWER TRANSMISSION EQUIPMENT—Falk Corp, 3001 W Canal St, Milwaukee 8, Wis. 12-page bulletin No. 10,000 contains descriptions of gears, speed reducers, Motorducers, couplings, high-speed drives, backstops, marine drives, special gear drives, etc.

135 FAN-COOLED SPEED REDUCERS — Cone-Drive Div, Michigan Tool Co, 7171 E McNichols Rd, Detroit 12, Mich. 4-page technical bulletin (data sheet No. 3974) describes operation of Cone-Drive fan-cooled speed reducers. Tables show combined mechanical and thermal ratings.

136 WORM GEAR SPEED REDUCERS —Cleveland Worm & Gear Co, 3393 E 80th St, Cleveland 4, Ohio. 3-page catalog No. 300, entitled "Proof of the Pudding," presents a few installations of fan-cooled Speedaire unit.

137 ADJUSTABLE-SPEED DRIVE — Louis Allis Co, 427 E Stewart St, Milwaukee 7, Wis. 4-page bulletin No. 611C describes an adjustable-speed drive, known as Ajusto-Speed. The Adjusto-Speed operates directly from a 3- or 3-phase ac line.

138 GEAR REDUCERS—Link-Belt Co, 307 N Michigan Ave, Chicago 1, Ill. 64-page booklet No. 1418 describes many new sizes and types of inclosed herringbone gear units for speed reducing and speed increasing service.

139 VARIABLE-SPEED HYDRAULIC TRANSMISSION — Vickers Inc, 1400 Oakman Blvd, Detroit 32, Mich. Bulletin No 47-40 covers features of Series TRS-* R13F12 variable-speed hydraulic transmission. Speeds and dimensions are given.

140 FLEXIBLE COUPLINGS—American Flexible Coupling Co, Erie, Pa. 32-page catalog No. 401 gives selection, application, installation and operation of American and Amerigear flexible couplings. Photos, diagrams and tables are included.

141 WORM GEARING — De Laval Steam Turbine Co, Trenton, 2, N. J. 48-page bulletin No. WG1230-5-46 gives advantages of worm gearing, bearing load formulae, selection practice, horsepower ratings, worm thread and gear tooth data for different ratios, dimensions and details of standard worm mountings, worm dimensions, gear dimensions and dimensions of standard flanged rims.

142 ADJUSTABLE-SPEED DRIVE — Reliance Electric & Engrg Co, 1066 Ivanhoe Rd, Cleveland 10, Ohio. 4-page bulletin No. 311-A covers features and applications of company's all-electric adjustable-speed drives in the higher hp ratings.

143 VARIABLE-SPEED CHANGER — Link-Belt Co, 307 N Michigan Ave, Chicago 1, Ill. 4-page folder No. 1874-A gives dimensions, weights, ratios, horsepowers, torque ratings and list prices of Size H-6 P I V gear variable-speed changer.

145 GEARS AND REDUCERS—Dept 60, Ohio Gear Co, 1406 E 179th St, Cleveland 10, Ohio. Catalog is divided into sections on reducers, gears, chains and sprockets, and includes more than 120 pages of engineering data, tests, ratings, ratios, formulae, tables and costs.

146 CHAIN DRIVE—Morse Chain Co, 7601 Central Ave, Detroit 3, Mich. Catalog gives specifications, service factors, classifications and installation data of the new stock drives.

147 BEARINGS—Orange Roller Bearing Co, Orange, N. J. 4-page booklet covers construction features of Orange cage-type needle bearings. 16-page bulletin, seventh edition, presents engineering data on Orange "staggered" roller bearings.

INTERNAL-COMBUSTION ENGINES AND ACCESSORIES

152 DIESEL GENERATOR SETS — General Sales Office, Superior Engine Div, National Supply Co, Springfield, Ohio. 8-page bulletin No. 4109 describes and gives dimensions and specifications of Superior diesel generator sets.

153 VIBRATION MOUNTS—Hamilton Kent Mfg Co, Kent, Ohio. 8-page bulletin gives advantages of Rexon vibration mounts. Photos, charts, diagrams and tables are included.

154 DIESEL ENGINES — Ingersoll-Rand Co, 11 Broadway, New York 4, N. Y. 4-page booklet, Form No. 10311, presents the new Type SS turbocharged diesel engines. These engines are built in three sizes: six cylinder, 675 hp; seven cylinder, 788 hp; and eight cylinder, 900 hp.

155 MULTI-FUEL ENGINES—White-Roth Machine Corp, Lorain, Ohio. Page gives general specifications and dimensions of Type L 2-cycle, horizontal, multi-fuel, heavy-duty engines.

156 DIESEL OIL FILTERS—Purolator Products, Inc, Newark 3, N. J. 16-page catalog contains scaled diagrams of many oil filters made by Purolator for diesel-engine applications. The description page for each filter also includes a detailed specification chart giving all necessary technical information on construction, dimensions, capacity, weight.

157 HYDROCARBON THERMODYNAMICS—Clark Bros Co, Olean, N. Y. 14-page reprint, entitled "Tentative Partial Enthalpies of the Lighter Hydrocarbons," discusses the thermodynamic approach to evaluation of the heat associated with transfer of material from a gas to a liquid phase for pure hydrocarbons and multicomponent mixtures.

158 GAS AND LIQUID FILTERS — Drico Industrial Corp, 29 Broadway, New York 6, N. Y. 48-page booklet explains the Vokes principles of filtration and their applications. This booklet includes a discussion on filtration of air and oil for internal combustion engines and compressors.

159 DIESEL ENGINES — Chicago Pneumatic Tool Co, 6 E 44th St, New York, N. Y. New line of heavy-duty diesel announced in Bulletin 764-2. Features and specifications of both naturally aspirated and Elliot-Buchi turbocharged engines from 650 to 1850 hp are included.

All literature designated with a star (★) may be obtained only by writing direct to the manufacturer on company letterhead, giving writer's name and title.

★ DIESEL-ENGINE COOLING SYSTEMS—Binks Mfg Co, 3114 Carroll Ave, Chicago 12, Ill. 20-page booklet, entitled "Diesel Engine Cooling Systems," is a valuable addition to reference library of anyone interested in stationary diesel-engine efficiency and lower operating cost. It shows how water-jacket scale, overheating, costly breakdowns and insurance rates can be reduced or eliminated.

160 DIESEL COMBUSTION SYSTEM —Lanova Corp, 38-14 30th St, Long Island City 1, New York. 64-page booklet discusses, in nontechnical language, fundamental and elementary principles of diesels, their operation, comparison to other types of engines and the Lanova combustion system. The booklet also includes useful engineering tables.

161 PISTON RINGS—C Lee Cook Mfg Co, Louisville, Ky. 36-page catalog No. 470 fully describes complete line of Cook graphitic iron piston rings for industrial size diesels and compressors.

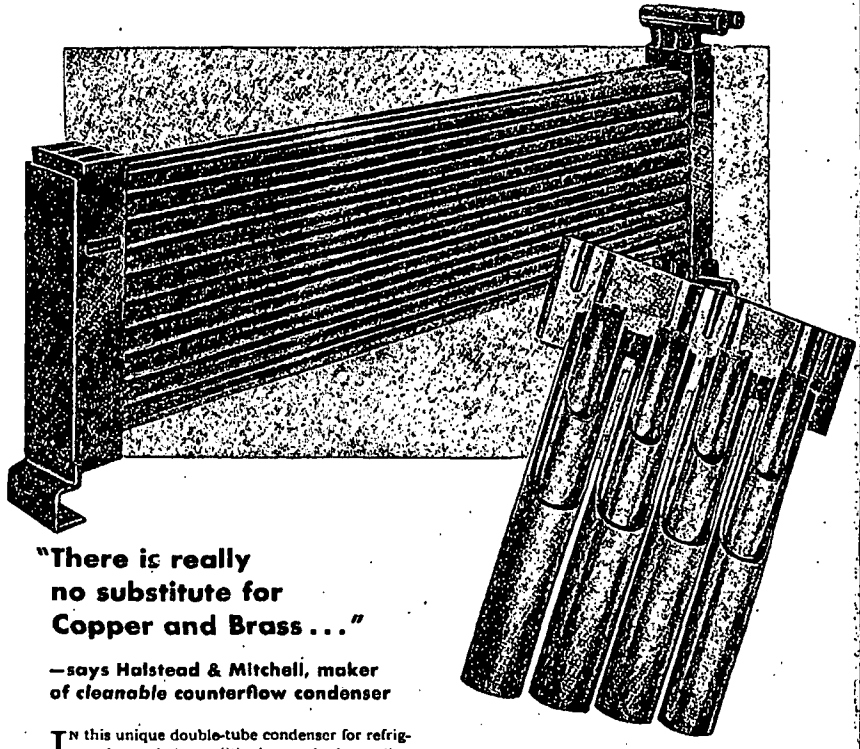
162 OIL FILTERS—Wm W Nugent & Co, 410 N Hermitage Ave, Chicago 22, Ill. 4-page bulletin describes Nugent oil filters for fuel and lubrication of internal combustion engines.

163 GAS ENGINE—National Supply Co, Box 899A, Toledo, Ohio. 16-page bulletin No. 318A describes Superior Type 6G-510 gas engine for drilling.

164 ENGINE INDICATOR—Kalman J De Juhasz, 730 N Atherton St, State College, Pa. 4-page booklet discusses De Juhasz engine indicator for diesel steam and gas engines and compressors.

165 LOW-LEVEL EDUCTOR CONDENSERS—Schutte and Koerting Co, 12th and Thompson St, Philadelphia 23, Pa. 8-page bulletin No. 5-B covers low-level eductor condensers that operate on jet principle.

166 VIBRATION CONTROL—Kortland Co, 38-23 33nd Pl, Long Island City 1, N. Y. 4-page bulletin No. Vc-800 de-



"There is really no substitute for Copper and Brass . . ."

—says Halstead & Mitchell, maker of *cleanable* counterflow condenser

In this unique double-tube condenser for refrigeration and air conditioning work, the cooling water flows through an inner copper tube. The refrigerant flows in the opposite direction through the outer tube—also of copper. The brass header is machined from a solid brass bar and is designed to permit easy cleaning of the inner cooling tube, thus maintaining the high original cooling efficiency throughout the long life of the condenser.

Mr. Halstead writes—"Frequently we are asked why we use copper and brass in such preponderant quantities in producing our double-tube condensers. Brass was selected for headers as a rustproof material of uniform density suitable for high-speed machining and dependable high-temperature brazing. All tubes are of copper for high thermal conductivity, corrosion resistance, long life and good brazing properties.

"In our condenser assemblies it is of prime importance that we use a combination of materials that makes possible maximum production with a minimum of leaks. In the immediate past as many as 12,000 brazed joints have been made without one leaker."

Main illustration shows HM Counterflow Condenser for 5 h.p. (5 tons) refrigerating plant—a product of Halstead & Mitchell, Pittsburgh, Pa. Immediately above, cutaway view bisects header longitudinally, revealing bolt holes for removable plate, brazed double-tube assemblies and method of channeling flow of refrigerant and coolant.

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