

# Equipment

*The information reported here is obtained from manufacturers and from other sources considered to be reliable. Science does not assume responsibility for the accuracy of the information. A coupon for use in making inquiries concerning the items listed appears on page 378.*

■ **TEMPERING BATH** for Babcock test is available in three sizes. Temperatures are controlled within  $\pm 1^\circ\text{F}$  at any setting in the adjustable range from room temperature to  $160^\circ\text{F}$ . Construction is of stainless steel with Fiberglas insulation. A retaining rack permits test bottles to be emptied simultaneously. (National Appliance Co., Dept. 218)

■ **OXYGEN ANALYZER** for the determination of oxygen in steel, titanium, tungsten, and other metals is capable of a complete oxygen analysis in 5 min. Based on a sample size of 1 g, range is from 0 to 0.035-percent oxygen. Sensitivity is 0.0002 percent. The apparatus does not require a glass blower. The reaction tube, in which the sample is heated, can be changed in 2 minutes. (Laboratory Equipment Corp., Dept. 219)

■ **OPTICAL READING DEVICE** combines a microscope, for normal-distance viewing, with a precisely engraved steel scale

graduated in 0.05 in. spacings. Settings with the device are said to be accurate to 0.00025 in. Scale lengths from 12 to 72 in. are available. (F. T. Griswold Manufacturing Co., Dept. 220)

■ **TAPE DEMAGNETIZER** for bulk erasure of magnetic tape records is said to reduce signal level 4 to 6 db below that possible with standard erasing heads. Reels up to  $10\frac{1}{2}$  in. in diameter for tape widths up to 2 in. can be handled. Reels are rotated by a motorized turntable. (Librascope, Inc., Dept. 221)

■ **HALOGEN LEAK DETECTOR** responds only to increases in the amount of tracer gas present, making it unnecessary to wait for the instrument to clear itself. Four models are available for specific applications including high-speed checking of parts being conveyed past the detector and detection of leaks in vacuum systems operating at 1 to 500  $\mu\text{-Hg}$  or at 20 mm-Hg and above. (General Electric Co., Dept. 225)

■ **DIGITAL READOUT** presents numbers in a single plane with no overlapping characters. The device employs a simple projection system. Lamp life is said to be from 7000 to 8000 hr. The display consists of four digits and a symbol readout. (Kin Tel, Dept. 242)

■ **SCALER** of glow-tube type has a capacity of five decimal digits without mechanical registers. Resolving time is 150  $\mu\text{sec}$ . The input sensitivity is 0.25 v negative. A high-voltage supply is variable between 500 and 2500 v. (Baird-Atomic Inc., Dept. 233)

■ **FRACTION COLLECTOR** for isolating pure gas with chromatograph fractions uses the freeze-out method of collection. The fraction is captured in a U-tube of pure silica sand chilled to liquid-nitrogen temperatures. The unit is operated with a rapid single-stroke plunger, and samples may be collected at 5-sec intervals. (Hamilton Co., Dept. 236)

■ **CARD-TO-TAPE CONVERTER** is a magnetic-core memory unit that stores up to 80 alpha-numeric characters to accommodate the full contents of a standard card. The memory can be filled in a parallel manner directly from card-sensing brushes and can be read serially a character at a time. Reading time can be 14  $\mu\text{sec}$  per character. Provision is made for code conversion. (Telemeter Magnetics Inc., Dept. 226)

■ **DIGITAL VOLTMETER** measures d-c voltage from 0.001 to 1000 v with  $\pm 0.1$ -percent accuracy. Readout consists of three digits and a polarity and decimal-point

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indication. The display time can be adjusted from 0.1 sec to infinity. Input impedance is 20,000 ohm/v. (Kin Tel. Dept. 243)

■ **CARBON DIOXIDE EQUILIBRATION APPARATUS** may be attached directly to a tank of gas. The device includes a needle-valve assembly, glass-bead trap, and a syringe-needle adapter. By means of the apparatus, gas is bubbled through a serum sample, completely saturating a 1.5-ml sample within 3 min. (Will Corporation, Dept. 237)

■ **AIR PARTICLE MONITOR** indicates detection and measurement of particulate radioactive contamination on a logarithmically calibrated scale covering a range of  $5 \times 10^{-10}$  to  $10^{-6} \mu\text{c}/\text{cm}^3$ . Any preset level can be used to trigger a warning. The equipment is comprised of a computer unit and a pump unit. The computer unit consists of a beta scintillation counter, photomultiplier, and amplifier circuits. (Fairchild Camera and Instrument Corp., Dept. 240)

■ **AUDIO SIGNAL GENERATOR** operates on the heterodyne principle from 2 to 4000 cy/sec. The frequency scale is logarithmic. A built-in voltmeter provides an output indication that is accurate to  $\pm 2$  percent. Frequency scanning and output regulation are automatic. (Brush Instruments, Dept. 210)

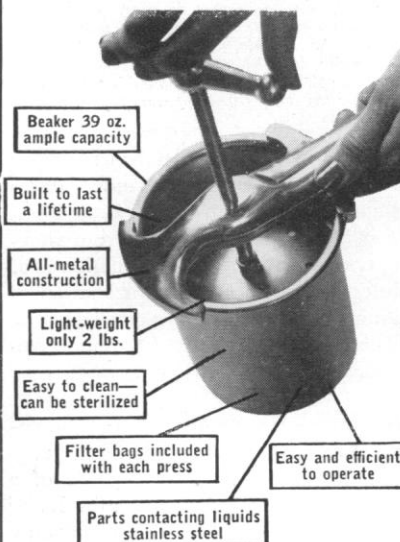
■ **VOLTMETER** uses suppressed zero to achieve  $\pm \frac{1}{2}$  percent accuracy over a narrow range. Accuracy is maintained without ovens over the temperature range  $-55^\circ$  to  $+65^\circ\text{C}$  and over the frequency range 50 to 2000 cy/sec. Both d-c and a-c types are available. (Voltron Products, Dept. 211)

■ **DIGITAL ACTUATOR MOTOR** is capable of stepping rates up to 60 per second with travel of 180 deg/step. Used with a 180-to-1 gear ratio, the actuator produces 80 in. oz of torque for a 1-deg step. The weight of the motor and relay box is 1.3 lb. (Digitran Co., Dept. 215)

■ **INDUCTANCE METER** measures inductance between 0.05  $\mu\text{h}$  and 100 mh. The instrument consists of an oscillator, tunable over the range of 16 kcy/sec to 5 Mcy/sec, loosely coupled to a resonant circuit consisting of a fixed capacitor and the inductance to be measured. The resonance point is indicated by an electron indicator tube. Provision is made for measurement of low capacitance and for approximate value of  $Q$ . (Wayne-Kerr Instruments, Dept. 256)

■ **WORLD-TIME CLOCK** uses signals picked up from the National Bureau of Standards Station WWV. Compensation is provided for propagation errors. Time

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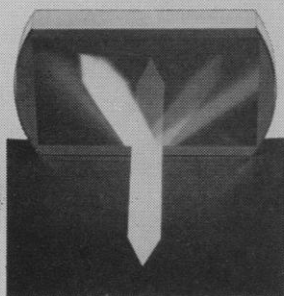
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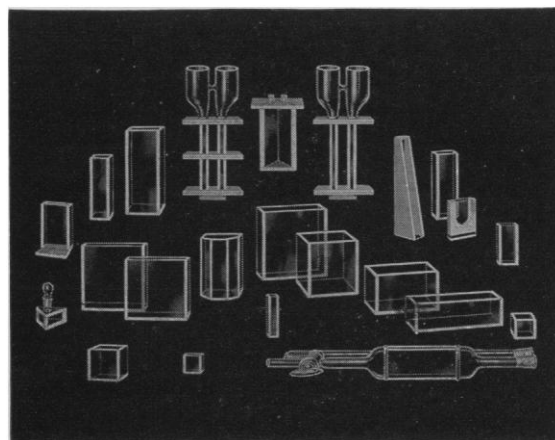
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DPN KINASE Catalyses reaction DPN + ATP → TPN **Inquire**  
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is indicated to the nearest millisecond. To synchronize the time at this precision, a stroboscope is used. The 1-sec interval strobe pulse is brought into coincidence with the second ticks of WWV. (Edgerton, Germeshausen & Grier, Inc., Dept. 257)

■ **SPECTROPHOTOMETER AND REFLECTANCE ATTACHMENT** uses a diffraction grating as the dispersion device to provide monochromatic radiation. The instrument contains a spherical integrator and a reflectance measuring system designed so that fading, chipping, or stain-

ing of the interior surface of the sphere will not affect accuracy. Very small samples can be measured. A trichromatic chart permits the conversion of reflectance readings to standard C.I.E. trichromatic values. (Bausch and Lomb Optical Co., Dept. 301)

■ **MOISTURE METER** for gaseous mixtures has six ranges from 0 to 20,000 parts per million; the smallest full-scale range is 0 to 10 parts per million. The instrument operates on the electrolysis principle, whereby the current required to electrolyze all of the water indicates

water content. Sample flow is precisely controlled at temperatures up to 100°C and at pressures of 10 to 40 lb/in.<sup>2</sup> (gage). Output voltage can be adjusted from 10 to 110 mv full scale for input to recorders. (Consolidated Electro-dynamics Corp., Dept. 249)

■ **PREAMPLIFIER** operates with the manufacturer's 12 in. strip-chart potentiometer recorder to provide full-scale deflections in 0.25 sec with input signals of 20  $\mu$ v d-c. The amplifier is a carrier type with differential input, 20-cy/sec frequency response, 1- $\mu$ v noise, and drift and gains as high as 100,000. Full-scale output is 10 mv from a voltage divider, or 10 v without the voltage divider. (Minneapolis-Honeywell, Dept. 251)

■ **VACUUM-JACKETED TRANSFER LINES** featuring heat transfer as small as 5.5 to 11 Btu/ft hr are available in sections up to 40 ft long and in diameters of 1.25 and 3 in. Lines are treated on the outside to reduce radiative heat transfer, then surrounded with a vacuum jacket that is pumped down to a pressure of  $1 \times 10^{-5}$  mm-Hg or lower. (Consolidated Electro-dynamics, Dept. 252)

■ **COMBINATION VACUUM AND PRESSURE PUMP** consists of a vane-type, dry-air pressure pump and an oil-wetted, rotary-vane-type vacuum pump mounted at opposite ends of an electric motor. The unit will deliver 400 in.<sup>3</sup>/min at 300 lb/in.<sup>2</sup> (gage), and produces a vacuum of 0.20 in.-Hg. (Lear, Inc., Dept. 258)

■ **PRESSURE TRANSDUCER** combines a Bourdon-tube sensing element and a variable-inductance pick-up. Excitation is normally 30 v at 400 cy/sec. The full-scale output is 0.1 v d-c/v a-c. Ranges from 15 to 3000 lb/in.<sup>2</sup> full scale are available. Response is constant to 10 cy/sec. Hysteresis is 0.5 percent of full scale. Sensitivity is 0.1 percent, repeatability 0.2 percent. (Servomechanisms, Inc., Dept. 255)

■ **OPTICAL GAGE** measures depth, thickness, height, and diameter over a range of 0 to 3 in. without masters or set gages. Measurements are read on an illuminated, magnified scale graduated in least-reading intervals of 0.0001 in. with accuracy of 25  $\mu$ in. The master scale from which the scale is made is ruled on a diffraction-grating ruling engine. Objects to be measured are laid on an anvil flat to an accuracy of 5  $\mu$ in. A control knob lowers a spindle until it contacts the object being measured. The spindle stops automatically on contact with the object, and the measurement may be read immediately. (Bausch & Lomb Optical Co., Dept. 250)

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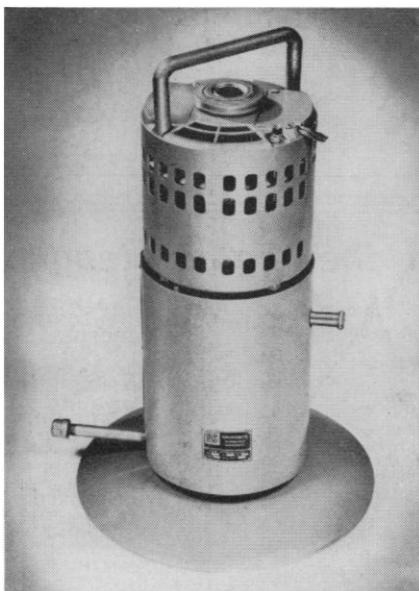
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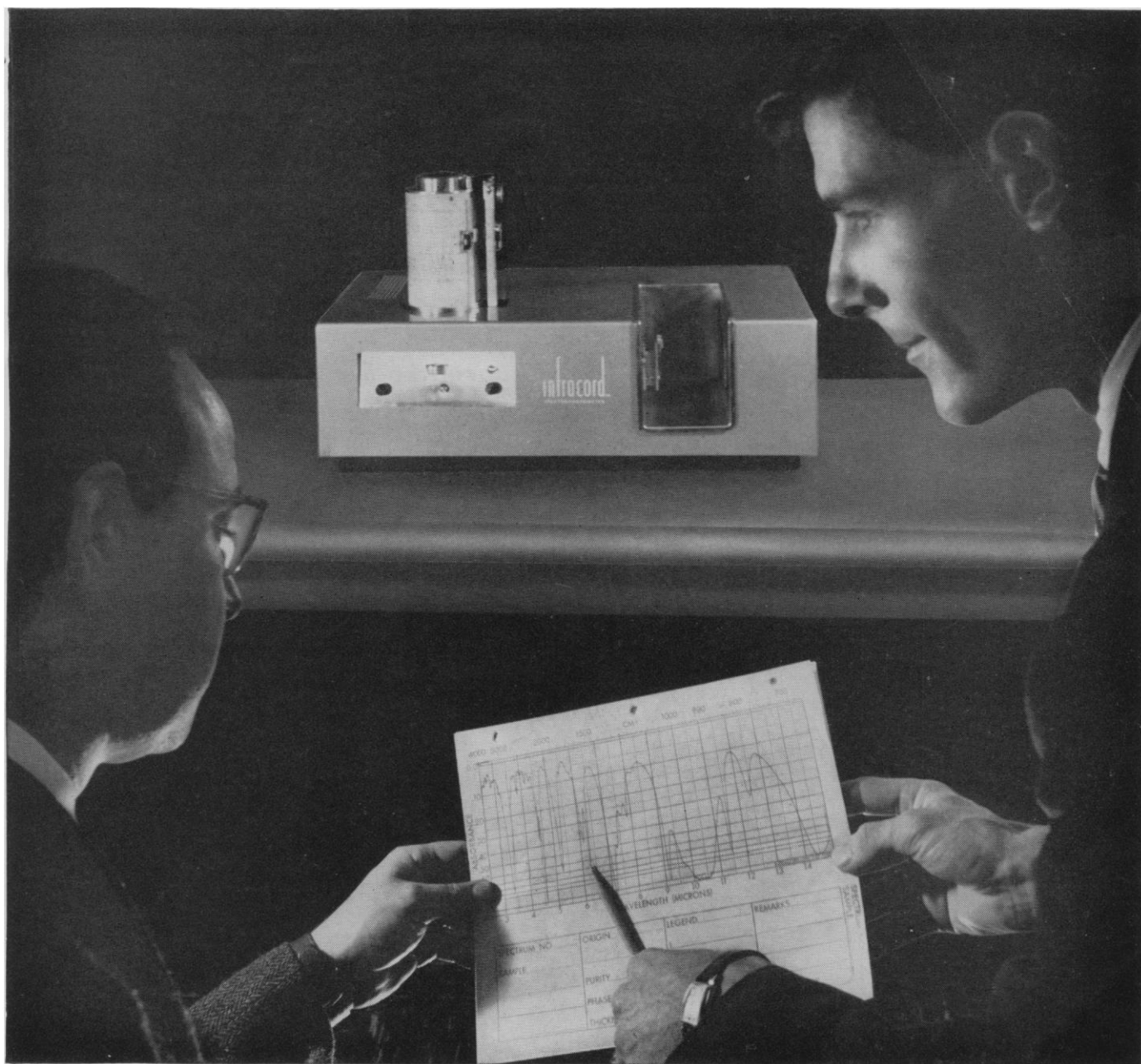
Guaranteed Absolute Pressure .....	0.1 Micron
Pumping (displacement) Speed .....	50 liters/min.
Operating Speed .....	1140 rpm
Oil Charge Required .....	1 pint
Height .....	20½ inches
Diameter .....	12 inches
Weight .....	45 lbs.
Voltage .....	110/220
Cycles .....	50/60
Price .....	\$195.00

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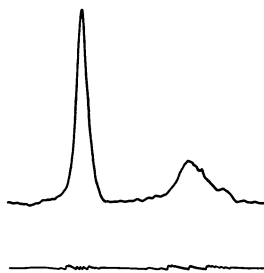
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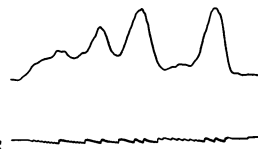
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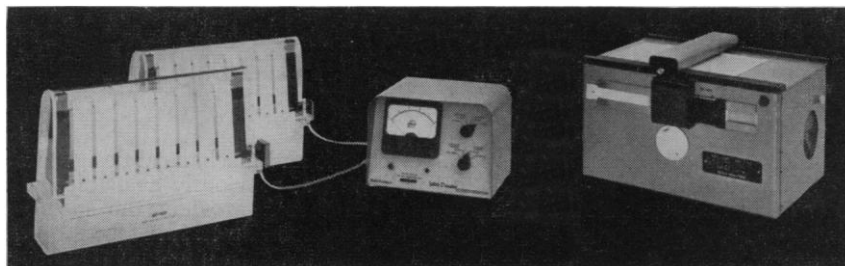
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