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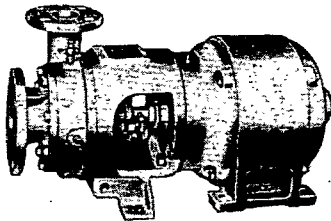
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CENTRIFUGAL PUMPS

The **MOTORPUMP** is a compact, "package" unit, mounted integrally with motor on a rigid, oversize shaft and oversize bearings. It is highly adaptable to many services, needs no special foundation, and operates equally well in any position. It is available in several materials for pumping various liquids. Capacities from 10 to 1800 gpm, heads to 600 ft.

Other I-R pumps are offered for all hydraulic services, with any type of drive.

ALL PURPOSE PORTABLE TOOL

The 4U Electric Impact Tool is a lightweight, portable, tool for running and removing nuts, screws and studs, drilling, reaming, tapping, wire brushing, drilling brick and masonry, driving wood augers, hole-saw work, and the 101 jobs encountered in installation work. Plugs into any wall outlet. Capacities: $\frac{1}{4}$ in. drills, step-reaming to $\frac{1}{2}$ in., running nuts to $\frac{3}{8}$ in. thread size. 110 and 220 volts, 25 to 60 cycles universal motor.

LIGHT-WEIGHT JACKHAMMER

The J-10 Jackhammer is the smallest of the self-rotating, rock-drill line, weighs 14 lbs. and is especially designed for maintenance and installation work. Its uses include drilling masonry for conduit, sprinkler hangers, foundation bolt holes, pipelines and drains as well as tearing out brick-work for doors and windows and similar demolition jobs. The J-10 is air-powered.

STEAM-JET REFRIGERATION

Where refrigeration is needed down to 35°F, and a supply of steam is available, the I-R system of water-vapor refrigeration with Steam-Jet Coolers is offered. In this system water is the only refrigeration medium. It is cooled by direct evaporation in a high vacuum created by steam-jet booster ejectors. There are no moving parts, no vibration nor noise. Sizes run from 20 to 1200 tons of refrigeration and can be built to operate at any one of a wide range of pressures down to 2 lb per sq in.

I-R COMPRESSORS OF ALL TYPES AND SIZES

I-R Compressors are offered in all sizes and types from $\frac{1}{2}$ to 3000 hp, in pressures from a few ounces to 15000 lbs, and in stationary or portable models. Air-cooled units range from $\frac{1}{2}$ to 90 hp. I-R Water systems are available for industrial and domestic uses.

INTERNATIONAL HEATING & VENTILATING EXPOSITION THE AIR CONDITIONING EXPOSITION

Permanent Address—Grand Central Palace, New York 17, N. Y.

EXPOSITIONS HELD

New York, 1948; Cleveland, 1947-1940; New York, 1938; Chicago, 1936; New York, 1934; Cleveland, 1932; Philadelphia, 1930.

1949 IN CHICAGO

The Ninth Air Conditioning Exposition will be held at the International Amphitheatre, Chicago, Ill., January 24 to 28, 1949. This promises to be one of the largest ever held and is in accordance with previously announced plans to hold the Exposition annually through 1950.

These Expositions continue to provide a valuable service to the industry by offering common meeting places where newest developments may be personally demonstrated and problems may be discussed with technical personnel. Every phase of air conditioning is covered—heating, cooling, piping, ventilation, humidification and dehumidification for industrial and commercial establishments as well as homes.

UNDER AUSPICES OF A.S.H.V.E.

These Expositions have been and will be held co-incidental with the annual meetings of the American Society of Heating and Ventilating Engineers and under their auspices. Management is by International Exposition Company with permanent headquarters at Grand Central Palace, New York 17, N. Y.

EXHIBITORS

Comprise leading firms in each phase of the industry; number has varied from 150 to 400 exhibitors.

EXHIBITS

These range from and comprise all the types of articles discussed or advertised in this copy of THE A.S.H.V.E. GUIDE.

1. **The COMBUSTION Group:** Furnaces, burners (coal, oil and gas), grates, stokers, boilers, radiators (various types), refractories and auxiliaries.
2. **The OIL BURNER Group:**
3. **The HYDRAULIC Group:** Water feeders, water heaters, pumps, traps, valves, piping, fittings, expansion joints, pipe hangers, etc.
4. **The STEAM HEATING Group:** Vapor heating and steam specialties.
5. **The HOT WATER HEATING Group.**
6. **The AIR Group:** Warm Air furnaces and stoves, registers and grilles, cooling towers, air filters, motors, fans, blowers, condi-

tioning equipment, ventilators (room and industrial types), unit heaters, etc.

7. **The AIR CONDITIONING Group:** Equipment which circulates and filters the air, in summer dehumidifies and cools; in winter heats and humidifies, and does all these in proper season for complete, all year-round air conditioning.
8. **The CONTROL Group:** Instruments of precision for indicating, controlling or recording temperature, pressure, volume, time, flow, draft or any other function to be measured.
9. **The REFRIGERATING Group:** Compressors, condensers, cooling apparatus, contingent apparatus and refrigerants.
10. **The CENTRAL HEATING Group:** Apparatus and materials especially designed or adapted to the uses of central heating and central heating station supplies.
11. **The INSULATING Group:** Structural insulators (refractory and cellulose materials), asbestos, magnesite clays and combinations thereof, pipe and conduit covering, etc., weather-stripping, etc.
12. **The MISCELLANEOUS Group:** Electric Heaters, boiler and pipe repair alloys, liquids and compounds, tools of all kinds, and equipment not specifically included in the above groups, but related thereto.
13. **The MACHINERY AND GENERAL EQUIPMENT Group.**
14. **BOOKS AND PUBLICATIONS.**

VISITOR ATTENDANCE

Attendance is by invitation and registration only, thereby presenting a selected audience. Included are contractors, dealers, jobbers, supply houses, home owners, industrial users, professional and service organizations, public utilities, real estate management concerns, etc. A detailed analysis of registered attendance is available on request. In 1948 at New York, there were 50,000 registered visitors.

Industrial Expositions in America lead the expositions of the world in style, business effectiveness, industrial influence and educational value. This Exposition stands among the leaders in Industrial Expositions in America. It is an educational institution which brings together the research developments and improvements in equipment and materials for use in heating, ventilating and air conditioning all types of buildings.