

Stationary

Standard stationary compressors, intended for installation on more or less permanent foundations, are built in a number of types: (a) Vertical or V single-acting units, either air- or water-cooled, and single- or 2-stage, are available in sizes up to 150 hp. (b) Double-acting units, of vertical V, Y, semi-radial or right-angle types, and single-stage or multistage, come in 60-hp and larger sizes. They are water-cooled. (c) Double-acting units of single-frame type, horizontal or vertical, single-stage or multistage, range in size up to 175 hp, are water-cooled. (d) Duplex horizontal double-acting compressors, water-cooled and single-stage or multistage, run 75 hp and larger. Photos on these two pages show a few of typical designs available today.

Single-Acting. Fig. 1 and 2 show two examples of this design. Vertical unit, 1, mounts on its receiver, is air-cooled. Single-stage, its maximum pressure rating is 150 psi in the 1/4- to 15-hp range. Two-stage air-cooled tank-mounted units are available for pressures to 200 psi.

Water-cooled unit, 2, has motor, compressor and radiator on a single base for direct mounting on plant floor. Pressure rating is 100 psi, capacity to 420 cfm at 100 psi.

Double-Acting. Right-angle crosshead-type 2-stage water-cooled unit, in Fig. 3, is rated at 80 to 125 psi with a displacement of 2397 cfm at 350 hp. Vertical V unit, Fig. 4, has a normal pressure rating to 125 psi and a displacement of 368 to 1828 cfm, depending on number of cylinders.

Single-frame units like that in Fig. 5 are built in a wide range of capacities for normal 100-psi plant service. Drive is usually an electric motor.

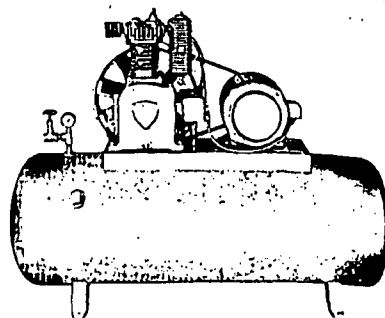
Duplex compressor, Fig. 6, offers capacities from 350 to 10,000 cfm, at pressures from 80 to 125 psi.

Other Types. In addition to types mentioned there are a number of other designs widely used for various jobs. Multistage, multicylinder, opposed units, Fig. 7, are built for pressures to 6000 psi, ratings to 5000 hp.

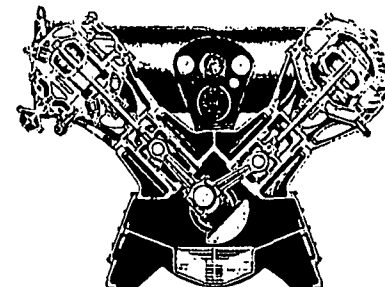
Oilless compressors, Fig. 8, are used where air free from oil is needed. Design shown has a carbon cylinder liner backed with steel. Piston rings are metallic. Compressor cylinder needs no lubricant. Other designs have a tail-rod and bearing to make piston free-floating; piston rings are made of carbon. Another construction has carbon pistons.

Engine-driven compressors, Fig. 9, have a vertical or V engine (gas or diesel) driving horizontal compressor pistons, in double-acting cylinders.

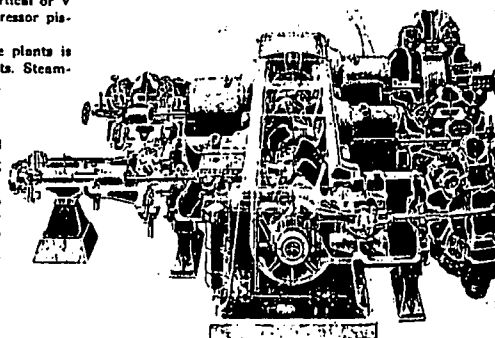
Another type of compressor popular in some plants is similar in design to locomotive air-brake units. Steam-driven, it mounts on wall, takes but little space.



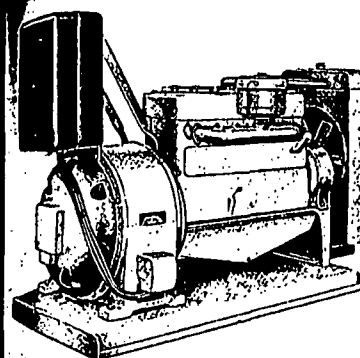
1 Single-stage single-acting air-cooled compressor, with a 150-psi pressure rating, 1/4- to 15-hp range, is an receiver



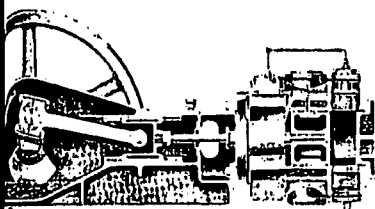
4 Vertical V unit has two or four cylinders, depending on capacity desired. Pressures range to 125 psi, cfm to 1828



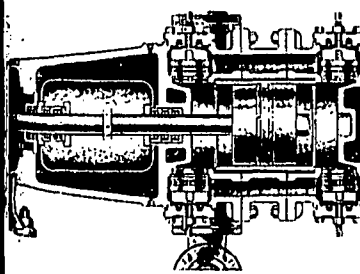
7 Multistage, multicylinder, opposed unit is built for pressures to 6000 psi. Other types also handle high pressures



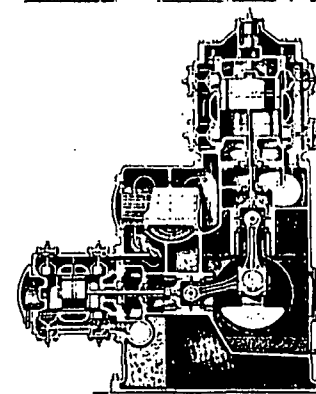
2 "Package-type" compressor has components on a single base for easy mounting directly on plant floor, is water-cooled



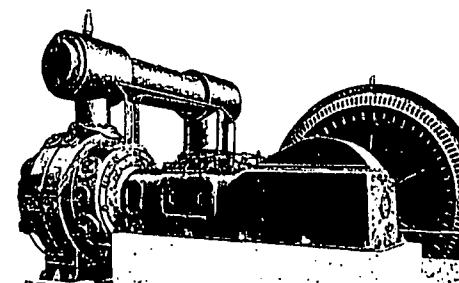
5 Horizontal single-frame units like this are built in wide range of capacities. Normal pressure rating is 100 psi



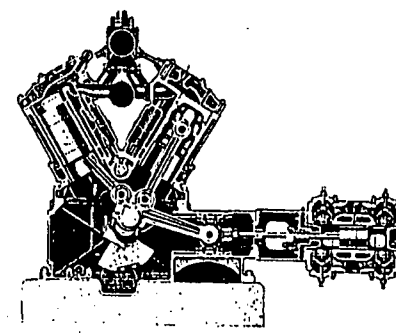
8 Oilless compressor uses no lubricant in cylinder, discharges oil-free air. Cylinder liner is carbon, backed with steel



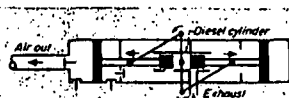
3 Another package-type compressor has its cylinders at right angles, takes little space. Water-cooled, 2-stage, 350-hp



6 Duplex double-acting compressor is typical of designs in this type for 80 to 125 psi. Made in wide capacity range



9 This V-type gas engine drives horizontal air compressor; two units are combined in a single frame for compactness



Free-Piston Compressors.

These compact, relatively vibration-free units now find commercial use in Europe. Diagram shows one arrangement, with opposed-piston diesel cylinder in center, air cylinder at ends. For details, see POWB, Feb 1951, pp 84-86.