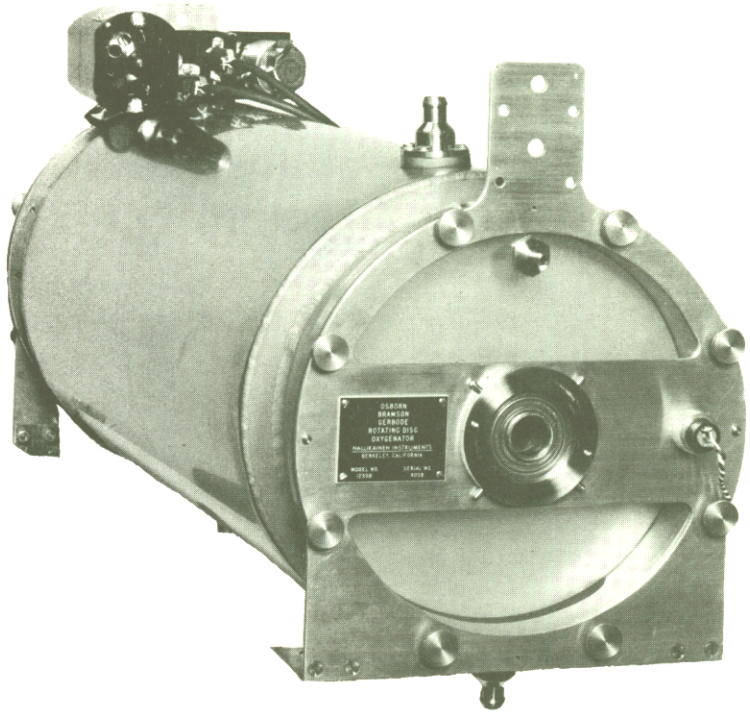
HALLIKAINEN Instruments
SLACO DIVISION
BIOLOGICAL and MEDICAL

OSBORN - BRAMSON - GERBODE
OXYGENATOR



Model 1235

The Osborn - Bramson - Gerbode Rotating Disc Oxygenator has been designed and developed by the San Francisco Institute of Medical Sciences (located at San Francisco Stanford Hospital) and is now the only type used for perfusions by the Cardio-Vascular unit of the Institute. It has also been adopted by a number of cardiac surgeons in the United States and foreign countries.

At this printing (5-1-60), it has been used at San Francisco Hospital for 103 open-heart operations, with perfusions lasting up to three and one-half hours. With the use of this oxygenator, there has been almost no post-operative fever and no ill effects traceable to the heart-lung machine following any of these operations.

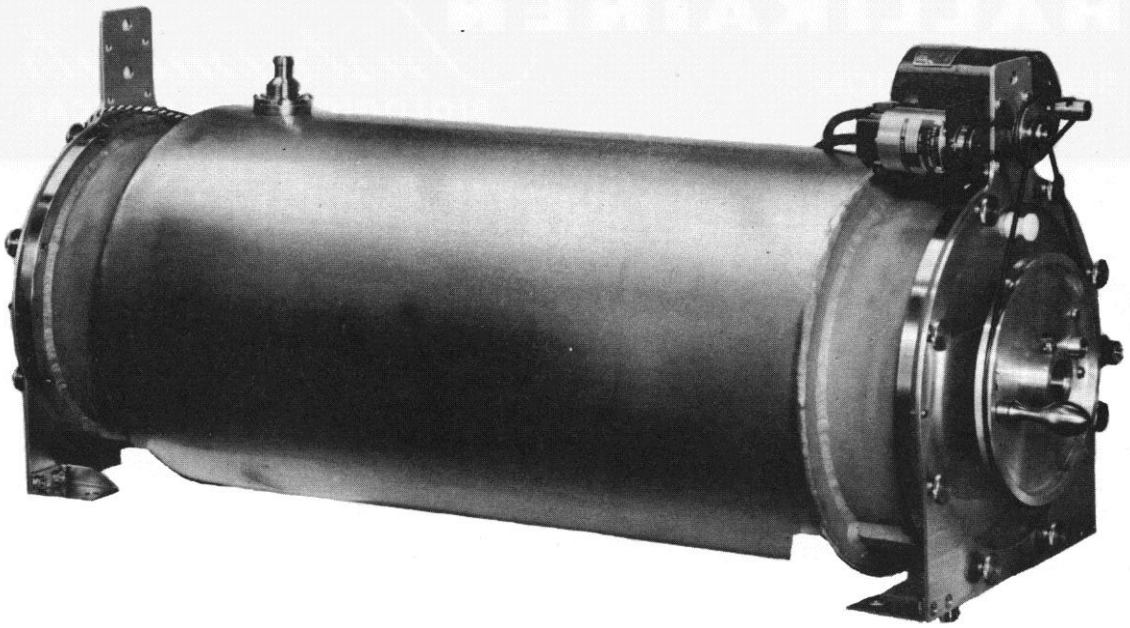
SPECIAL FEATURES

1. At the maximum recommended speed of rotation (120 RPM) and perfusion rate (4½ liters per minute) the Osborn-Bramson-Gerbode Oxygenator does not produce foam, nor does it require the use of anti-foam compounds (now generally considered traumatic).
2. The ratio of oxygenating surface to priming volume is almost doubled when compared with best previous practice.
3. The Osborn-Bramson-Gerbode Oxygenator embodies heat transfer characteristics which, without additional blood contact surfaces or priming volume, allows perfusions to be combined with rapid cooling and re-warming of the circulating blood.
4. Cleaning techniques have been developed which greatly reduce the cleaning man-hours per perfusion. (The cleaning process is performed on the shaft-disc assembly as a unit, without disassembling, by successive immersions in processing and rinsing tanks.)

A detailed description of the oxygenator, its design, performance, clinical use, cleaning and maintenance, will be found in the April 1960 issue of the Journal for Thoracic and Cardio-Vascular Surgery.

Model 1293 — Power Supply

1341 SEVENTH STREET, BERKELEY 10, CALIFORNIA

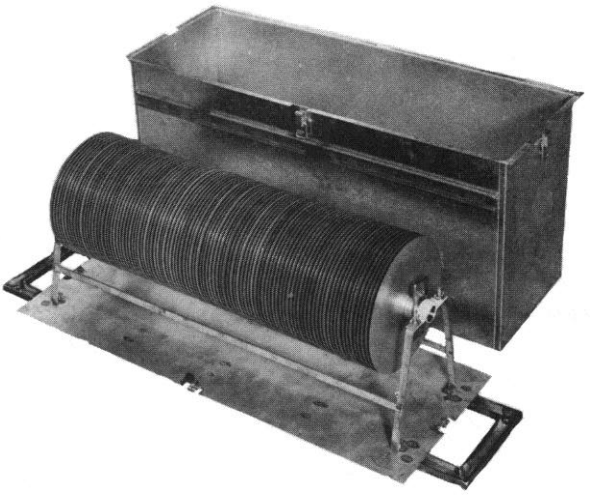


Side View of Oxygenator

SPECIFICATIONS

1. Main cylinder and discs are made of stainless steel.
2. The end covers are made of transparent Kel-F plastic, reinforced with aluminum (the aluminum does not come into contact with the blood).
3. The blood inlets and outlets are vertical, below the discs.
4. The blood outlet is provided with an anti-vortex baffle.
5. A jacket is provided for hot and cold water circulation to provide temperature control.
6. A two-stage rubber belt speed reducing drive with motor attached to the unit is provided so that the oxygenator can be freely suspended and continuously weighed for accurate volume control. A tachometer generator is similarly mounted for shaft speed measurement.
7. Electric light bulbs are mounted inside end covers to facilitate observation of blood levels.
8. A clip is provided at the output end of the oxygenator for a photo cell level sensing device if desired.
9. A separate cabinet housing the power supply for the motor and lamps is provided. Built into this cabinet is an adjustable power transformer to regulate the speed of the motor driving the shaft. The cabinet also incorporates on its front panel a meter to indicate the speed of the shaft by measuring the voltage output of the tachometer generator.

The oxygenator may be set upon a table with one end, on which the motor and tachometer generator are mounted, raised slightly higher to provide for proper flow of blood through the unit. As an alternate, the oxygenator may be suspended from two beams on which are mounted strain gauges. The output of the strain gauges is fed into an electronic instrument controlling the position of a motor-driven adjustable power transformer which in turn controls the speed of the motor of the blood pump to automatically regulate the blood flow so that constant blood volume is maintained in the oxygenator. This equipment is available at extra charge.



Shaft and Disc Assembly with carrying case