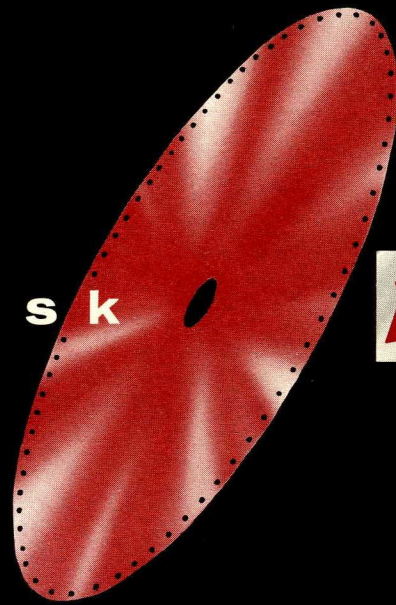


**B e r n o u l l i   D i s k**



**LFE** BD-100



# simplest rotating storage device ever developed.

The Bernoulli Disk is a proprietary development of the LFE Applied Research Laboratory. It offers the following advantages:

**reliability** . . . due to the extremely low mass of the disk and the positive separation maintained between the disk and headplate, possibilities of damage to the read/write heads or the recording medium are virtually eliminated even under conditions of severe shock and vibration.

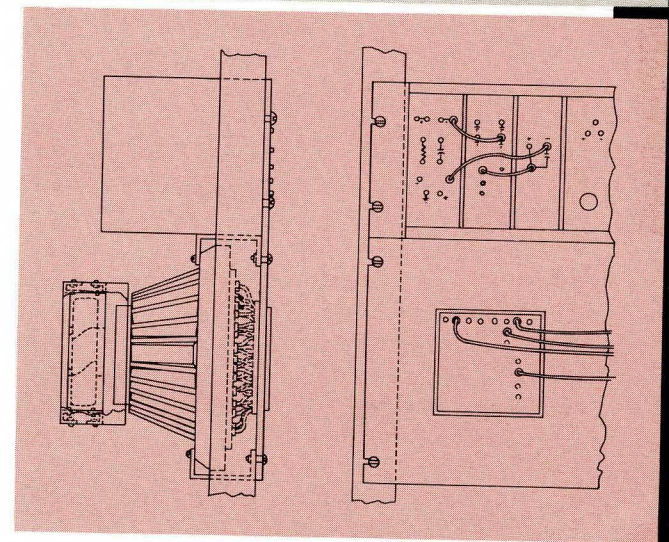
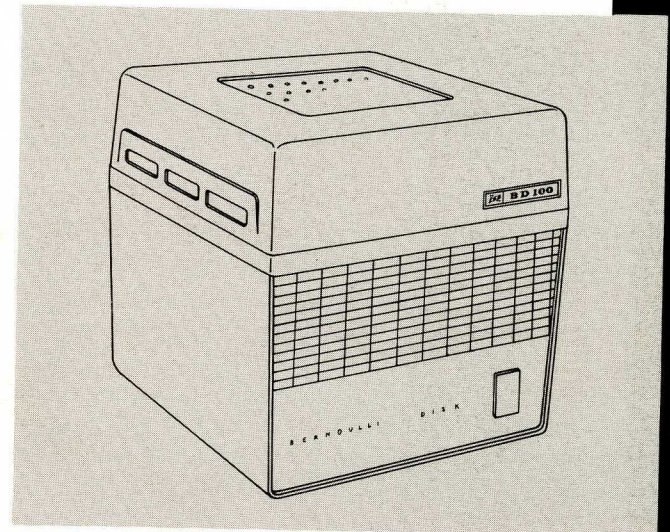
**temperature** . . . meets military specifications for ground equipment, withstands severe thermal shock, no warm-up required.

**size** . . . smaller and lighter than comparable storage devices.

**flexibility** . . . can be operated at speeds from 1800 to 8,000 RPM with bit frequencies of 90 kc to 400 kc at 3000 bits per track.

## applications

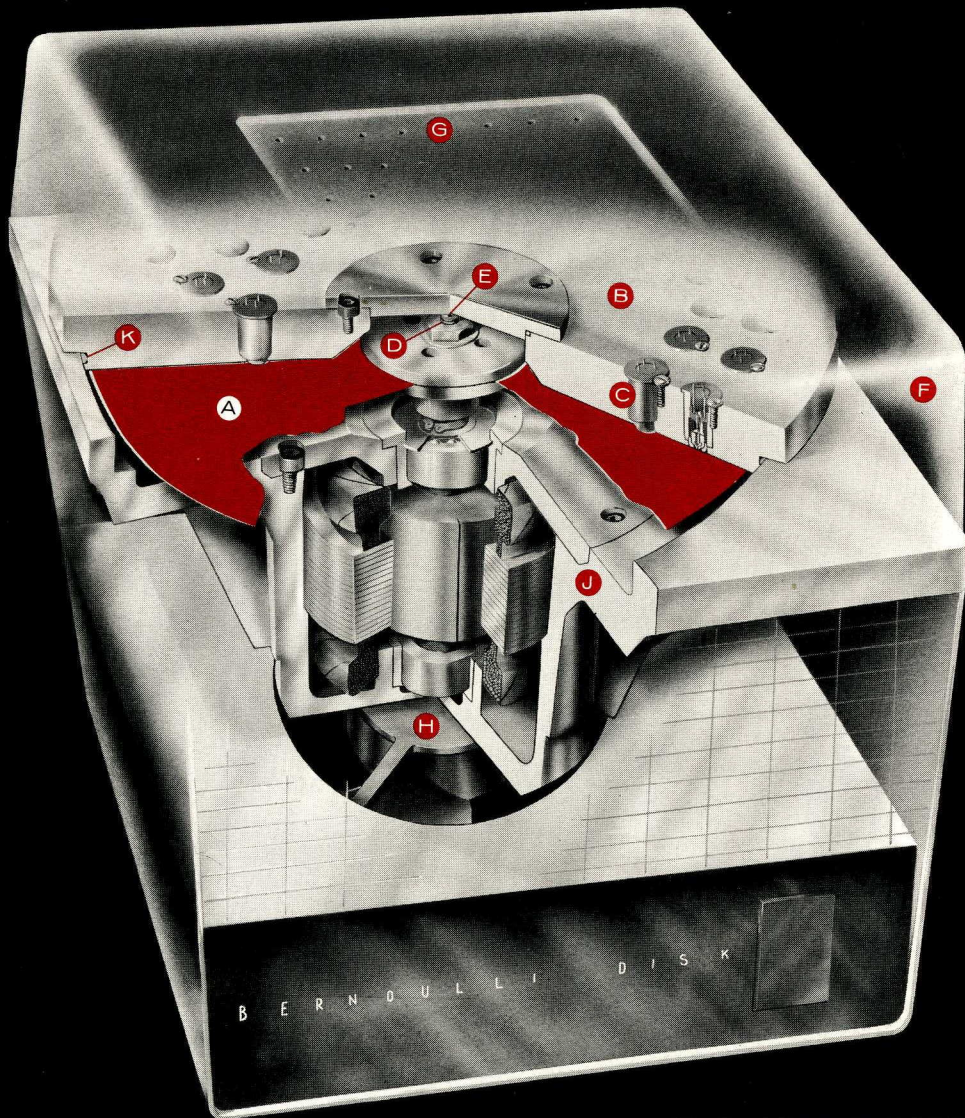
. . . the combination of low cost and high reliability makes the BD-100 Series ideally applicable for use in general purpose EDP systems. Because of its small size and weight and its ability to withstand severe environmental conditions, the BD-100 Series will also find application in a wide variety of fixed station and mobile digital computers.



The BD-100 Series may be panel or deck mounted in any orientation and is available as a bench unit. Connections to the heads or associated electronics may be made through connectors in permanent installations, or through a convenient patch-cord plug-board for system mock-ups.



- (A) Mylar Magnetic Disc
- (B) Stabilizing Backplate
- (C) Read/write Heads
- (D) Motor Shaft
- (E) Air Inlet Orifice



- (F) Dust-Cover for R/W Preamplifiers and Selection Matrix
- (G) Input-Output Plug Board
- (H) Cooling Fan
- (J) Motor Housing
- (K) "O" ring seal

## how it operates ...

The Bernoulli Disk utilizes principles of fluid motion derived from the conservation of energy in liquids and gases first discovered in the early eighteenth century by Swiss scientist, Daniel Bernoulli. A small, controlled separation is maintained between the storage medium and the read/write heads by the motion of a gas.

The device consists of a flexible Mylar disk (A) that is rotated close to a smooth backplate (B) in which read/write heads (C) are embedded flush with the smooth surface. The Disk is attached by flanges directly to the shaft of an electric motor (D) an air-inlet orifice (E) is located in the shaft to permit air to enter between the rotating disk and the stabilizing plate.

When the disk is at rest, it falls away from the backplate; but in motion, the limp disk becomes flattened by centrifugal force and the disk pumps air through the orifice and out at the disk periphery. At this point the hydrodynamic forces of the air between the disk and the stabilizing plate together with the dynamic and elastic forces of the revolving disk, cause the disk to conform to the backplate at a controlled and small separation. *No external air supply is required!*

Complete storage systems and subsystems including read/write electronic modules and magnetic heads are available from the Computer Products Division.



BD-100 series

<b>Storage Capacity (Max) Bits</b>	100,000
<b>Bits Per Track (Max)</b>	3,000
<b>Bit Rate — kc</b>	90-400
<b>Track Layout As Required</b> Typical:	
Total Tracks	40
Data Storage Tracks	32
Spare Tracks	3
Clock and Timing Tracks	3
Register Tracks	2
Number of Registers	4
Register Length — Bits	32
Register Adjustment — Bits	±3
<b>Disk Speed — RPM</b> Induction or Synchronous Motors Available	1800-8000
<b>Power Source — cps</b>	60-400
<b>Magnetic Heads</b> (Compatible with solid state circuits) Typical: (For 200 kc Operation)	
Inductance (Per Leg. — C.T. Coil) — uh	55
Write Current (P/P Manchester) — ma	250
Read Out (Min. P/P Full Coil) — mv	20
<b>Size — Inches</b> (Less Electronics)	9 x 9 x 5
Wide variations from typical specifications can be made to meet customer's requirements.	



Data Storage Operations  
COMPUTER PRODUCTS

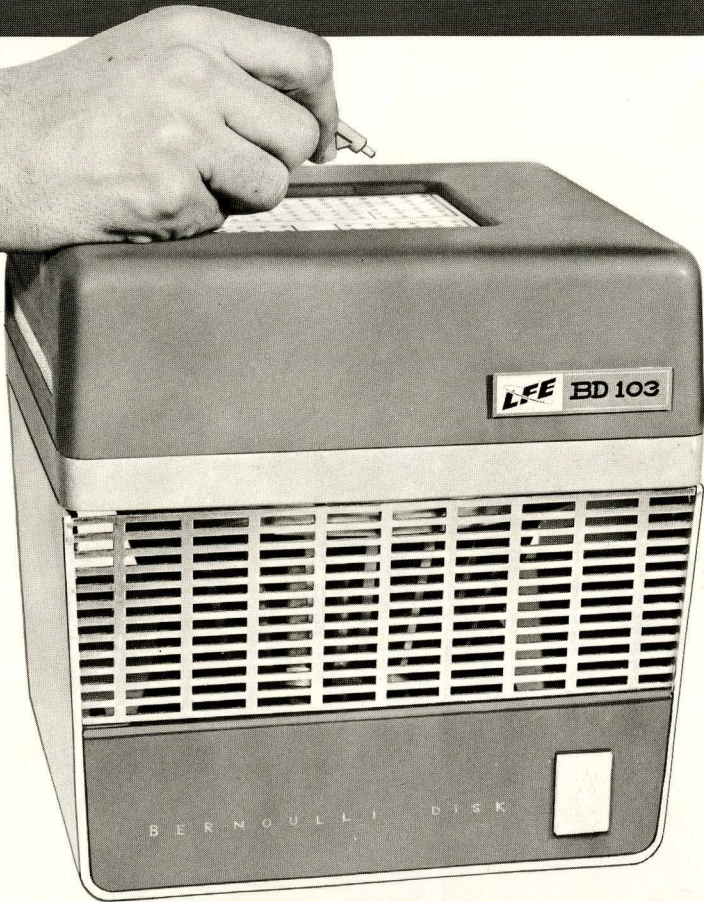
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1079 COMMONWEALTH AVE. • BOSTON 15, MASSACHUSETTS



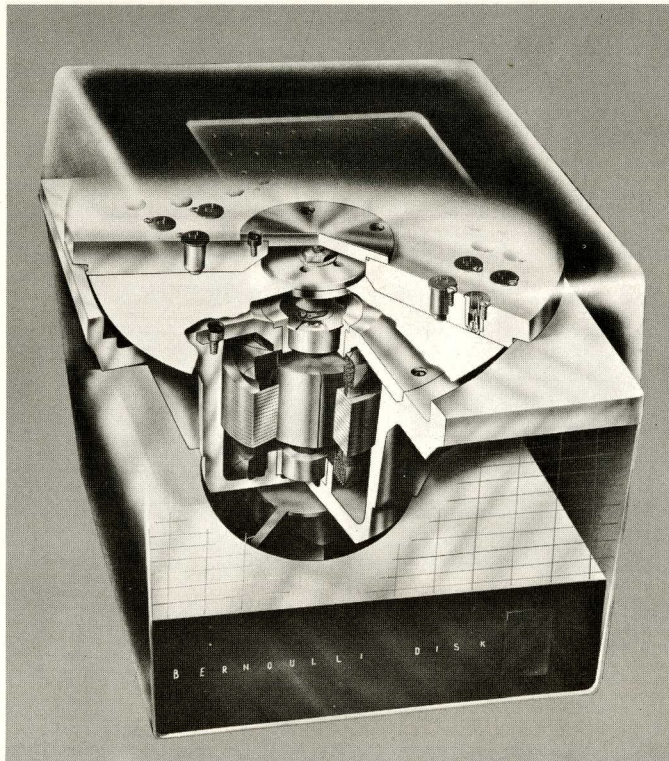
**BD-100 Series**



*\$2700 for 1 + 16 heads  
or 2700 less \$35 per head removed*



**BERNOULLI-DISK**



The BERNOULLI DISK . . . . . simplest rotating storage device ever developed . . . small and compact . . . wide application in fixed station and mobile digital computers.



Specifications on reverse side



# SPECIFICATIONS

Bit Storage Capacity (Max.) .....	100,000
Bits Per Track .....	3,000
Bit Rate (Kilocycles) .....	90-400

Typical Track Layout:

Total Tracks .....	40
Data Storage Tracks .....	32
Spare Tracks .....	3
Clock and Timing Tracks .....	3
Register Tracks .....	2
Number of Registers .....	4
Register Length (Bits) .....	32
Register Adjustment (Bits) .....	±3

**Disk Speed (RPM)** ..... 1800-8000  
 (Induction or Synchronous Motors Available)

**Power Source (CPS)** ..... 60-400

**Magnetic Heads** ..... Compatible with  
 solid state circuits

**Typical: (For 200 KC Operation)**

Inductance (Per Leg — C.T. Coil) .....	55 uh
Write Current (P/P Manchester) .....	250 ma
Read Out (Min. P/P Full Coil) .....	20 mv

**Size — Less Electronics (Inches)** ..... 9 x 9 x 5

**Mounting Device (Inches)** ..... Standard 10½ x 19  
 Relay Rack Panel

*Wide variations from these typical specifications may be made to suit customer requirements.*



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