3680 Specifications

Dimensions
Height: 51 inches (129.5 cm)
Width (no side cover): 20 inches (50.8 cm)
Width (one side cover): 22.25 inches (56.5 cm)
Depth: 32 inches (81.3 cm)
Weight: 625 lbs. (283.4 kg)

Service Clearances
Front: 30 inches (76.2 cm)
Rear: 30 inches (76.2 cm)
Sides:
(right) 24 inches (61 cm)
(left) 24 inches (61 cm)

Cable Lengths

AC Power	4.57 m (15 ft) for 60 Hz; 4.57 m (15 ft) and 7.62 m (25 ft) for 50 Hz
EPO	45.7 m (150 ft) maximum
Remote Switch	45.7 m (150 ft) maximum

Environmental Conditions

Operating

Temperature: 60° to 90° (16 to 32°C)
Relative Humidity: 20% to 80%
Maximum Wet Bulb: 78°F (26°C)
Temperature Variation: 5°F/hour (2.7°C/hour)

Non-Operating

Temperature: 50° to 120°F (10° to 49°C)
Relative Humidity: 10% to 90%
Maximum Wet Bulb: 78°F (26°C)
Temperature Variation: no condensation

Power Requirements

	60 Hz	50 Hz
Voltage	208/230 ± 10%	200/380/400/415 ± 10%
Frequency	60 ± .5 Hz	50 ± .5 Hz
Phase	Three phase	Three phase
Branch service	—attaches to 3683 MAPS string controller—	

Maximum Heat Dissipation
3100 BTU

Power
1.0 KVA

Access Time
Seek: 3 ms minimum
16 ms average
30 ms maximum

Latency 8.3 ms
Actuators per spindle: 2

Capacity per spindle
1.26 gigabytes

Transfer rate
3.0 million bytes/second

RPM
3600

TPI
806

BPI
15,294

Bytes per track
47,476 (Formatted, single record, without keys)

Tracks per cylinder
15

Cylinders per actuator
885

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MEMOREX
A Burroughs Company

3680

MEMOREX

Disc Storage Device

The 3680 disc storage device's unique single-spindle architecture gives you a very flexible, and cost-effective means of meeting your capacity requirements.

The Memorex© 3680 Disc Storage device is a technologically advanced single spindle drive with a total storage capacity of 1.26 gigabytes. Each 3680 spindle has two independently addressable actuators capable of accessing one half of the physical module (630 megabytes). The 3680 has an average access time of 16ms and a data transfer rate of 3 megabytes per second. A 3680 string is functionally equivalent to an IBM 3380 string with significant value added features.

Drive Features

• Configuration Flexibility

The 3680 Disc Storage device provides the user with the utmost flexibility in capacity and expansion planning by utilizing an exclusive *single spindle drive.* You can now buy the amount of DASD you currently need and add capacity in single module increments as you require them.

• Superior Throughput

Each 3680 actuator has a dual port, which in conjunction with MAPS (Maximum Availability Path Selection) provides superior performance over the IBM DPS system and enables connection to either path of the 3683 MAPS String controller. This capability allows access to all 15 remaining actuators in a string on the second access to the string. It also allows both actuators on a single spindle to be accessed simultaneously.

To reduce latency and increase performance the 3680 has incorporated a unique method of *offsetting index marks* on the adjacent tracks of the disc.

The performance improvements contained in MAPS, the offsetting index marks, and the enhanced communications protocols incorporated in the 3683 provide a disc subsystem with unmatched throughput capability. A high throughput disc subsystem could delay the need for processor upgrades, it could improve user response time, or it could even allow your system to do more work in the same amount of time.

• Outstanding Reliability

The 3680 contains a number of design features which supply superior reliability including the packaging concept which places the spindle (HDA) at the bottom of the drive. This minimizes the environmental impact since the HDA is below the heat generating power supplies.

The 3680 disc storage device incorporates advanced technology by utilizing Memorex developed second generation thin-film read/write heads, advanced 4mm thick-substrate media, LSI circuitry, independent microprocessors for each of the actuators and one microprocessor for maintenance diagnostics and *environmental monitoring.*

The 3680 not only incorporates reliability into its design and technology, but it is also incorporated into its manufacture. The 3680 is built by utilizing an advanced automated assembly process using only fully burned-in components and with the entire procedure being continually monitored by a statistical quality control system.

• Maximum Availability

The 3680 incorporates design enhancements which will improve the data availability of the disc subsystem. The 3680 has 2 addressable actuators which can operate individually if one of the actuators has a failure. The 3680 incorporates microprocessors at the actuator level which can run diagnostic routines. This allows the Memorex Customer Engineer to diagnose a possible malfunction on an individual actuator without impacting the availability of data to the system by the other actuators.

The 3680 provides an *actuator electronics switch* which allows the read/write logic associated with one actuator in a spindle to be switched to the other actuator in the event of a malfunction in the logic. This switch allows the address of the failed actuator to remain the same which enables the use of checkpoint restart procedures. This switch allows a Memorex Customer Engineer to repair the failed actuator's electronics while the data is available via the switched actuator.

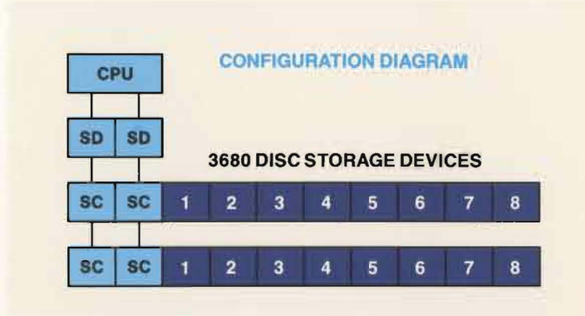
• Improved Maintainability

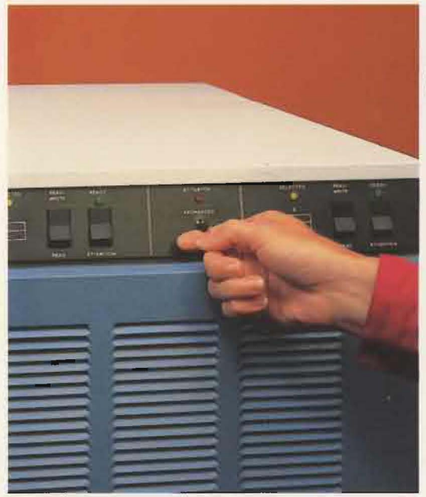
Each 3680 drive has a dedicated microprocessor for maintenance diagnostics and environmental monitoring. This microprocessor can execute self diagnostics which can be interpreted by the *Portable Maintenance Terminal* utilized by the Memorex Customer Engineer.

In addition to the self diagnostics inherent in the drive, the Memorex Customer Engineer has subsystem diagnostics which can be run on the 3888 control unit or on the central processing unit (in a non dedicated running mode).

• Space Management

The unique 3680 single spindle drive together with the 3683 MAPS string controller's exclusive individual packaging provides a subsystem which requires less computer room floor space than the 3380.





The 3680's standard actuator electronics switch feature improves the data availability of the disc subsystem. In the event that a malfunction in the logic should occur, the actuator electronics switch enables the read/write logic associated with one actuator in a spindle to be switched to the other actuator without changing the original actuator's address.