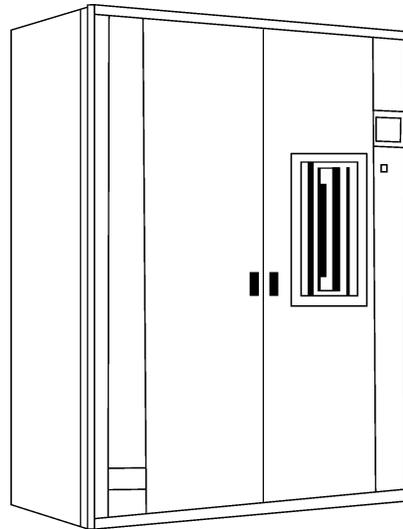


Overview

At A Glance

- The Ultimate in High-Capacity Unattended Backup and Restore:
- The HP StorageWorks tape library ESL9595S2 provides the ultimate in high-capacity unattended backup and restore for customers with large server pools serviced by network attached storage devices or storage area networks. The consolidation of the enterprise's data into a single shared storage device requires that these devices provide both high capacity and high performance. With the consolidation of backup data into a single device also comes the increased need for redundancy and high availability. The ESL9595S2 can provide years of fully automated operation for backup, save and restore, and hierarchical storage management of critical data when coupled with a variety of qualified industry standard backup application solutions. With 400/500/595 slots and up to 16 Hewlett-Packard SDLT 160/320GB drives, the ESL9595S2 offers up to 95.2 TB of native data storage and native transfer rates up to 921.6 GB/hr.



HP StorageWorks ESL9595S2 Tape Library



Standard Features

HP StorageWorks ESL9595S2 Tape Library Models

The HP StorageWorks ESL9595S2 Tape Library comes with up to 16 SDLT 160/320 GB tape drives (number of drives determined by SKU chosen) and has three models with 400, 500 and 595 slots respectively.

ESL9595S2, 400 slot, 2 SDLT 160/320 Drive, Enterprise Library	293411-B22
ESL9595S2, 400 slot, 16 SDLT 160/320 Drive, Enterprise Library	293411-B28
ESL9595S2, 500 slot, 2 SDLT 160/320 Drive, Enterprise Library	293412-B22
ESL9595S2, 500 slot, 16 SDLT 160/320 Drive, Enterprise Library	293412-B28
ESL9595S2, 595 slot, 2 SDLT 160/320 Drive, Enterprise Library	293413-B22
ESL9595S2, 595 slot, 16 SDLT 160/320 Drive, Enterprise Library	293413-B28

The ESL9595S2 comes as either a 400, 500 or 595 slot library system configured with the associated number of drives, installation and user's manual, one-piece SDLT media, a copy of the Hewlett-Packard Storage Management Solutions CD. Customers are required to also purchase the necessary number of host bus adapters, SCSI cables, SDLT media, country specific power cords (pair), and applications software licenses in order to complete the library solution.

Due to the size and weight of the unit, a pre- sales site survey is required. The pre- sales site survey document is on http://www.compaq.com/support/techpubs/installation_guides/146587-001.html.

NOTE: The ESL9595S2 is three inches wider than the ESL9326.

Installation services can be ordered separately on Hewlett-Packard Services as part of each library order (requires scheduling with local Hewlett-Packard Services provider).

NOTE: Does not include special site work, which may be required as a result of not meeting minimum site survey requirements.

The ESL9000 Enterprise Library Family

The tape library ESL9595S2 is part of the Hewlett-Packard ESL9000 class enterprise library family. With its high availability feature set, the ESL9000 family provides for maximum uptime. Based on PCI backplane architecture, the ESL9000 series libraries also provide a simple upgrade path for future "plug-in" feature upgrades.

High Availability

As data becomes more and more mission critical and downtime becomes more costly to the enterprise, customers are requiring high availability consolidated storage solutions which offer hot swappable components and redundancies of key operating sub-systems (tape drives, controllers, power supplies). With redundant power distribution, power supplies, and cooling fans, coupled with hot pluggable drive carriers, hot swap power supplies and cooling fan modules, the ESL9595S2 offers the best in high availability for continuous operation.

Hot Pluggable Drives

The ESL9595S2 uses hot pluggable drive carriers, allowing drives replacement and additional drives to be added for capacity expansion without interrupting backup and restore functions. These hot pluggable drive trays allow for easy scalability of performance, as well as provide an easy upgrade path towards future drive technologies.

NOTE: The ESL9595S2 accepts only library ready drives specifically modified for use in the ESL9000 series libraries.

Proven Reliability

Using SDLT 160/320 GB tape drives, and proven library robotics with a rating of 2,000,000 load/unload cycles, the ESL9595S2 provides the necessary high reliability.

Standard Features

SDLT Technology	Digital Linear Tape uses a proven linear recording technology, a highly accurate tape guide system, and a read after write correction system to provide high-capacity, high reliability data backup and restoration. DLT has fast become the industry standard secondary storage tape format for departmental and enterprise backup. The new generation SDLT tape drive, in addition to enhanced capacity and backup performance provides advantages several new features such as Laser Guided Magnetic Recording (LGMR™) technology, Pivoting Optical Servo (POS), Magneto-Resistive Cluster Heads (MRC), Partial Response Maximum Likelihood (PRML) channel technology and Backward Read Compatible with earlier generation of DLT drives, to be able to read media written in DLT IV format.		
Manageability	The ESL9595S2 configurations are fully supported through Insight Manager, providing information to administrators for both robotic, tape status changes, and fault status of redundant components (high availability fault status requires use of Insight Manager v7.0. HP TSMC (tape storage management console) software provides diagnostics and easy firmware upgrade capabilities. Other data and automation manageability features, including multi-host direct connectivity, are provided via specific third-party applications software packages.		
Warranty	One year parts exchange, one year on-site next day service Additional Warranty protection can be purchased for all ESL9595 library products at the following URL: http://h18006.www1.hp.com/products/storageworks/warranty.html .		
Server Support	High-End ProLiant Servers	ProLiant DL760 ProLiant ML750	
	Departmental ProLiant Servers	ProLiant DL580G2 ProLiant ML570G2	
	AlphaServer Systems	AlphaServer GS320, GS160, GS 80 AlphaServer ES45 AlphaServer ES40 AlphaServer DS20E	
	SCSI controller supported ProLiant servers	66 MHz Ultra3 LVD, dual channel controller	129803-B21
		Ultra3 LVD, single channel controller	154457-B21
	AlphaServer systems	Ultra2 LVD, single channel	3X-KZPCA-AA
	FC Routers Supported	Network Storage Router m2402 Network Storage Router e2400 (FC embedded router for the ESL9000 libraries)	

Standard Features

Application Support

For the latest updated compatibility matrix for ISV backup software supported go to:
<http://www.compag.com/products/storageworks/ebs/EBScompatmatrix.html>

Automation and Network Utilities

Insight Manager v7.0
 HP Tape Storage Management Console v2.3
 MRU (media robot utility) v1.4

Device/ISV/OS ESL SDLT160/320 Models	Windows NT 4.0 SP6a	Windows 2000 SP2	Tru64 UNIX 4.0g 5.1a	HP-UX* 11i, 11.0, 10.2,	NetWare 5.1 SP3	NetWare 6.0	Linux RH 7.1, 7.2 Linux SuSe 7.0	Sun Solaris 2.6, 2.7, 2.8	AIX 4.3.3
Direct Attach									
VERITAS NetBackup 4.5	✓	✓							
VERITAS NetBackup 3.4.3	✓	✓							
Legato NetWorker 6.1.2	✓	✓					✓		
VERITAS Backup Exec 8.6	✓	✓			✓	✓			
CA BrightStor ARCserve 2000	✓	✓							
CA BrightStor ARCserve 7									
HP/EBS SAN									
HP Omniback 4.x	✓	✓		✓	✓				✓
HP Data Protector	✓	✓		✓	✓				✓
VERITAS NetBackup 4.5	✓	✓	✓	✓				✓	✓
VERITAS NetBackup 3.4.3	✓	✓	✓	✓				✓	✓
Legato NetWorker 6.1.2	✓	✓	✓	✓			✓	✓	
VERITAS Backup Exec 8.6	✓	✓			✓	✓			
VERITAS Backup Exec 9.0					✓				
CA BrightStor ARCserve 2000	✓	✓							

* HP-UX commands fbackup/frecover and backups launched using HP-UX Site Area Manager are not supported

HP Service & Support, CarePaq and Warranty Information

Hewlett-Packard Installation and CarePaq Information

Hewlett-Packard Global Services provides a three-year, limited warranty, fully supported by a worldwide network of resellers and service providers toll-free 7 x 24 hardware technical phone support for the duration of the warranty. In addition, available service offerings include a full range of CarePaq packaged hardware and software services:

- Installation and start up
- Extended coverage hours and enhanced response times
- System management and performance services

Additional Warranty protection and/or Hewlett-Packard Installation packages can be purchased for the ESL9595S2 Library products:

Software Product Services

- Stand-alone telephone support
- Rights to a new license
- Media and documentation updates

Hardware Product Services

- Installation services
- On-site Maintenance (includes warranty support)
- Response time upgrades during the warranty period
- Post-warranty coverage

For additional hardware installation and maintenance information please refer to the URLs listed below:

http://www.compaq.com/services/CarePaq/us/hardware/cp_storage.html

http://www.compaq.com/services/CarePaq/us/install/cp_storage.html

Warranty Upgrade Options

- Response - Upgrade on-site response from next business day to same day 4-hours
- Coverage - Extend hours of coverage from 5 days x 9 hours to 7 days x 24 hours
- Duration - Select duration of coverage for a minimum period of 1year or multiple years

Additional Warranty protection and/or Hewlett-Packard Installation packages can be purchased for the ESL9595S2 library products:

Installation Services

24x7, 4-Hour Response On-Site Coverage -1 Year

Hardware Installation

ESL 9000 Enterprise Library 0-8 Drives

163460-002

163463-002

FM-T6INS-IN

ESL 9000 Enterprise Library 9-16 Drives

163470-002

163473-002

FM-T7INS-IN

NOTE: Certain restrictions and exclusions apply. Consult the Hewlett-Packard Customer Support Center for details.

CarePaq is defined as an upgrade to the product warranty attribute, available for a specific duration and hours of coverage.

CarePaq is not available for less than the products warranty duration.

CarePaq is available for sale anytime during the warranty period for most products, but the commencement date will be the same as the Warranty Start Date (delivery date to end user customer). Proof of purchase may be required.

CarePaq services are prepaid

For additional CarePaq (hardware & software) information, as well as orderable part numbers, please refer to the URL listed below:

<http://www.compaq.com/services/CarePaq/index.html>.

HP Service & Support, CarePaq and Warranty Information

CarePaq Information for EMEA Additional CarePaq services are being developed to cover a broader range of HP StorageWorks hardware and software. Ask your local CarePaq Business Manager for the latest details.

CarePaq PS Information for EMEA CarePaq Priority Services brings a totally new approach that removes the complexity from evaluating, planning and purchasing services on Hewlett-Packard Alpha and Storage platforms. CarePaq Priority Services are easy to purchase and easy to use and cover all external storage products not covered under Server based CarePaq services.

Standard Offerings:

- CarePaq Priority Services provide an integrated hardware and software support that ensure consistent coverage across storage configurations.
 - CarePaq Priority Service offers a rapid four-hour response with guaranteed work-through to completion for three years.
 - CarePaq Priority Services have a standard call window of Monday to Friday 08:00 – 17:00 with uplifts to full 24x7 over three years with four-hour response time and work through to completion.
 - CarePaq Priority Services also provide software support, with a two-hour response time for telephone access to highly trained support personnel.
-

For more information on how to order CarePaq Priority Services in EMEA please contact you local Certified Integration Partner or Authorized Reseller.

- CarePaq is defined as an upgrade to the product warranty attribute, available for a specific duration and hours of coverage.
- CarePaq is not available for less than the product's warranty duration.
- CarePaq is available for sale anytime during the warranty period for most products, but the commencement date will be the same as the Warranty Start Date (delivery date to end user customer). Proof of purchase may be required.
- CarePaq services are prepaid.

Customized Services are also available. Contact your local Global Services Department.

Related Options

		UPC Code	Part Number
ESL9322S2 Library System	ESL9595S2 400 slot 2 SDLT 160/320 Drive Enterprise Library	613326517598	293411-B22
	ESL9595S2 400 slot 16 SDLT 160/320 Drive Enterprise Library	613326584873	293411-B28
	ESL9595S2 500 slot 2 SDLT 160/320 Drive Enterprise Library	613326517604	293412-B22
	ESL9595S2 500 slot 16 SDLT 160/320 Drive Enterprise Library	613326584897	293412-B28
	ESL9595S2 595 slot 2 SDLT 160/320 Drive Enterprise Library	613326517635	293413-B22
	ESL9595S2 595 slot 16 SDLT 160/320 Drive Enterprise Library	613326584910	293413-B28

Supplied with each Library Unit

Library unit (pre-configured with drives)

Documentation kit

SODL Translation CD

Users Guide

Unpacking and Installation Guide

Pre-Installation Site Survey

Diagnostic CD

Diagnostic Software Guide

Warranty Card

Safety Card

Quality Insert

Software Applications CD

(1) SDLT 160/320 Media Cartridge

Bar Code Labels

Cleaning Labels

(2) Keys

SCSI terminators (1 per drive, less those installed)

Diagnostic cable (for PC attach)

Supplied with each library

2 Line Cords (IEC 320 C19), US/Canada

Power Cord (Pair Required)	ESL9000 POWER CORDS 2X, US/CANADA/MEX*	743172935649	146210-001
	ESL9000 POWER CORDS 2X, SE ASIA/INDIA	743172935625	146210-AR1
	ESL9000 POWER CORDS 2X, CENTRAL EUROPE	743172935632	146210-021
	ESL9000 POWER CORDS 2X, AUS/CHINA/NZL	743172935670	146210-011
	ESL9000 POWER CORDS 2X, SWITZERLAND	743172935656	146210-111
	ESL9000 POWER CORDS 2X, UK/HONG KONG	743172935663	146210-031
	ESL9000 POWER CORDS 2X, ITALY	743172935687	146210-061
	ESL9000 POWER CORDS 2X, DENMARK	743172935694	146210-081
	ESL9000 POWER CORDS 2X, JAPAN	743172935700	146210-291

NOTE: Shipped with all units. Order Local power cords.

Related Options

		UPC Code	Part Number
Drive, capacity, and memory upgrade kits	ESL9000 field upgrade SDLT 160/320 LVD drive in hot plug canister	613326517642	293414-B21
	ESL9595S2 400 to 500 Slot Upgrade	613326380222	274674-B21
	ESL9595S2 500 to 595 Slot Upgrade	613326380239	274674-B22
	ESL9595S2 400 to 595 Slot Upgrade	613326408926	274674-B23
	ESL9000 5 MB Memory Module for ESL9198 and ESL9326 libraries, (required to support firmware versions 3.00 and later)	613326380215	274673-B21

NOTE: *Serial number of your existing library is required when ordering these capacity upgrade SKUs, please enter the serial number in the comments section of the purchase order, and inform your Secondary Storage Product Manager.

Media and Bar Code Labels	SDLT Media 5-Pack	720591390273	188527-B21
	SDLT Media 10-Pack	720591390587	188527-B22
	SDLT Media 20-Pack	720591433208	188527-B26

Supplied with each Power Cord

Additional media

Additional magazines

Bar Code Labels

SCSI Cables	Wide/Wide SCSI cable, 5 m	743172633910	328215-001
	Wide/Wide SCSI cable, 10 m	743172633927	328215-002
	Wide/Wide SCSI cable, 15 m	743172633934	328215-003
	Wide/Wide SCSI cable, 20 m*	743172633941	328215-004
	SCSI Cable, VHDCI/Wide, 6 ft	743172660831	341176-B21
	SCSI Cable, VHDCI/Wide, 12 ft	743172660848	341177-B21
	SCSI Cable, VHDCI/Wide, 10 m	720591469108	201160-B21
	SCSI Cable, VHDCI/Wide, 20 m*	720591624491	201160-B23

NOTE: Check the cable-adapter matrix for tape libraries on:

<ftp://ftp.compaq.com/pub/products/storageworks/tape-and-optical-storage/adapter-cable-matrix.pdf>

*requires LVD extender 221249-B21

Related Options

		UPC Code	Part Number
SCSI Host Bus Adapter/Hewlett-Packard Fibre Channel to SCSI Router (optional)	Host Bus adapter for SCSI connectivity from server to tape library in direct SCSI environment		
	Network Storage Router, Embedded FC Router to connect SCSI Library to Fibre Channel Hub/Switch		
ProLiant Controllers			
	64-bit/66 MHz PCI dual channel Wide Ultra3 SCSI adapter	743172876379	129803-B21
Alpha Controllers			
	Single Channel Ultra LVD Controller		3X-KZPCA-AA
Network Storage Router (required for SAN configuration)			
	Network Storage Router m2402 (2FC X 4 LVD SCSI)	613326254516	262653-B21
	Embedded Data Router, ESL 9000 embedded fibre option e2400 – Base 2 FC X 4 LVD SCSI ports (Includes card cage for installation of embedded router which is required for configuration) (Includes two router cards each with 1 FC X 2 LVD SCSI ports, 4 VHDCI-WIDE SCSI cable, user guide CD, and the ESL9000 cPCI card cage). It is recommended that the installation CarePak be ordered with this SKU.	613326254752	262665-B21
	Embedded Data Router, ESL 9000 embedded fibre option e2400 – Upgrade 2 FC X 4 LVD SCSI ports (Includes: two 1FC x 2LVD SCSI router cards, four VHDCI-WIDE SCSI cables, User Guide CD.) This SKU does not include a card cage; it is an upgrade SKU and requires 262665-B21 to be configured first, when configured it increases the number of SCSI ports available to connect drives in an ESL9000 library to the SAN, to a total of eight). It is recommended that the installation CarePak be ordered with this SKU.	613326254998	262664-B21
LVD Extender Kit	LVD Extender kit (Required for HBA to Library SCSI cable lengths exceeding 10 m)	720591597658	221249-B21
ESL9000 magazine	ESL9000 UNIVERSAL LOAD PORT (2x4 slot fixed)	613326572603	302254-B21

Related Options

		Part Number
HP Openview Omniback Software	HP OpenView Omniback II 4.1	
	Starter Packs	
	Cell Manager	B6961AA/B6951AA
	Required once as starter pack; includes license-to-use, unlimited number of disk agents and media agents, one drive extension, libraries with up to 60 slots, CD-ROM media, manuals, and more; for Windows NT, 2000, XP/HP-UX	
	Drive Extensions	
	Drive License	B963AA
	License-to-use for one concurrently used backup drive; for Windows NT, 2000, XP/Novell® Netware/Linux	
	Drive License	B6953AA
	License-to-use for one concurrently used backup drive; for UNIX®, NAS, SAN	
	For the most up-to-date information, visit: http://openview.hp.com/products/omniback/specifications/	
Data Protection Suites for Backup and Restores	CommVault Galaxy	
	Phan Kit, CommVault Galaxy	281593-B21
	DP Suite, single server	281577-B21
	DP Suite, SAN standard	281585-B21
	DP Suite, SAN advanced	281588-B21
	DP Suite, Network	281582-B21
	Additional CommVault Galaxy Suite Descriptions	
	Phan Kit, CommVault Galaxy – Media Kit that contains live trial software	
	DP Suite, single server – Designed for backing up a single server, with no server clients, using a single internal or external tape drive.	
	DP Suite, SAN standard – Entry level SAN kit that contains: ISV application software for six servers on the SAN Two server clients for backing up over the LAN Each SAN server has a choice of a database agent or open file systems option Support for up to eight shared automated, tape drives	
DP Suite, SAN advanced – Data center SAN kit that contains: ISV application software for fourteen servers on the SAN Two server clients for backing up over the LAN Each SAN server has a choice of a database agent or open file systems option Support of up to sixteen shared, automated tape drives		
DP Suite, Network – Designed for backing up a single server and server clients over the network using a tape drive, an autoloader or business class automation. Includes choice of one database agent or open file systems option.		

Related Options

	Part Number
Data Protection Suites for Backup and Restores <i>(continued)</i>	
CA BrightStor ARCserve	
Phan Kit, CA ARCserve	283915-B21
DP Suite, single server	281576-B21
DP Suite, SAN standard	281583-B21
DP Suite, SAN advanced	281586-B21
DP Suite, Network	281581-B21
Additional CA BrightStor ARCserve Suite Descriptions	
Phan Kit, CA ARCserve – Media Kit that contains live trial software	
DP Suite, single server – Designed for backing up a single server, with no server clients, using a single internal or external tape drive.	
DP Suite, SAN standard – Entry level SAN kit that contains: ISV application software for six servers on the SAN Two server clients for backing up over the LAN Each SAN server has a choice of a database agent or open file systems option Support for up to eight shared automated, tape drives	
DP Suite, SAN advanced – Data center SAN kit that contains: ISV application software for fourteen servers on the SAN Two server clients for backing up over the LAN Each SAN server has a choice of a database agent or open file systems option Support of up to sixteen shared, automated tape drives	
DP Suite, Network – Designed for backing up a single server and server clients over the network using a tape drive, an autoloader or business class automation. Includes choice of one database agent or open file systems option.	
VERITAS Backup Exec	
Phan Kit, VERITAS Backup Exec	283914-B21
DP Suite, single server	281578-B21
DP Suite, SAN standard	281584-B21
DP Suite, SAN advanced	281587-B21
DP Suite, Network	281580-B21
Additional VERITAS Backup Exec Suite Descriptions	
Phan Kit, VERITAS Backup Exec – Media Kit that contains live trial software	
DP Suite, single server – Designed for backing up a single server, with no server clients, using a single internal or external tape drive	
DP Suite, SAN standard – Entry level SAN kit that contains: ISV application software for six servers on the SAN Two server clients for backing up over the LAN Each SAN server has a choice of a database agent or open file systems option Support for up to eight shared automated, tape drives	
DP Suite, SAN advanced – Data center SAN kit that contains: ISV application software for fourteen servers on the SAN	
DP Suite, Network – Designed for backing up a single server and server clients over the network using a tape drive, an autoloader or business class automation. Includes choice of one database agent or open file systems option.	

Related Options

	Part Number
Data Protection Suites for Backup and Restores <i>(continued)</i>	
<i>Legato NetWorker</i>	
Phan Kit, VERITAS Backup Exec	293599-B21
DP Suite, single server edition of Legato NetWorker D1	293600-B21
DP Suite, EL SAN edition of Legato NetWorker S1	293602-B21
DP Suite, Corp SAN edition of Legato NetWorker S2	293603-B21
DP Suite, Network edition of Legato NetWorker D2	293601-B21
Additional Legato NetWorker Suite Descriptions	
Phan Kit, Legato NetWorker – Media Kit that contains live trial software	
DP Suite, single server edition of Legato NetWorker D1 – Designed for backing up a single server, with no server clients, using a single internal or external tape drive	
DP Suite, EL SAN edition of Legato NetWorker S1 – Entry level SAN kit that contains: ISV application software for six servers on the SAN Two server clients for backing up over the LAN Each SAN server has a choice of a database agent or open file systems option Support for up to eight shared automated, tape drives	
DP Suite, Corp SAN edition of Legato NetWorker S2– Data center SAN kit that contains: ISV application software for fourteen servers on the SAN	
DP Suite, Network edition of Legato NetWorker D2– Designed for backing up a single server and server clients over the network using a tape drive, an autoloader or business class automation. Includes choice of one database agent or open file systems option.	

Technical Specifications

SCSI Identification	Product ID	ESL9000 Series	
	Vendor ID	HP	
Control Panel	Library and Drive Status		
	Move tape cartridges		
	Load/Unload tape drives		
	Maintenance (drive cleaning, diagnostics)		
	Library Configuration		
Statistics			
SCSI Interface	Ultra2 SCSI LVD, 68HD Interconnect (External cable length between library and HBA, limited to 10 m without LVD extender, extends up to 25 m when using the LVD extender)		
Form Factor	Free Standing		
Dimensions		Unit	Packaged
	Height	75 in/191 cm	80 in/203.2 cm
	Width	60 in/152 cm	71 in/180.3 cm
	Depth	29 in/75 cm	48 in/121.9 cm
Unit Weight	Without data cartridges, 0 drives	1444 lb/655 kg	
	SDLT drive in Hot Plug canister	13.5 lb/6.12 kg per drive	
	Without data cartridges, 2 drives	1471 lb/667.24 kg	1654 lb/750 kg
	Without data cartridges, 16 drives	1660 lb/752.92 kg	1822 lb/826 kg
Performance (native)	Minimum configuration	2 Hewlett-Packard SDLT 160/320 drives, 400/500/595 slots Native transfer rates up to 115.2 GB/hr	
	Maximum configuration	16 Hewlett-Packard SDLT drives, 400/500/595 cartridge slots Native backup performance up to 921.6 GB/hr	
Storage Capacity	Supports 400/500/595 SDLT cartridges for native capacity of: 400 slots – 64 TB (128 TB at 2:1 compression) 500 slots – 80 TB (160 TB at 2:1 compression) 595 slots – 95.2 TB (190.4 TB at 2:1 compression)		
Input/Output Port	Two 4 slot fixed		
Initialization (cartridge inventory) time	< 5 minutes		
Cartridge Swap Time	28 seconds average		
Cartridge Swap Rate	>135 swap/hour		
Cartridge Passthrough time - end to end	78 seconds average		
Electrical Specifications	AC Voltage	Auto-range to domestic and international AC voltages AC Voltage Range: 90 to 132 VAC or 180 to 264 VAC, single phase Nominal: 100 to 120 VAC or 220 to 240 VAC Line Frequency Range: 47 to 63Hz AC Receptacle: IEC-320 C19 Type 100-120V/200-240V, 50/60 Hz, 20A/16A (5-20P plug for U.S. and Canada)	
	Power Consumption	VA Maximum 1,600W 5500 BTU/hr or 1400 Kcal/hr	

Technical Specifications

Acoustic Noise	Noise Power Emission Level	Idle	7.8 bels
		Operating	8.1 bels
Reliability (Library Only)	MTBF	250,000 hours	
	MSBF	2,000,000 load/unload cycles	
Regulatory Compliance	Safety	UL1950, CSA C22.2 950, EN 60950:1992/A11, IEC 60950:1992/A11, DHHS/FDA (US CFR21 part 1040, Class 1 laser), EN 60825:1994/A11, Nemko	
	Emissions	FCC Part 15 Class A, CE Marking directive (93/68/EEC) (Class A), CISPR Publication 22 Class A, ICES-003 Class A, VCCI Class 1, C-Tick SMA AZ/NZS 3548 Class A BCIQ EN6100-3-2, EN50082-1:1992, EN55022: 1994, EMC Directive [89/336/EEC], Low Voltage Directive [73/23/EEC]	

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