

## IBM TotalStorage Enterprise Tape Cartridge 3592



3592 rewritable cartridge



3592 WORM cartridge

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### Highlights

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- **Designed for the first generation IBM TotalStorage Enterprise Tape Drive 3592 or the second generation IBM System Storage TS1120 Tape Drive**
- **Available in rewritable and write once, read many (WORM) cartridge models**
- **The JJ and JR cartridges provide fast access to application information**
- **The JA and JW cartridges support high capacity requirements**
- **Memory chip tracks cartridge and tape drive usage**
- **Supported in IBM and StorageTek tape automation solutions**

### Overview

IBM® TotalStorage® Enterprise Tape Cartridges 3592 are designed to work with the first-generation IBM TotalStorage Enterprise Tape Drive 3592 Model J1A (3592 J1A tape drive) and the second-generation IBM System Storage™ TS1120 Tape Drive (TS1120 Tape Drive).

Cartridges are available in two lengths and in either re-writable or Write Once, Read Many (WORM) formats. The short length 3592 JJ/JR cartridges provide rapid access to data and the standard length 3592 JA/JW cartridges provide high capacity.

### Rewritable cartridges

The first-generation 3592 J1A tape drive can initialize short length JJ cartridges to 60GB and initialize (or re-initialize) standard JA length cartridges to either 60GB (to support fast time to data) or 300GB (to support high capacity).

The second-generation TS1120 tape drive can initialize short length JJ cartridges to 60 or 100GB and initialize (or re-initialize) standard length JA cartridges to 60, 100, 300 or 500GB to support fast access to data or to help address data growth and facilitate interchange.

At typical compression ratios, the 3592 JA cartridge can provide usable capacity of up to 1TB in an open system environment, and up to 1.5TB in an IBM System z9™ environment when used with a TS1120 Tape Drive. The JA and JJ cartridge models are suitable for storing data that has a finite life span and are rewritable.

### **WORM cartridges**

The TS1120 and 3592 J1A tape drives are designed to work with Write Once, Read Many (WORM) JR and JW cartridges to store data in a non-erasable, non-rewritable format. This is intended to help support the long term retention of reference data and meet the requirements of regulatory bodies worldwide. The short length JR and standard length JW cartridges have advanced security features that are designed to prevent the alteration or deletion of stored data while allowing data to be appended to existing cartridges or files.

### **Supported environments**

Special grip points and a form factor that is similar to the IBM TotalStorage 3590 cartridge models allow the 3592 cartridges to co-exist in either an IBM TotalStorage Enterprise Tape Library 3494 or a StorageTek 9310 Powderhorn Tape Library. The 3592 cartridges can also co-exist in an IBM TotalStorage Tape Library 3584 with IBM TotalStorage Ultrium™ LTO™ tape cartridges. This may reduce the physical tape resources and number of cartridges needed to support the environment and help reduce the cost of ownership.

### **Advanced media**

The IBM 3592 tape cartridge contains an advanced fourth-generation metal particle formulation in a dual layer coating on a half-inch-wide tape. The IBM tape uses an advanced magnetic coating and process designed to provide a high output and signal quality to support the current TS1120 and 3592 J1A tape drives. The tape features an ultra-smooth and uniform magnetic layer less than 0.2 microns thick and a specially refined coating formulation designed to help improve media reliability and performance as well as minimize wear of the tape heads and components. A precision timing-based servo with enhanced features helps enable high track densities, high data rates and data access performance as well as high reliability and stop-start performance. In addition, modifications to

the cartridge design and construction are designed to help improve pin retention, hub and clutch engagement, spool alignment and tape stacking within the cartridge. These enhancements are designed to help improve reliability and durability of not only the media, but of the tape drive as well.

### **Cartridge memory**

A cartridge memory chip that stores access history and media performance information is built into every cartridge. Records are written to the memory chip every time the cartridge is unloaded from a TS1120 or 3592 J1A tape drive. These records can be used by the IBM Statistical Analysis and Reporting System (SARS) programs to analyze and report on tape drive and cartridge usage and help diagnose and isolate tape errors. SARS can also be used to proactively determine if the tape media or tape drives are degrading over time.

### **Ordering options**

All 3592 cartridge models are available in 20-packs that contain either unlabeled un-initialized cartridges, labeled initialized cartridges, or labeled cartridges. Labels are required for operation in an IBM tape library and are also used to identify cartridges visually for shelf storage or sending offsite to support business continuance. Cleaning cartridges are available in 5-packs with or without media ID labels.

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**IBM TotalStorage Enterprise Tape Cartridge 3592 at a glance**

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	<b>3592 Tape Cartridges capacities when used with 3592 J1A Tape Drives</b>		<b>3592 Tape Cartridges capacities when used with TS1120 Tape Drives</b>	
<b>Cartridge type</b>	<b>JJ / JR</b>	<b>JA / JW</b>	<b>JJ / JR</b>	<b>JA / JW</b>
Native physical capacity	60GB	300GB	60GB	300GB
			100GB	500GB
Open System capacity (2:1 compression)	120GB	600GB	120GB	600GB
			200GB	1.0TB
System z9 capacity (3:1 compression)	180GB	900GB	180GB	900GB
			300GB	1.5TB
<b>Machine Type 3599 - 20-pack</b>	<b>JJ</b>	<b>JR</b>	<b>JA</b>	<b>JW</b>
Initialized and labeled	E11	E21	011	021
Labeled	E12	E22	012	022
Not labeled or initialized	E13	E23	013	023
Cleaning cartridge	17			
<b>Characteristics</b>				
Long-length durability	300 full file passes			
Short-length durability	40,000 cycles at ambient			
Load/unload	20,000 load, unload, and initialization cycles			
Estimated archive life	Up to 30 years			
Warranty	10 years			
<b>Physical characteristics</b>				
Dimensions	24.5 mm H x 109 mm W x 125 mm D (0.97 in x 4.3 in x 4.9 in)			
Weight	239 g (8.4 oz)			
Tape length	2001 Ft nominal (610m)			
<b>Operating environment</b>				
Temperature	16° to 32° C (60° to 90° F)			
Relative humidity	20% to 80%			
Wet bulb maximum	23° C (73.4° F)			
<b>Safety characteristics</b>				
Toxicity	Nonhazardous to human health in anticipated use			
Flammability	Self-extinguishing per UL94			

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**For more information**

For more information, contact your IBM representative or IBM Business Partner or visit **ibm.com/storage/media**. You may also contact 1-888-IBM-MEDIA.



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GB equals one billion bytes; when referring to hard drive capacity, accessible capacity may be less.

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MB, GB and TB equal 1,000,000, 1,000,000,000 and 1,000,000,000,000 bytes, respectively, where referring to storage capacity. Actual storage capacity will vary based upon many factors and may be less than stated. Some numbers given for storage capacities give capacity in native mode followed by capacity using data compression technology.

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<sup>1</sup> See table on page 3.