

Imation  
**Ultrium™**  
TAPE CARTRIDGES



The robust  
LTO cartridge—  
data protection  
you can trust.

## The LTO/Ultrium Technology Advantage

The Ultrium system is based on the industry's first open data storage platform. The LTO consortium—comprised of drive manufacturers Hewlett Packard, IBM and Certance (Seagate RSS)—developed this technology to meet the explosive midrange and enterprise storage demands analysts predict over the next decade. The result of this unprecedented collaboration is an exceptionally reliable, high-performance format with an exciting drive migration plan that permits LTO drives to work interchangeably with a host of certified media brands.

### LTO/Ultrium technology is:

- supported by many automation manufacturers
- supported by major system OEMs
- compatible between manufacturers' products
- backward compatible

ULTRIUM  
LTO

hp HEWLETT  
PACKARD

IBM

CERTANCE

imation

# Your data deserves the most reliable protection

## Imation Ultrium™ Tape Cartridges

All Ultrium tape cartridges must meet specific LTO (Linear Tape-Open) standards, but that doesn't mean they're all the same. Imation Ultrium Tape Cartridges exceed the required standards and feature numerous innovations and exclusive technologies that truly set them apart from other LTO cartridges. Make sure your data is protected with these proven technologies and innovations that ensure the highest quality:



### Robust Cartridge Construction

- *Data protection unlike any other LTO cartridge* — Specifically designed to meet the storage demands of midrange and enterprise networks
- *Patented corner snap* — Imation's proprietary feature keeps the leader pin in place and the cartridge tightly closed in the event of mishandling or shipping disruption. This prevents error-causing debris from entering the cartridge and keeps your data tape flowing evenly within your cartridge for maximum read/write capability
- *Patented three-piece tape spool design* — Distributes stress more evenly over the tape compared to two-piece spools found in other Ultrium brands. So it guides the tape by keeping it flat, protecting your data across the entire tape

### Exceptional Performance

- *Factory-written servo pattern* — Imation introduced the first servo-written tape cartridge more than 10 years ago, and has continued to improve the technology. Our factory-written servo pattern allows closer track spacing and more data, and keeps drive heads aligned on the data tracks for precise data reading/writing and improved reliability. You can be confident that your Imation media will be forward compatible with future Ultrium drives
- *Manufacturing expertise* — Imation has been in the media business for more than 50 years. As part of 3M, we launched the world's first computer tape in 1952. And we're still technology partners with today's leading drive manufacturers, so the industry's leaders count on us to provide top-quality data storage media
- *Pioneering technologies* — Imation pioneered the backcoating technology, which is now standard on LTO/Ultrium cartridges. And we continue to advance technologies to meet our customers' needs

### Unmatched Service and Support

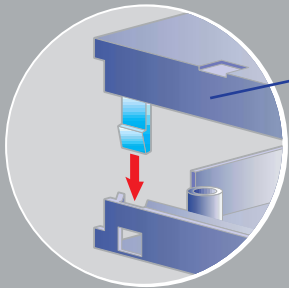
- *Technical service* — Our three-stage service platform includes a telephone helpline, lab analysis, and professional consulting
- *Limited lifetime warranty* — Reliability of our Ultrium cartridges are warranted against manufacturing defects
- *Made in USA* — Imation is a US-based manufacturer

# The Imation Ultrium™ Advantage

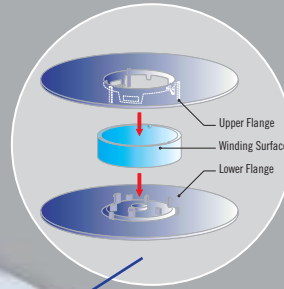
With Imation, you're getting reliability and support from the industry's most trusted media supplier. Plus, the following exclusive features and technologies found only in Imation Ultrium tape cartridges truly set them apart from other brands, and have made Imation the preferred choice for network data storage.

## Patented corner snap

Provides stronger data protection by improving cartridge strength without welding and by helping keep the leader pin in place. Reduces errors caused by debris and tape-flow disruptions.



Made in U.S.A.



## Patented three-piece tape spool design

Distributes stress more evenly over the tape compared to two-piece spools found in other Ultrium brands.

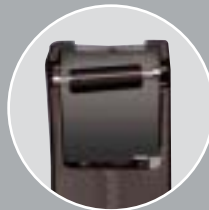
- High track capacity today means higher track density, increasing the importance of read/write accuracy.
- Three-piece spool guides the tape by keeping tape flat, thus protecting your data across the entire width of the tape.

## Durability test



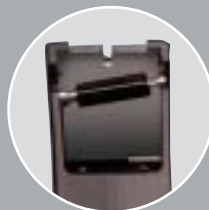
Imation Ultrium tape cartridge

The Imation Ultrium tape cartridge shows no damage when dropped from a short distance.



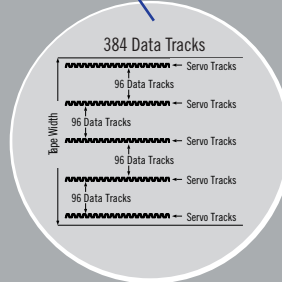
Competitor 1 Ultrium tape cartridge

The same fall dislodges the leader pin, which can disrupt tape flow.



Competitor 2 Ultrium tape cartridge

The leader pin gets dislodged and the cartridge seam separates, which can let in error-causing debris.



## Factory-written servo pattern

Precise data reading/writing capability from the original servo experts means you can depend on your data for years to come.

# A revolutionary technology, years of experience

Imation brings more than 50 years of media development and manufacturing expertise to Ultrium technology. It's the perfect match for companies seeking to consolidate multiple storage technologies for mid-range networks with either stand-alone or automated environments. Imation Ultrium Tape Cartridges feature:

- Up to 400GB storage capacity (compressed 2:1)
- Up to 80MB/second transfer rate (compressed 2:1)
- LTO-CM (Cartridge Memory) Chip—External reader allows immediate access to data without inserting the cartridge into the drive. Data is still accessible from an outside source when there are drive problems. (Initialization not required)
- Forward-compatible servo pattern that accommodates terabyte capacities
- Ultrium systems feature two levels of error correction that help in recovery from longitudinal media scratches
- Systems also feature automatic data compression without user intervention

## Ultrium System Migration Path

	Generation 1	Generation 2	Generation 3*	Generation 4*
<b>Capacity</b> (2:1 compression)	200GB	400GB	800GB	1.6TB
<b>Transfer Rate</b> (2:1 compression)	20–40MB/sec	40–80MB/sec	80–160MB/sec	160–320MB/sec
<b>Recording Method</b>	RLL 1.7	PRML	PRML	PRML
<b>Media</b>	MP	MP	MP	Thin film

\*Hewlett-Packard, IBM, and Certance (Seagate RSS) reserve the right to change the information in this migration path without notice.

## Extended Drive Warranties

Because Imation's Ultrium tape cartridges meet the high standards set by the LTO consortium, our cartridges are compatible with all Ultrium Generation 1 and Generation 2 drives, including IBM, HP, Certance (Seagate RSS), StorageTek, ADIC and others.

### Imation Ultrium Universal Cleaning Cartridge

All Ultrium Generation 1 and Generation 2 drives have a cleaning indicator to alert you when it needs cleaning. The Imation Ultrium Universal Cleaning Cartridge is designed specifically for these drives, and will clean the recording heads to help extend your drive's life and, ultimately, protect your data. Imation's Ultrium Universal Cleaning Cartridge is compatible with all HP, IBM and Certance (Seagate RSS) Ultrium Generation 1 and Generation 2 drives.

*Provides up to 50 cleanings for IBM and Certance (Seagate RSS) drives, or up to 15 cleanings for HP drives.*





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## Product Specifications

	Imation Ultrium 1 Tape Cartridge	Imation Ultrium 2 Tape Cartridge
<b>Characteristics</b>		
Tape Width	12.65mm	12.65mm
Tape Length	609 m	609 m
Cartridge dimensions (W x L x H)	105.4 x 102 x 21.5mm	105.4 x 102 x 21.5mm
Tape Thickness	8.9um	8.9um
Number of Data Tracks	384	512
Capacity (native)	100GB	200GB
Capacity (compressed)	200GB	400GB
Data Transfer Rate (compressed)	10-20MB/sec	20-40MB/sec
Cartridge Color	20-40MB/sec	40-80MB/sec
	Black	Black or Purple
<b>Magnetic Layer Characteristics</b>		
Coercivity	1850 Oerstedt	2100 Oerstedt
Surface Resistance	5 x 10 <sup>5</sup> Ohm to 5 x 10 <sup>10</sup> Ohm	5 x 10 <sup>5</sup> Ohm to 5 x 10 <sup>10</sup> Ohm
Media Type	Metal Particle (MP2)	Metal Particle (MP3)
<b>Backcoat Layer Characteristics</b>		
Surface Resistance	< 2 x 10 <sup>6</sup> Ohm	< 2 x 10 <sup>6</sup> Ohm
<b>Tape Life</b>		
Tape durability	1,000,000 passes	1,000,000 passes
Estimated archival life	30 years	30 years
Load/unload	20,000	20,000
<b>Operating Conditions</b>		
Temperature	10 to 45°C (50 to 113°F)	10 to 45°C (50 to 113°F)
Relative Humidity	10-80% RH	10-80% RH
Wet Bulb Temperature	26°C (79°F) Max.	26°C (79°F) Max.
<b>Storage Conditions</b>		
Temperature	16 to 32°C (61 to 90°F)	16 to 32°C (61 to 90°F)
Relative Humidity	20-80% RH	20-80% RH
Wet Bulb Temperature	26°C (79°F) Max.	26°C (79°F) Max.
<b>Transport Conditions (in box)</b>		
Temperature	-23 to 49°C (-10 to 120°F)	-23 to 49°C (-10 to 120°F)
Relative Humidity	5-80% RH	5-80% RH
Wet Bulb Temperature	26°C (79°F) Max.	26°C (79°F) Max.
<b>Applicable Standards</b>		
ECMA	ECMA 319	Not published yet