

SONY

Catalog No.604

High Speed Video Duplicating System

NTSC
PAL
SECAM

SPRINTER



Storage Heaven (USA)
305-9715 West Broward Blvd.
Plantation, FL 33324
1-800-367-3054 Toll Free
1-954-252-4610 FAX

Storage Heaven (Canada)
12-110 Riviera Drive
Markham, ON CA L3R 5M1
1-800-367-3054 Toll Free
1-905-943-7557 (Int'l.)
1-905-943-7667 FAX

www.storageheaven.com

HIGH SPEED VIDEO DUPLICATING SYSTEM WITH EVEN HIGHER PRODUCTIVITY AND ECONOMY



In 1984, Sony developed a high speed video duplication system, "Sprinter," utilizing unprecedented technology to provide consistent high quality volume VHS duplication as a cost effective alternative to conventional real time duplication. This earned Sony recognition as a leader in the VHS duplication industry.

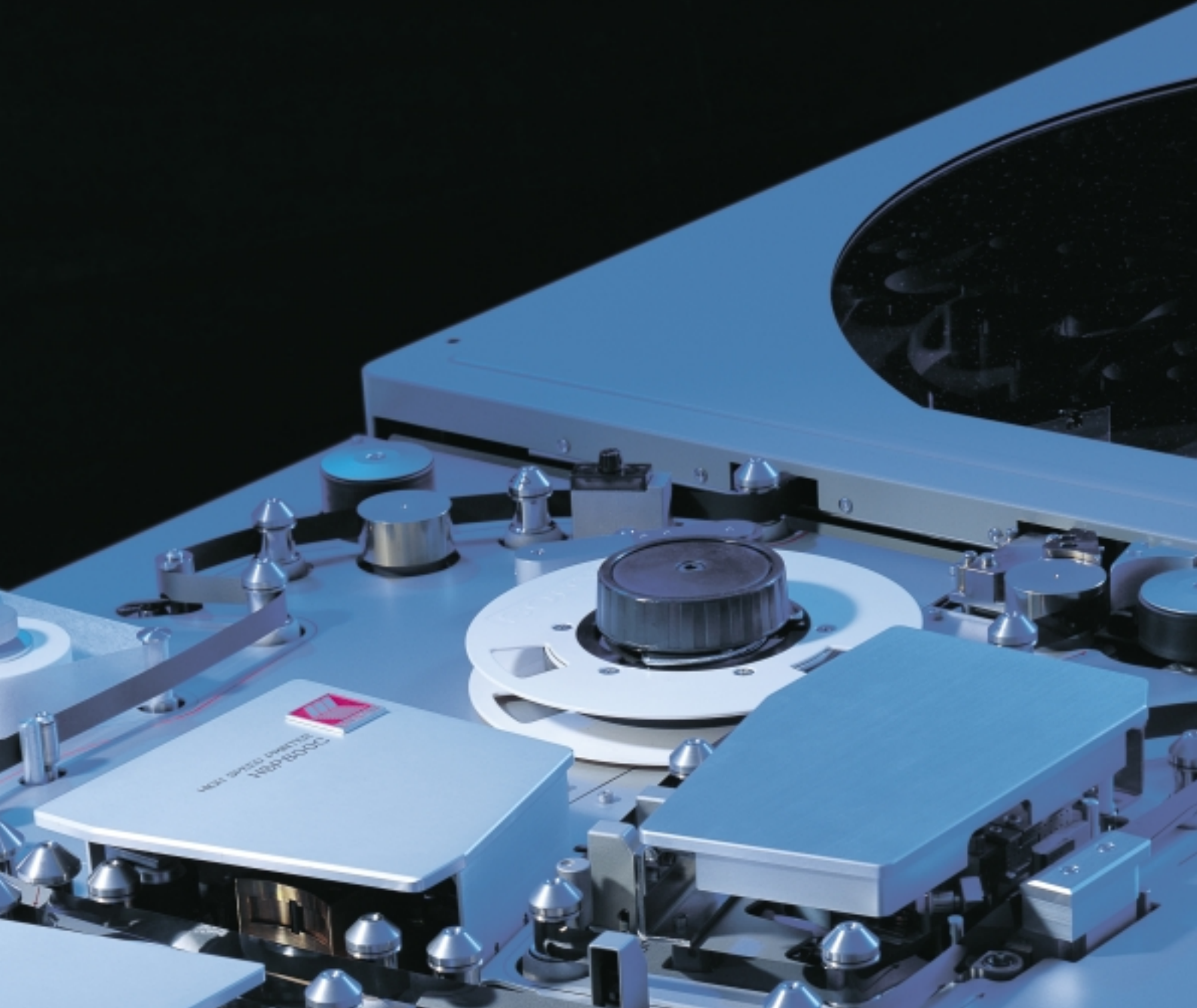
To meet the rapidly increasing demand for video software, Sony further improved the Sprinter and in 1991 successfully designed the world's first horizontal vibrating tape feed system. This innovation allowed the mother tape to be used in an endless loop and significantly increased production throughput. In 1995, Sony enhanced the printing speed up to 240 times real time for NTSC-SP and 342 times for PAL/SECAM.

Recognized all over the world for exceptional quality and reliable performance, the Sprinter is currently in operation in twenty three nations throughout North and South America, Europe, and Asia. Due to continued worldwide industry growth, Sony is introducing the HSP800C that further optimizes productivity, reduces operational cost, and continues to be the most advanced technology in VHS duplication.



NTSC-SP
**240 TIMES
FASTER**

PAL/SACAM
**342 TIMES
FASTER**



HIGH PICTURE QUALITY MIRROR-IMAGE MOTHER TAPE PRODUCER



Uses a specially developed head. Produces high picture quality mirror image mother tape that is used in the fast printing by Sony High-Speed Printers.

● Mirror-Image Recording

The Mirror Mother VTR records the signals from the master VTR as a mirror-image to produce mirror-mother tape, which is used in the following high-speed contact print.

● High Picture Quality

Enhanced 3-Line Digital Y/C Separator, selectable Video Frequency Response and new Dynamic Chroma Emphasis optimize frequency response, overshoot, ringing and cross color.

● Dolby HX Pro/Dolby B

Dolby HX Pro improves the frequency response in high-frequency range. Dolby B mode is also available.

● Fully Synchronized Operation with Master VTR

Remote control of a Sony master VTR is possible from the mirror mother VTR.

● Hi-Fi Recording

Audio signals are recorded on the conventional audio track and the video track for hi-fi recording.

● Convenient Front Panel Operation

All operation switches and controls as well as main switches and controls for all circuit boards are conveniently arranged on a front panel.

● Cleaning Blade

Saphire made cleaning blade reduces an occurrence of drop-out caused by adhesion of dust on mother tape surface during tape transportation.

NTSC/PAL/SECAM VHS
MMV SERIES

HSP800C

A HIGH PICTURE QUALITY, HIGH-SPEED VIDEO DUPLICATING SYSTEM THAT EMPLOYS AN UNPRECEDENTED HORIZONTAL VIBRATING FEED METHOD, BOASTING A PRINTING SPEED OF 240 (342) TIMES THE NORMAL SPEED WITH NTSC-SP VHS (PAL/SECAM).

FURTHER IMPROVED RELIABILITY AND DURABILITY

Using the horizontal vibrating feed method Sony developed, the HSP800C has made high-speed endless duplication possible, with minimum damage to the mother tape, increasing the life of the mother tape dramatically.

- The tape storage/feed unit has a high rigidity, with the exterior panels made of steel sheets that hold down sound and vibrations, resulting in increased durability of the unit.

- **AGC-Controlled Vibration**

The AGC system is used to control the vibration for the horizontal vibration feed system to guarantee stable vibration.

- **Six Direct Drive Motors**

Brushless motors are provided to directly drive the takeup and supply reels, transfer drum, and capstans, ensuring high reliability and durability over a long period of time.

INCREASED PRODUCTIVITY

With the endless mother tape, the HS800C is capable of a high speed transfer (8m/s), with a duplicating speed of 240 (342) times the real time rate with NTSC-SP VHS (PAL/SECAM), greatly increasing the productivity.

- **New Servo Control**

A transfer speed of 8 m/s and a controlled stable tension are achieved by the combined software/hardware servo control.

- **Horizontal Vibrating Feed System**

The newly developed horizontal vibrating feed system has enabled an endless mother tape ranging in length from 10 m to 260 m to be used.

- **Reduced Dropout**

The tracking adjustment guides have been replaced with newly developed guides of self-rotated type and a vacuum cleaner is additionally provided at the inlet of the transfer drum to reduce dropout.

ENHANCED OPERABILITY

After setting the tapes, most of the printing operations can be performed by pressing just one command key. During the printing, the display shows the production data, which can only be altered after selecting the data setting mode first to prevent erroneous operations.

- **Command key**

All the tape operations of set-rewind, load, print and unload can be performed at a press of one, consistent command key. LEDs indicate which tape operation is now being performed.

- **Push Button Entry**

The data can be directly entered by pushing the alpha numeric keys for easier, error-free operation.

- **Automatic Tape Top/End Feed**

The tape top/end feed length can be set in 1 m steps, the minimum being 3 m. Once the setting is made, just pressing the print start switch will automatically start the printing procedure.

- **Automatic Splice**

A simply designed mechanism automatically performs the splicing quickly and with precision.

- **Threading**

A back-tension control works when threading the copy tape, which is most often replaced, to prevent tape slack.

- **Tape Holder**

When threading the copy tape, the tape holder keeps the tape from being wound up by the reel.

- **CTL Phase Corrector**

Instead of adjusting tape guides, entering numerical values corrects the tracking position.

- **Interpolation of Missing CTL Pulse**

Upon detecting a missing CTL pulse, automatic interpolation is carried out to complete the pulse.



MAGNETIC CONTACT PRINTING

In Magnetic Contact Printing, a blank tape and a mother tape are threaded around the transfer drum with their magnetic coating surfaces opposing each other. Compressed air is blown onto them to keep them hard pressed to the drum while a proper amount of bias field is applied as the mirror-image signal on the mother tape is accurately transferred to the blank tape as a normal image. A smooth, high-speed tape run is ensured for mother and blank tapes by the "drum driven system" whereby the transfer drum is free from wear and the mother tape enjoys a long life.

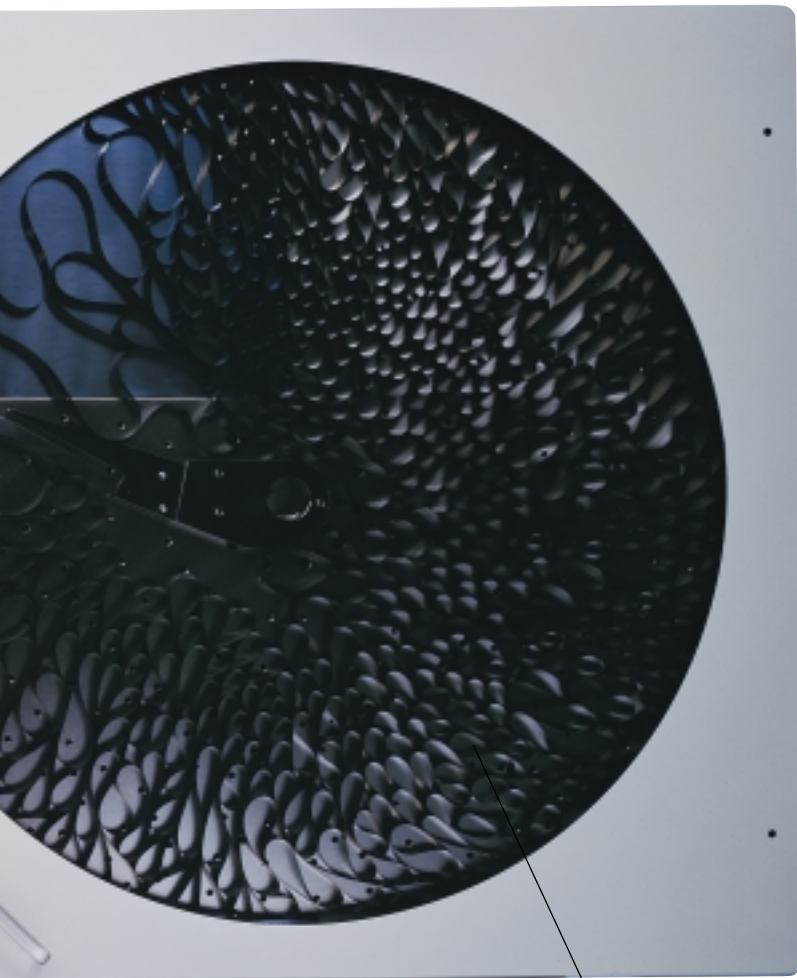


HSP800C

MIRROR MOTHER TAPE

For the transfer to occur with the magnetic coating surface of mother tape and blank tape opposing each other, the mirror mother tape has recorded on it a mirror-image of the normal track pattern as illustrated. The mirror mother VTR has a head drum capable of recording a mirror-image of the standard format.

To keep the mirror mother tape from losing its magnetic recording when the bias field is applied in the recording pattern transfer process, the mirror mother tape uses magnetic substance with a coercivity of three times that of blank tapes.



HORIZONTAL VIBRATING FEED SYSTEM

It is an unprecedented system by which a tape standing on its edge on a horizontal disk is fed forward by fine vibration applied from a diagonal direction. The vibration is applied to a piezoelectric actuator and amplified by mechanical oscillation. The vibration oscillates the whole tape storage/feed unit, causing the tape to be fed forward.

The horizontal feed structure where the tape is free from the effect of its own weight enables a wide range of mother tape to be accommodated and fed at high speed.

EASIER MAINTENANCE WITH HIGHER RELIABILITY

Various functions can be checked on the operation panel for reliable and easy service and maintenance. Error messages are given in an easy-to-recognize letter display.

● Operation Panel

Basic data such as production data can be easily entered with the function keys and numeral keys. The display switches to the alarm display when the printing stopped halfway through or when a trouble occurred, giving a caution or specifying the error.

● Function Check

The function can be checked with the function keys and the display provided on the operation panel for the maintenance purposes.

● Checking the Independent Operation of Individual Parts

The copy/mother tape can be made to run alone by manual operation.

Basic function can be checked automatically by using the self-check function.

● Cleaning Mode

Cleaning of the drum and capstans has been made easier by the newly added cleaning mode in which the drum and capstans are turned to facilitate cleaning.

IMPROVED ECONOMY

The productivity has increased dramatically while the power consumption remains almost the same (compared with the preceding model).

● Saving on Power Consumption

Magnetic contact printing method does not require any tape heating or cooling equipment, leading to saving on power.

● The magnetic transfer is possible with most of the commercially available pancakes.

● Multiple-Format Duplication Capability

The system is compatible with NTSC (SP/LP/EP) PAL/SECAM color television system.

● Vacuum cleaning method reduces consumption of cleaning tapes, saving on the running cost.

● Saves on production/inspection procedure.

● Saves on installation/material storage space.

● Quickly fills quantity orders and additional orders for small lots.

● Optimized MMT Life

The behavior of the mirror mother tape as it is fed into the loop bin is monitored to prevent its clogging at the inlet of the loop bin. (The life of the mirror mother tape has been increased by 50%* on average over the preceding HSP800 Series.)

*Varies with the operating conditions.

MASTERING PROCESS

With a mirror mother VTR connected to a master VTR that supplies a program, a mirror mother tape is produced by fully automated operation. The mirror mother tape, with its mirror image track pattern, is comparable to the block copy used in printing presses.

Master tape



D-2
(composite analog/digital master VTR)

High-coercivity
mother tape (1/2-inch)



MMV-series
(mirror mother VTR)

Recorded
mother tape
(1/2-inch)

Blank pancake
(1/2-inch)



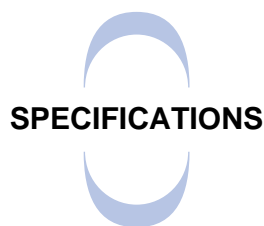
HSP800C
(high-speed printer)

DUPLICATING PROCESS

The mirror mother tape and blank tapes are placed together on the high-speed printer and allowed to run on the transfer drum with their respective magnetic surfaces in air-pressurized contact with each other. As the tapes run, bias field is applied, transferring the pattern recorded on the mother tape onto the blank tape. The duplicate tape is wound into a pancake and goes on to the loading process.

Faster and more economical.... Sony's state-of-the-art high-speed video duplicating system that meets the current needs.



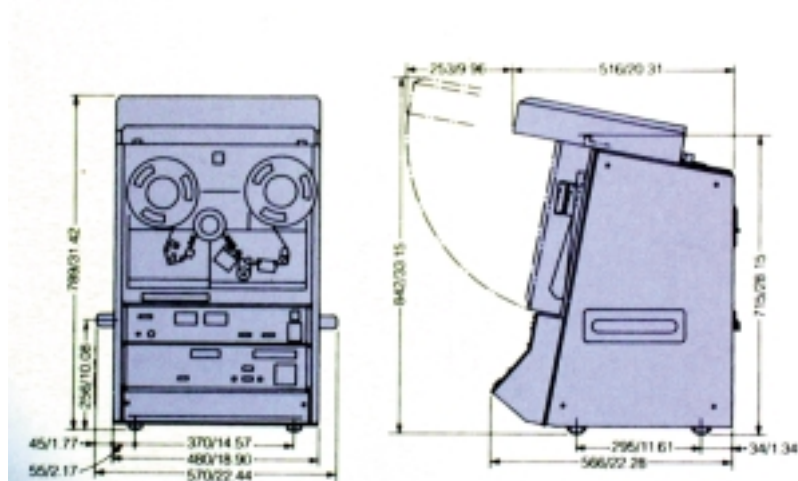


MMV SERIES

MODEL	VHS SP	VHS LP	VHS EP	VHS PAL/SECAM
	MMV800-D	MMV830-D	MMV810-D	MMV802-D
Power requirements	100V to 240V AC \pm 10%, 50/60 Hz (90V to 130V for USA)			
Power consumption	190W			
Operating temperature	10°C to 30°C			
Humidity	40% to 60%			
Mass	Approx. 42Kg			
Recording format	VHS mirror image pattern			
Color TV system	NTSC	NTSC	NTSC	PAL/SECAM
Audio system Hi-Fi	Stereo	—	Stereo	Stereo
Audio system linear	Stereo	Monaural	Monaural	Stereo
DOLBY System (linear audio)	HX Pro/B type noise reduction system			
Tracks				
Video	1	1	1	1
Hi-Fi audio	1	0	1	1
Linear audio	2	1	1	2
Control	1	1	1	1
Cue	1	1	1	1
Reel size	7-inch real (NAB)			
Tape speed	33.35mm/s	16.67mm/s	11.12mm/s	23.39mm/s
Recording time (using V-2/i-400N)	3h	6h	9h	4h 20min
Servo lock time	Less than 5 s			
FFWD/REW transfer time	Less than 4 min 20s (400-m tape)			
Video input	BNC type connectors 1.0V \pm 0.3V(p-p), 75 Ω			
Gray video input	BNC type connectors 1.0V \pm 0.3V(p-p), 75 Ω			
Audio input	XLR connectors, 8 dBm, 600 Ω			
Remote input	15-pin D-sub connector			
Test input	BNC type connector			
Video output	BNC type connectors 1.0V \pm 0.1V(p-p), 75 Ω			
Audio monitor output	Phone jack, -10 dB			
Headphone output	Phone jack, 8 Ω , unbalanced, level adjustable			
Remote output	15-pin D-sub connector to connect Mirror Mother VTR 10-pin CCJ type connector to connect BVH-1000 Series VTR 25-pin D-sub connector to connect BVH-2000/3000 Series VTR 9-pin D-sub connector for serial remote control via RS-422A			
Supplied accessories	Audio monitor head (housed behind the tape stopper panel) (1), 7-inch reel (1), extension PC board (1), operation manual (1), power cord (1), L-shaped headphone plug (1)			

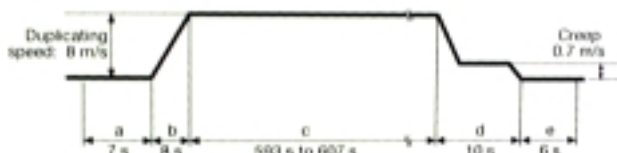
*DOLBY, the double-D symbol  and "HX Pro" are trademarks of Dolby Laboratories Licensing Corporation

Dimensions(mm/inch)



HSP800C

DUPLICATING TIME AND SPEED



- a: Time that elapses from the push of the print start button to the start of duplication (excl. time for top feed)
 b: Accelerating period
 c: Constant speed running
 d: Decelerating period.
 e: Time it takes to stop (excl. time for end feed)

SPECIFICATION

Power requirements	100V to 120V AC $\pm 10\%$, 220V to 240V AC $\pm 10\%$, 50/60Hz
Power consumption	600 W
Supplied air pressure	54 $\times 10^4$ to 88 $\times 10^4$ Pa {5.5 to 9kg/cm ² } (dry, clean air)
Air flow amount used	Approx. 300 ℓ /min. (ANR) max. {Approx. 300N ℓ /min. max.}
Operating environment	Temperature: 20 to 28 $^{\circ}$ C (recommended: 22 ± 2 $^{\circ}$ C) Humidity: 55 to 75% (recommended: 65 ± 5 %) Cleanliness: Class 10,000
Mass	Approx. 450kg
Transfer method	Magnetic transfer
Transfer speed	8 m/s
Usable reels and tapes	Mother tape: Mother tape produced on the Mirror Mother VTR (max. 7" NAB reel, metal tape 27 μ m thick, 1/2" wide) Blank tape: max. 16" pancake (1/2" wide)
Standard supplied accessories	AC power cord, hoseband, air joint, empty reel, reel collars (2), cleaning tapes (2), splice tape, cutter blades (2), base plates (4), reel adapter sheet, spare balance weights, extension PC board, dust cover, operation manual, maintenance manual.

CYCLE TIME PER PANCAKE

Blank tape length: 5010m
 Program length: 120min
 Max. mother tape loading times: 20

	NTSC-SP	NTSC-LP	NTSC-EP	PAL/SECAM
Duplication time per pancake(s)	632	634	638	624
Cassette output per pancake	20	40	59	28
Copy speed (times normal)	240	480	720	342
Production efficiency (times real-time systems)	203	400	588	287

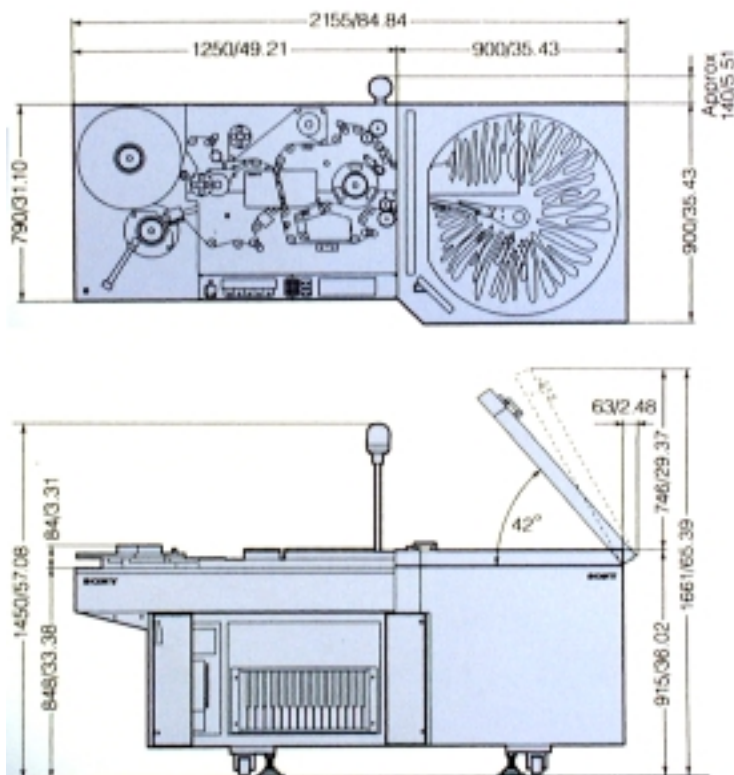
Note: These figures were obtained in the test we made and may vary with the operating conditions.

MOTHER TAPE PROGRAM LENGTH LOADABLE IN HSP800C

	The maximum length of MMT (depends on the tape loading capacity of the loop-bin)	The minimum length of MMT (depends on the program length between cues)
Mother tape length	260.0	PAL/SECAM 11.3 ~ 14.7 NTSC-SP 11.6 ~ 15.0
Program length	PAL/SECAM 255.3 ~ 258.6 NTSC-SP 255.0 ~ 258.3	10.0

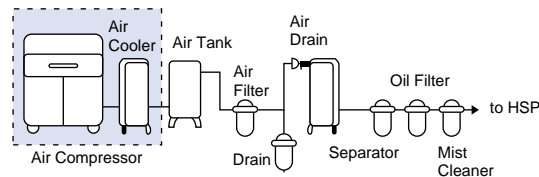
unit:m

Dimensions(mm/inch)

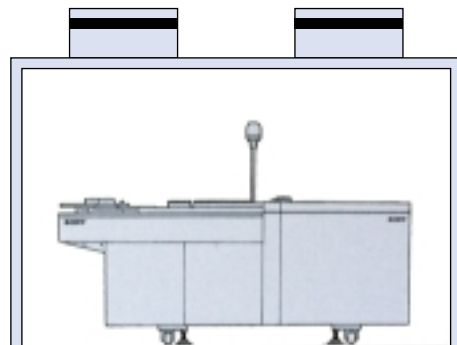


Examples

Air Compressor System



Clean Hood



• Design and specifications subject to change without notice.

SONY

Distributed by

Storage Heaven (USA)
305-9715 West Broward Blvd.
Plantation, FL 33324
1-800-367-3054 Toll Free
1-954-252-4610 FAX

Storage Heaven (Canada)
12-110 Riviera Drive
Markham, ON CA L3R 5M1
1-800-367-3054 Toll Free
1-905-943-7557 (Int'l.)
1-905-943-7667 FAX

www.storageheaven.com

Sony Precision Technology Inc.
1998.7. DX-604-B-CP ©SONY Printed in Japan