

**HARVARD**  
APPARATUS

# Harvard Peristaltic Pump



Remote Design • Programmable • Interchangeable Pump Drives

# THE NEW HARVARD PERISTALTIC PUMP

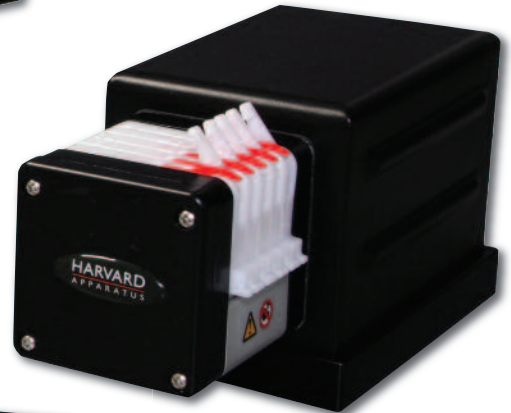
## HARVARD APPARATUS



P-230  
Motor Drive



P-1500  
Motor Drive



P-70  
Motor Drive



Harvard Peristaltic Pump  
Controller Box

Harvard Apparatus is proud to introduce the Harvard Peristaltic Pump. This pump series offers unparalleled accuracy, reproducibility, and ease of use over a broad range of flow rates. Consisting of a control unit and a choice of motor drives, the pump can deliver solutions over a range of flow rates from 0.001 to 1,500 ml/min depending on the motor drive used.

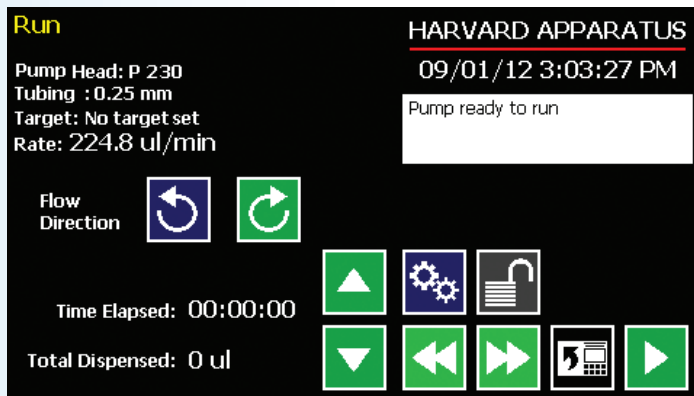
### Three interchangeable motor drive modules provide flow over the following ranges:

- P-70, From 0.001 to 70 ml/min
- P-230, From 0.001 to 230 ml/min
- P-1500, From 0.001 to 1,500 ml/min

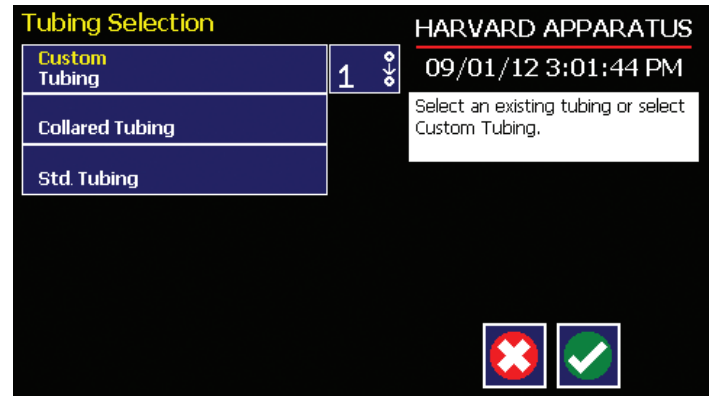
## Unique Benefits

### The Harvard Peristaltic Pump offers many benefits not available in other designs including:

- The ability to separate the motor drive from the controller to facilitate use, and save space in incubators and fume hoods.
- A library of various tubing sizes is stored in the pump's memory to allow the user to minimize set up time. The pump also accommodates manual entry for entering tubing sizes not contained in the library.
- A full range of interchangeable motor drives to allow for economical ease of use over a broad flow rate range.



Run Screen



Tubing Selection Screen

## Programmable Functions

A complete range of programmable functions allows the pump to be easily adapted to a wide range of dispensing applications.

These include:

- Constant Flow
- Flow Ramps
- Pulsatile Flow
- Concentration

The pump can be controlled from a PC via its USB port. The Advanced Options menu also provides additional functionality such as:

- Remote initiated start/stop
- Delayed start time
- Communication with external devices through 15 pin I/O connector

## Quick Start Menu

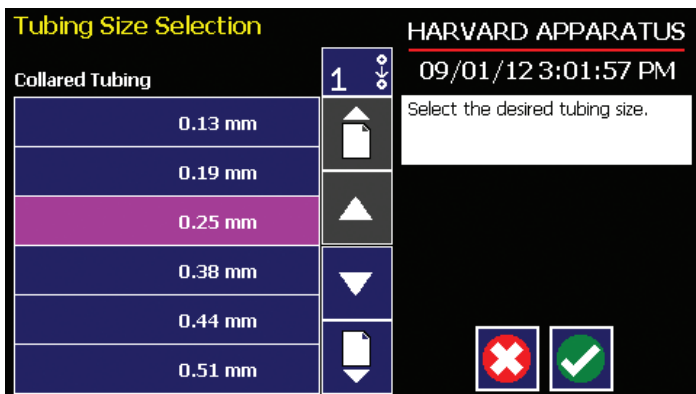
Allows for fast setup and ease of use as well as access to other functions.



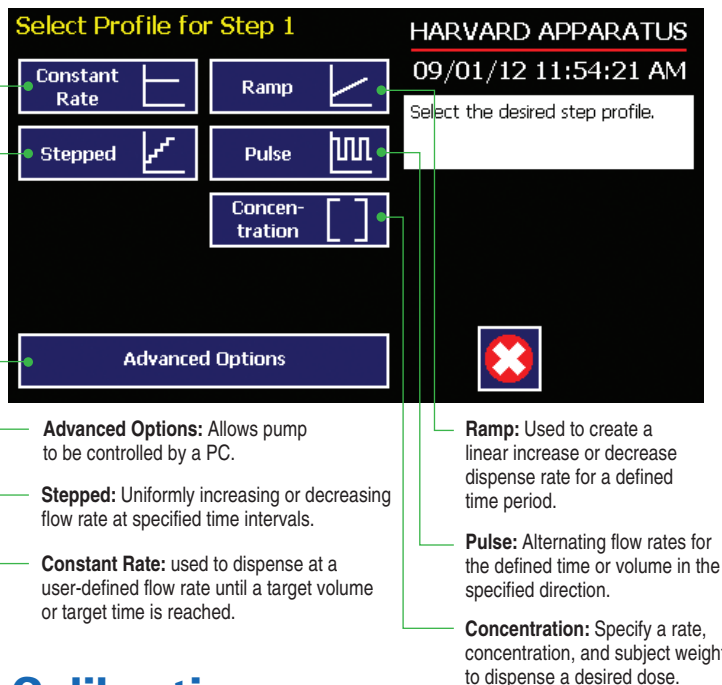
Quick Start Screen

## Tubing Library

Pre-stored tubing sizes allow for rapid setup. The Harvard Peristaltic Pump also accommodates user defined tubing sizes.

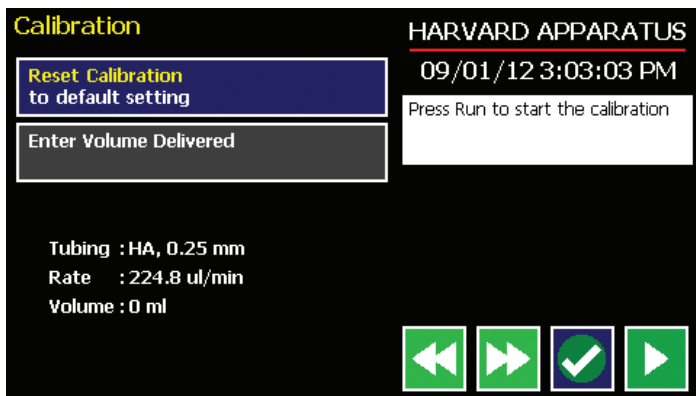


Tubing Size Selection Screen



## Calibration

The pump will automatically rotate at the proper speed for the tube size and flow rate selected.



Calibration Screen

## Alphanumeric Keypad

Alphanumeric keypad makes it easy to name new Methods and recall stored Methods.

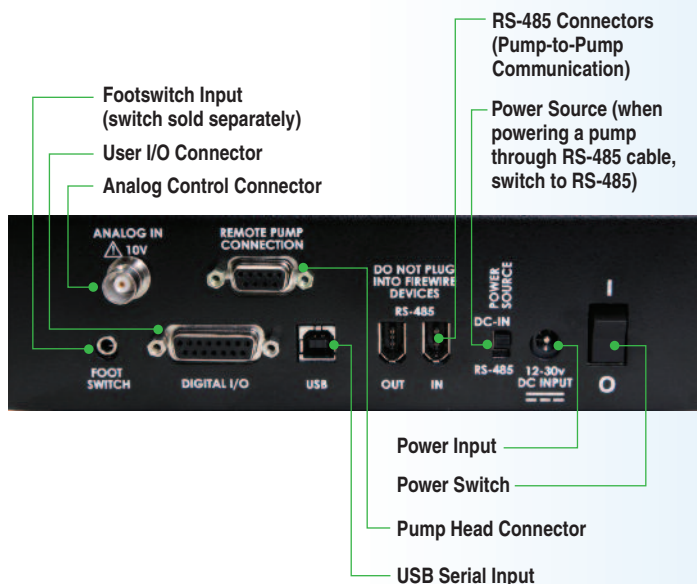


## Advanced Connectivity

With analog inputs, RS-485 USB, foot switch and digital I/O, the Harvard Peristaltic Pump is ideally suited to interface with external devices. The system can send or receive start/stop commands, be networked via RS-485, or be controlled externally.

### Other Capabilities Include:

- Single Channel or “Gang” mode (combined channel) for setting flow rate.
- Timed Dispense: Dispenses for a fixed time at a set flow rate.
- Volume Dispense: Dispenses a fixed volume on start. May be started remotely with external signal such as foot pedal.



## SPECIFICATIONS & ORDERING INFORMATION

### Harvard Peristaltic Pump: Control Box and Pump Motor Drive

SPECIFICATIONS	PUMP WITH P-70 MOTOR DRIVE: Includes: control unit, pump head, cartridges/cassettes, and 3-Stop PVC tubing, 1.52 mm ID (pkg. of 2)	PUMP WITH P-230 MOTOR DRIVE: Includes: control unit, pump head, cartridges/cassettes, and 2-Stop Tygon® R-3607 tubing, 1.52 mm ID (pkg. of 2)	PUMP WITH P-1500 MOTOR DRIVE: Includes: control unit, pump head, cartridge/cassette, and Standard Tygon® R-3603 tubing, 4.8 mm ID (7 feet)
Type	8 rollers, 5 channels	8 rollers, 4 channels	4 rollers, 1 channel
Accuracy	±1.0%	±1.0%	±1.0%
TTL Connector	15-pin D-sub	15-pin D-sub	15-pin D-sub
Computer Interface	USB Type B	USB Type B	USB Type B
Pump-to-Pump	IEEE 1394	IEEE 1394	IEEE 1394
Back pressure	15 psi	15 psi	30 psi
Tubing ID	0.13 to 2.79 mm (0.005 to 0.11 in)	0.13 to 3.17 mm (0.005 to 0.13 in)	0.8 to 8 mm (0.03 to 0.31 in)
Flow Rate Range	0.001 to 70 ml/min	0.001 to 230 ml/min	0.001 to 1,500 ml/min
Dimensions: Control Box	20.7 x 13 x 9.6 cm (8.13 x 5.13 x 3.75 in)	20.7 x 13 x 9.6 cm (8.13 x 5.13 x 3.75 in)	20.7 x 13 x 9.6 cm (8.13 x 5.13 x 3.75 in)
Dimensions: Pump Head	11.5 x 25.4 x 11.8 cm (4.5 x 10 x 4.63 in)	16 x 23.6 x 11.8 cm (6.3 x 9.3 x 4.63 in)	11.5 x 24.1 x 11.8 cm (4.5 x 9.5 x 4.63 in)
Weight	4.7 kg (10.5 lbs)	5 kg (11 lbs)	5 kg (11 lbs)
Pump Voltage	30 VDC, 1.67 A	30 VDC, 1.67 A	30 VDC, 1.67 A
Power Supply	100-250 VAC, 50/60 Hz	100-250 VAC, 50/60 Hz	100-250 VAC, 50/60 Hz
For Compatible Tubing	See reverse side of page.	See reverse side of page.	See reverse side of page.
<b>ORDER #</b>	<b>70-7000</b>	<b>70-7001</b>	<b>70-7002</b>

### Replacement Parts

ORDER #	PRODUCT
70-7003	P-70 Motor Drive, 8 rollers, 5 channel
70-7004	P-230 Motor Drive, 8 rollers, 4 channel
70-7005	P-1500 Motor Drive, 4 rollers, 1 channel
70-7006	Control Box for all P Series Motor Drives
72-0604	Cartridge/Cassette for P-70
73-3052	Cartridge/Cassette for P-230

*Tygon is a registered trademark of Saint-Gobain.*



Our technical support specialists are available to answer questions and assist you with product selection.

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# TUBING SETS

## 3-Stop Collared Tubing for P-70 Pump Head

Tube Bore mm (in)	Color Code	Max Flow Rate (ml/min)	Connector Gauge/Barb Size	Silicone	Marprene	PVC
				ORDER #	ORDER #	ORDER #
0.13 mm (0.005 in)	Orange/Black	.152	32 g	—	—	72-0653
0.19 mm (0.007 in)	Orange/ Red	.325	31 g	—	—	72-0654
0.25 mm (0.010 in)	Orange/Blue	.562	28 g	—	72-0621	72-0655
0.38 mm (0.015 in)	Orange/Green	1.30	25 g	—	72-0622	72-0656
0.50 mm (0.020 in)	Orange/Yellow	2.25	23 g	—	72-0623	72-0657
0.63 mm (0.025 in)	Orange/White	3.57	22 g	72-0638	72-0624	72-0658
0.76 mm (0.030 in)	Black/Black	5.19	20 g	72-0639	72-0625	72-0659
0.88 mm (0.035 in)	Orange/Orange	6.96	19 g	72-0640	72-0626	72-0660
1.02 mm (0.040 in)	White/White	9.36	18 g	72-0641	72-0627	72-0661
1.14 mm (0.045 in)	Red/Red	11.7	1/16 in	72-0642	72-0628	72-0662
1.29 mm (0.050 in)	Gray/Gray	14.9	1/16 in	72-0643	72-0629	72-0663
1.42 mm (0.055 in)	Yellow/Yellow	18.1	1/16 in	72-0644	72-0630	72-0664
1.52 mm (0.060 in)	Yellow/Blue	20.8	1/16 in	72-0646	72-0631	72-0665
1.65 mm (0.065 in)	Blue/Blue	24.5	1/16 in	72-0647	72-0632	72-0666
1.85 mm (0.070 in)	Green/Green	30.8	3/32 in	72-0648	72-0633	72-0667
2.05 mm (0.080 in)	Purple/Purple	37.8	3/32 in	72-0649	72-0634	72-0668
2.38 mm (0.095 in)	Purple/Black	50.9	3/32 in	72-0650	72-0635	72-0669
2.54 mm (0.100 in)	Purple/Orange	58.0	1/8 in	72-0651	72-0636	72-0670
2.79 mm (0.110 in)	Purple/White	70.0	1/8 in	72-0652	72-0637	72-0671
Package Size				6 pieces	6 pieces	12 pieces



P-70

## 2-Stop Collared Tubing for P-230 Pump Head

ENE #	Tubing ID	Color Code	Max Flow Rate (ml/min)	Tygon® ST R-3607	Tygon® LFL	Tygon® SI Silicone 3350	Ismaprene
				ORDER #	ORDER #	ORDER #	ORDER #
00	0.13 mm	Orange/Black	0.387	73-3174	—	—	—
01	0.19 mm	Orange/ Red	0.826	73-1840	—	—	—
02	0.25 mm	Orange/Blue	1.43	73-1841	73-3231	—	73-3192
03	0.38 mm	Orange/Green	3.31	73-1842	73-3232	—	73-3193
04	0.44 mm	Green/Yellow	4.43	73-1843	—	—	—
05	0.51 mm	Orange/Yellow	5.95	73-1844	73-3233	73-3277	73-3194
06	0.57 mm	White/Yellow	7.44	73-1845	—	—	—
07	0.64 mm	Orange/White	9.37	73-1846	73-3234	—	73-3195
08	0.76 mm	Black/Black	13.2	73-1847	73-3235	73-3278	73-3196
09	0.89 mm	Orange/Orange	18.1	73-1848	73-3236	73-3279	73-3197
10	0.95 mm	White/Black	20.7	73-1849	—	—	—
11	1.02 mm	White/White	23.8	73-1850	73-3237	73-3280	73-3198
12	1.09 mm	White/Red	27.2	73-1851	—	—	—
13	1.14 mm	Red/Red	29.7	73-1852	73-3238	73-3281	73-3199
14	1.22 mm	Red/Gray	34.1	73-1853	—	—	—
15	1.30 mm	Gray/Gray	38.7	73-1854	73-3239	73-3282	73-3200
16	1.42 mm	Yellow/Yellow	46.2	73-1855	73-3240	73-3283	73-3201
17	1.52 mm	Yellow/Blue	52.9	73-1856	73-3241	73-3384	73-3202
18	1.65 mm	Blue/Blue	62.3	73-1857	73-3242	73-3285	73-3203
19	1.75 mm	Blue/Green	70.1	73-1858	—	—	—
20	1.85 mm	Green/Green	78.3	73-1859	73-3243	73-3286	73-3204
21	2.06 mm	Purple/Purple	97.1	73-1860	73-3244	73-3287	73-3205
22	2.29 mm	Purple/Black	120.0	73-1861	73-3245	73-3288	73-3206
23	2.54 mm	Purple/Orange	147.7	73-1862	73-3246	73-3289	73-3207
24	2.79 mm	Purple/White	178.2	73-1863	73-3247	73-3290	73-3208
25	3.17 mm	Black/White	230.0	73-1864	—	—	—
Package Size				12 pieces	12 pieces	6 pieces	6 pieces



P-230

## Standard Pump Tubing for P-1500 Pump Head

Tubing ID	Max Flow (ml/min)	Wall Thickness	Tygon® ST R-3603	Tygon® LFL	Tygon® SI Silicone 3350	PharMed Ismaprene
			ORDER #	ORDER #	ORDER #	ORDER #
0.8 mm (1/32 in)	15.0	1.6 mm (1/16 in)	73-1806	—	—	72-0958
1.6 mm (1/16 in)	60.0	1.6 mm (1/16 in)	72-1016	72-9383	73-3255	72-0960
3.2 mm (1/8 in)	240	1.6 mm (1/16 in)	72-1020	72-9384	73-3256	72-0963
4 mm (5/32 in)	375	1.6 mm (1/16 in)	72-1022	—	—	—
4.8 mm (3/16 in)	540	1.6 mm (1/16 in)	72-1024	72-9385	73-3257	72-0964
6.4 mm (1/4 in)	960	1.6 mm (1/16 in)	72-1026	72-0986	72-3259	72-0965
8 mm (5/16 in)	1500	1.6 mm (1/16 in)	72-1027	72-0988	72-3261	72-0967
Length Supplied			15 m (49 ft)	7.5 m (24.6 ft)	15 m (49 ft)	7.5 m (24.6 ft)



P-1500

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