

B/T® VARIABLE-SPEED MODULAR DIGITAL PUMP

FEATURES/BENEFITS

- ▶ Flow rates: 0.65 to 42 LPM (0.17 to 11.1 GPM) with B/T tubing
- ▶ Seven-segment, four-digit LED shows flow rate, rpm, copy number, and dispense volume
- ▶ Controller and drive are connected by a 1.9 m (6 ft) cable for placement where convenient; mount controller directly to drive with optional mounting bracket (order separately under "Accessories")
- ▶ PerfectPosition™ pump tubing ensures accurate loading and repeatable pressure and flow performance
- ▶ Tubing occlusion is optimum and automatic when door is closed and latched
- ▶ Safety interlock switch shuts off power when door is opened
- ▶ Controller and drive are IP56 rated for protection from dust and water spray
- ▶ Dispense by volume, copy, or time
- ▶ User selectable metric or English flow/volume units
- ▶ Drive stores one calibration value per tubing size even when turned off
- ▶ Motor is reversible for pumping in either direction; prime key runs motor at max speed to prime/purge tubing
- ▶ Keypad lockout prevents tampering and accidental changes

DRIVE CONTROLS

- ▶ Protected power switch located on side of controller
- ▶ Lighted display indicates power is on
- ▶ Simple programming and operation of the following via sealed membrane keypad:
 - ◆ Tubing size
 - ◆ Flow rate
 - ◆ Flow direction
 - ◆ Flow units (metric or English)
 - ◆ Motor speed (rpm)
 - ◆ Total volume
 - ◆ Dispense (volume/copy/time)
 - ◆ Control mode (remote/internal)
 - ◆ Prime
 - ◆ Start/stop
 - ◆ Calibration

SETUP

1. Open door.
2. Load PerfectPosition tubing by aligning retention marks with pump head tubing retainers.
3. Close door ensuring that latch is fully engaged.
4. Select motor direction.
5. Prime and calibrate pump if required.
6. Set flow rate through keypad.
7. Press START key to begin pumping.

PUMP HEAD SPECIFICATIONS

- ▶ Corrosion-resistant Nylatron® rollers
- ▶ Stainless steel/powder-coated carbon steel frame
- ▶ Powder-coated cast aluminum and polycarbonate door
- ▶ Accepts PerfectPosition tubing sizes B/T 87 and B/T 91

SPEED CONTROL/CIRCUITRY

- ▶ Regulate motor through keypad, 4 to 20 mA, or 0 to 10 V signal
- ▶ Soft start for starts without power surges
- ▶ Speed not affected by variations in power line voltage (VAC) and frequency (Hz)
- ▶ Line filters reduce outside interference
- ▶ 115 V meets UL61010-1, CSA C22.2 No. 61010-1; 230 V for CE mark: EN61010-1 (EU low voltage), EN61326 (EU EMC), and EN809 (EU machinery directive)

REMOTE CONTROL

- ▶ Speed control input: 0 to 20 mA, 4 to 20 mA, and 0 to 10 V (scaleable)
- ▶ Speed signal output: 0 to 20 mA, 4 to 20 mA, and 0 to 10 V (scaleable)
- ▶ START/STOP, CW/CCW, PRIME via contact closure
- ▶ Tach output: open collector
- ▶ Motor running indicator
- ▶ 18-pin watertight circular connection
- ▶ Handheld remote and cable options; order separately under "Accessories"

B/T modular digital pump with IP56-rated controller 77111-40



CALIBRATION

1. Select correct tubing size and flow rate.
2. Press CAL; calibration volume appears.
3. Press Start/Stop key. Stored memory dispenses specified volume, stops automatically.
4. Weigh/measure the sample.
5. Use UP/DOWN keys to adjust display to actual measured volume.
6. Press SIZE to save setting and exit.

Note: Digital signal processor retains one calibration value for each tubing size, even when power is turned off.

KEYPAD LOCK/UNLOCK FEATURE

- ▶ Press and hold FLOW key until dashes appear on display
- ▶ While holding FLOW key, press PRIME key five times
- ▶ Repeat above steps to unlock keypad



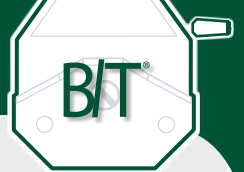
ORDERING INFORMATION

Catalog number	rpm	Power (50/60 Hz)
HL-77111-40		90 to 130 VAC
HL-77111-47	11 to 321	200 to 260 VAC

B/T PUMP TUBING FLOW RATE INFORMATION

Order Masterflex B/T pump tubing separately on page 153.

Tubing cross sections	B/T PerfectPosition™ tubing		Pump tubing size	PerfectPosition™ pump tubing	
	B/T 87	B/T 91		B/T 87	B/T 91
			Flow range† @ 11 to 321 rpm	0.65 to 18.9 LPM (0.17 to 5 GPM)	1.3 to 42 LPM (0.3 to 11.1 GPM)
			†Determined under the following conditions: 0 psi at inlet, 0.5 psi at outlet; water temperature at 22°C (72°F).		
			Dispensing Precision		
			Tubing size	Minimum dose (for ±0.5% precision)	Precision (±)
			B/T 87	5 L	25 mL
			B/T 91	10 L	50 mL



SPECIFICATIONS for B/T* Variable-Speed Modular Digital Pumps

Catalog number		HL-77111-40	HL-77111-47
Performance specifications			
Flow capacity		0.65 to 42 LPM (0.17 to 11.1 GPM)	
rpm		11 to 321	
Number of heads accepted		1 (supplied with drive)	
Maximum running torque		104 kg-cm (1440 oz-in)	
Reversible		Yes	
External control	Input	0 to 20 mA, 4 to 20 mA, 0 to 10 V; Start/stop, CW/CCW, Prime via contact closure	
	Output	0 to 20 mA, 4 to 20 mA, 0 to 10 V, TTL	
Electrical specifications			
Voltage VAC (50/60 Hz)		90 to 130	200 to 260
Current		6.5 A	3.3 A
Fuse rating		8 A	4 A
Motor type		Continuous duty, TENV, permanent-magnet DC	
Motor size		370 W (½ hp)	
Display		Four-digit, seven-segment LCD	
Motor/speed control type		Membrane keypad, microprocessor	
Speed regulation		±0.25%	
Soft start/electronic brake		Yes / Yes	
Physical specifications			
Housing materials	Controller	Painted aluminum	
	Drive	Painted steel	
Pump head materials		Powder-coated carbon steel and cast aluminum, stainless steel, polycarbonate, with Nylatron® rollers	
IP rating†	Controller	IP56	
	Drive	IP56	
Agency listings		ETL, cETL, CE	
Operating temperature		0 to 40°C (32 to 104°F)	
Storage temperature		-45 to 65°C (-49 to 149°F)	
Noise level		<75 dBA @ 1 m (39")	
Dimensions (L x W x H)	Controller	22.9 x 27.9 x 11.4 cm (9.0" x 11.0" x 4.5")	
	Drive	68.6 x 40 x 38.4 cm (27.0" x 15.8" x 15.1")	
Shipping weight		44.7 kg (98.5 lb)	

†See page 194 for explanation of IP ratings.

ACCESSORIES

HL-77300-32 Remote cable; required for remote control operation, 7.6 m (25 ft)

HL-77111-90 Controller mounting bracket; mount controller directly to back of pump head

Controller bracket 77111-90 shown mounted to back of pump head.



Rubbermaid® FLAT-SHELF SERVICE CART

Perfect for transporting your B/T® pump around the process area. Flat-shelf design lets you easily move the pump on and off the cart and allows clearance for tubing. Transport up to 181 kg (400 lb). Comes with 12.7 cm (5") rubber casters (two swivel), seamless shelves and supports, radius corners, and molded handle.

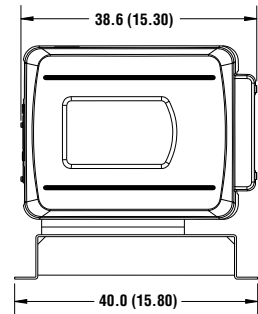
HL-09348-40 Plastic service cart, 112 cm L x 64.8 cm W x 85 cm H (44" L x 25½" W x 33½" H)

5 year warranty

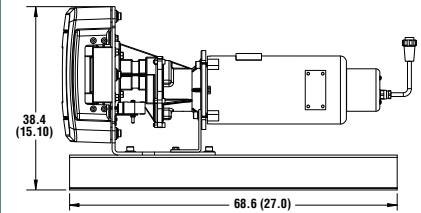


Dimensional Drawings cm (in.) 77111-40, -47

FRONT

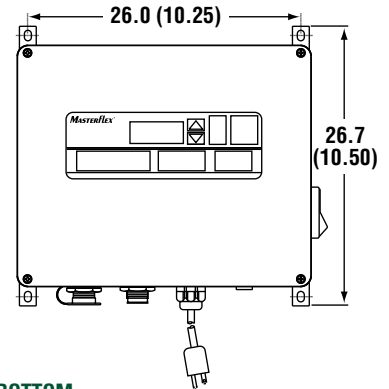


SIDE

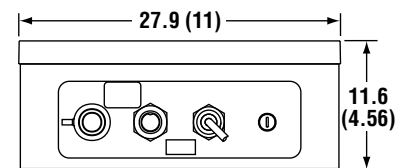


Controller

FRONT



BOTTOM



B/T® TUBING 153

ACCESSORIES 160-167

TECHNICAL DATA 172-206