

# 120 Drive With 400D1 Pump Head System 100 Series Cased Pump

## Features and Benefits

- Smooth, wipe-down case with no sharp edges to tear gloves and no bug traps; IP31 ingress protection
- Superior speed control up to 2000:1, ±1% set speed accuracy, repeatable flow
- Efficient and intuitive to use, requiring minimal key presses
- Compact footprint requires minimal benchtop space
- Maintenance-free, brushless DC motor
- Single-channel pump head
- Manual and automatic variable speed options
- Three-year warranty



### WARNING

This product is not approved or intended for, and should not be used for, medical, clinical, surgical, or other patient-oriented applications.

## Performance

**400D1 pump head for continuous tubing for manual (120S) and auto (120U) variable speed pumps — tube bore and flow rates (mL/min)**

	Speed rpm	0.5 mm	0.8 mm	1.6 mm	2.4 mm	3.2 mm	4.0 mm
120S/D1	1 to 200 rpm	0.01 to 2.2	0.03 to 5.8	0.11 to 23	0.24 to 49	0.41 to 81	0.59 to 120
120U/D1	0.1 to 200 rpm	0.001 to 2.2	0.003 to 5.8	0.011 to 23	0.024 to 49	0.041 to 81	0.059 to 120

USA +1.800.323.4340  
+1.847.549.7600  
Canada +1.800.363.5900  
China +86.21.5109.9909  
India +1.800.266.1244

UK +44 (0) 1480.272279  
+33 (0) 1.87.170142\*  
+49 (0) 937.792030\*  
Italy +39.02.84349215  
All others +1.847.549.7600

**Cole-Parmer®**  
coleparmer.com

\*Inquiries from Germany and France are now handled in our St. Neots office by native-speaking experts.

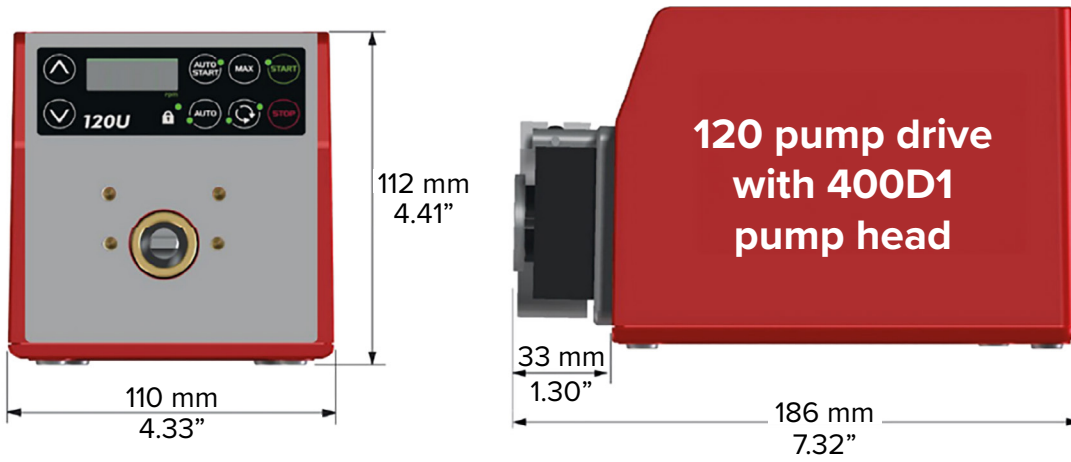
## Technical Specifications

Specification	Description
Pump head number of channels	1
Flow rate range	0.001 to 120 mL/min
Flow rate range	0.00002 to 3.04 USGPH
Max. operating pressure	2 bar (30 psi)
Speed control ratio	200:1, 2000:1
Operating speed range	0.1 rpm to 200 rpm
Operating temperature range	5 to 40 °C (40 to 104 °F)
Weight	1.65 kg (3.6 lbs)
Control options	Automatic variable speed, manual variable speed
Standards	CE, cETLus
Ingress rating	IP31, NEMA 2
Humidity	(Non-condensing) 80% up to 31 °C (88 °F) decreasing linearly to 50% at 40 °C (104 °F)
Noise	<60dB(A) at 1 m
Max. altitude	2000 m (6562 ft)
Power supply	Supplied with 24 VDC mains transformer plug (range 90 to 264 VAC 47 to 63 Hz) which comes with multi-country adaptors

## Materials of Construction

Component	Material
Drive shaft	Stainless steel
Keypad/HMI	Polyester
Drive keypad/HMI	Polyester
Drive casework	ABS plastic
Pump head body assembly	Aluminum (anodized)
Pump head roller assembly	Acetal
Pump head rotor assembly	Aluminum (anodized)
Pump head track	Aluminum (anodized)
Spindles	Stainless steel

### 120 DRIVE WITH 400D1 PUMP HEAD DIMENSIONS



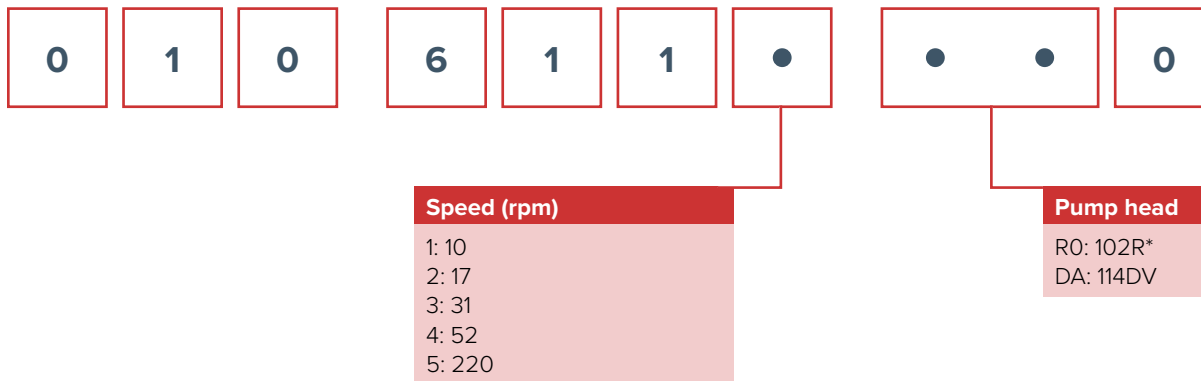
### Control Options

Key to pump drive control			
120F	120S	120U	
Fixed speed	Manual variable speed	Auto variable speed	
Manual control			
Pump drives	120F	120S	120U
Fixed speed (CW direction)	✓		
Variable speed 1 rpm increments		✓	
Variable speed 0.1 rpm increments			✓
Numerical speed display		✓	✓
Direction change		✓	✓
Max (prime)		✓	✓
Auto start		✓	✓

## Control Options (continued)

Remote control and feedback						
Pump drives	120F	120S	120U			
Run/stop, direction change, automatic/manual toggle, alarm			✓			
Analog control						
Pump drives	120F	120S	120U			
Variable speed 0.1 rpm increments			✓			
Analog speed input; 4-20mA, 0-10V			✓			
Tacho speed output; 0-5V			✓			
Security						
Pump drives	120F	120S	120U			
Keypad lock to protect setup		✓	✓			
Control ratio						
	120F	120S				
Pump head	N/A	102R	114DV	400D1	400MD2	400MD3
Manual	Fixed	1 to 32 rpm (32:1)	1 to 200 rpm (200:1)	1 to 200 rpm (200:1)	1 to 100 rpm (100:1)	1 to 100 rpm (100:1)
Automatic	N/A	N/A	N/A	N/A	N/A	N/A
		120U				
Pump head		102R	114DV	400D1	400MD2	400MD3
Manual		0.1 to 32 rpm (320:1)	0.1 to 200 rpm (2000:1)	0.1 to 200 rpm (2000:1)	0.1 to 100 rpm (1000:1)	0.1 to 100 rpm (1000:1)
Automatic		0.01 to 32 rpm (3200:1)	0.01 to 200 rpm (20,000:1)	0.01 to 200 rpm (20,000:1)	0.01 to 100 rpm (10,000:1)	0.01 to 100 rpm (10,000:1)

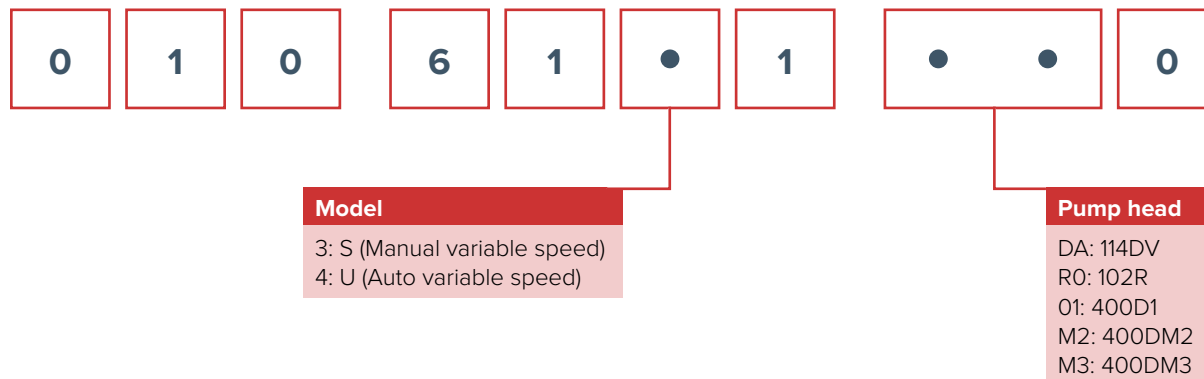
## 120F



\*Not available for 52 rpm or 220 rpm

## Control Options (continued)

### 120S, 120U



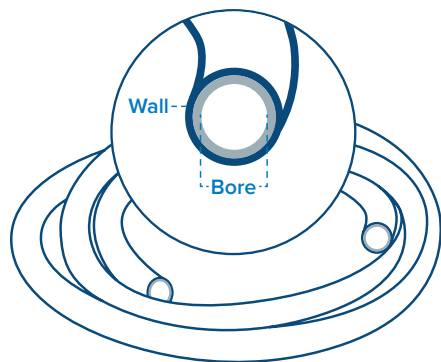
## Ordering Information

Pump system		
Model	Description	Item number
120S Drive and 400D1 Pump Head	Variable-Speed Pump System, Manual Control, 1 to 200 rpm, Single-Channel, 4-Roller; 90 to 264 VAC	<a href="#">50130-00</a>
120U Drive and 400D1 Pump Head	Variable-Speed Pump System, Manual/Analog Control, 0.1 to 200 rpm, Single-Channel, 4-Roller; 90 to 264 VAC	<a href="#">50130-05</a>

The pump heads are not interchangeable between drive models, as they use different shaft designs.

Tubing 1.6 mm wall thickness for 400D1 pump head						
	0.5 mm	0.8 mm	1.6 mm	2.4 mm	3.2 mm	4.0 mm
Bioprene®	<a href="#">50130-27</a>	<a href="#">50130-28</a>	<a href="#">50130-29</a>	<a href="#">50130-30</a>	<a href="#">50130-31</a>	<a href="#">50140-35</a>
Pumpsil®	<a href="#">50130-22</a>	<a href="#">50130-23</a>	<a href="#">50130-24</a>	<a href="#">50133-58</a>	<a href="#">50130-25</a>	–

## THERMOPLASTIC TUBING



Disclaimer: All flow rates shown were obtained pumping water at 20 °C (68 °F) with zero suction and delivery heads. The information contained in this document is believed to be correct but Cole-Parmer accepts no liability for any errors it contains and reserves the right to alter specifications without notice. It is the user's responsibility to ensure product suitability for use within their application. Watson-Marlow, Pumpsil, and Bioprene are registered trademarks of Watson-Marlow Limited. Please state the item number when ordering pumps and tubing.

**Cole-Parmer®**