

120 Drive with 400DM2 Pumphead



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 2,000:1, $\pm 1\%$ 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
- 2 channel pumphead
- Automatic variable speed, Manual variable speed options
- Three-year warranty



120 Drive with 400DM2 Pumphead performance

| 400DM2 (twin channel) pumphead for manifold tubing — Tube bore and flow rates per channel (ml/min) | | | | | | |
|--|--------------|------------|------------|------------|------------|-----------|
| | Speed rpm | 0.13mm | 0.19mm | 0.25mm | 0.38mm | 0.50mm |
| 120S | 1 – 100rpm | 0.001-0.1 | 0.002-0.2 | 0.004-0.4 | 0.008-0.8 | 0.014-1.4 |
| 120U | 0.1 – 100rpm | 0.0001-0.1 | 0.0002-0.2 | 0.0004-0.4 | 0.0008-0.8 | 0.001-1.4 |
| | Speed rpm | 0.64mm | 0.76mm | 0.89mm | 1.02mm | 1.14mm |
| 120S | 1 – 100rpm | 0.022-2.2 | 0.031-3.1 | 0.043-4.3 | 0.055-5.5 | 0.070-7.0 |
| 120U | 0.1 – 100rpm | 0.002-2.2 | 0.003-3.1 | 0.004-4.3 | 0.006-5.5 | 0.007-7.0 |
| | Speed rpm | 1.30mm | 1.42mm | 1.52mm | 1.65mm | 1.85mm |
| 120S | 1 – 100rpm | 0.089-8.9 | 0.110-11 | 0.120-12 | 0.140-14 | 0.180-18 |
| 120U | 0.1 – 100rpm | 0.009-8.9 | 0.011-11 | 0.012-12 | 0.014-14 | 0.018-18 |
| | Speed rpm | 2.06mm | 2.29mm | 2.54mm | 2.79mm | |
| 120S | 1 – 100rpm | 0.210-21 | 0.250-25 | 0.310-31 | 0.360-36 | |
| 120U | 0.1 – 100rpm | 0.021-21 | 0.025-25 | 0.031-31 | 0.036-36 | |

Technical specifications

| | 120 Drive with 400DM2 Pumphead |
|-----------------------------|---|
| Pumphead number of channels | 2 |
| Max. flow rate | 36 ml/min |
| Min. flow rate | 0.0001 ml/min |
| Max. flow rate | 3.04 USGPH |
| Min. flow rate | 0.00002 USGPH |
| Max. operating pressure | 2 bar |
| Max. operating pressure | 30 psi |
| Speed control ratio | 100:1, 1000:1 |
| Max. operating speed | 100 rpm |
| Min. operating speed | 0.1 rpm |
| Operating temperature range | 5 to 40 °C |
| Operating temperature range | 40 to 104 °F |
| Weight | 1.7 kg |
| Weight | 3.7 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 |
| Power supply | Supplied with 24 VDC mains transformer plug (range 90-264 VAC 47-63 Hz) which comes with multi-country adaptors |

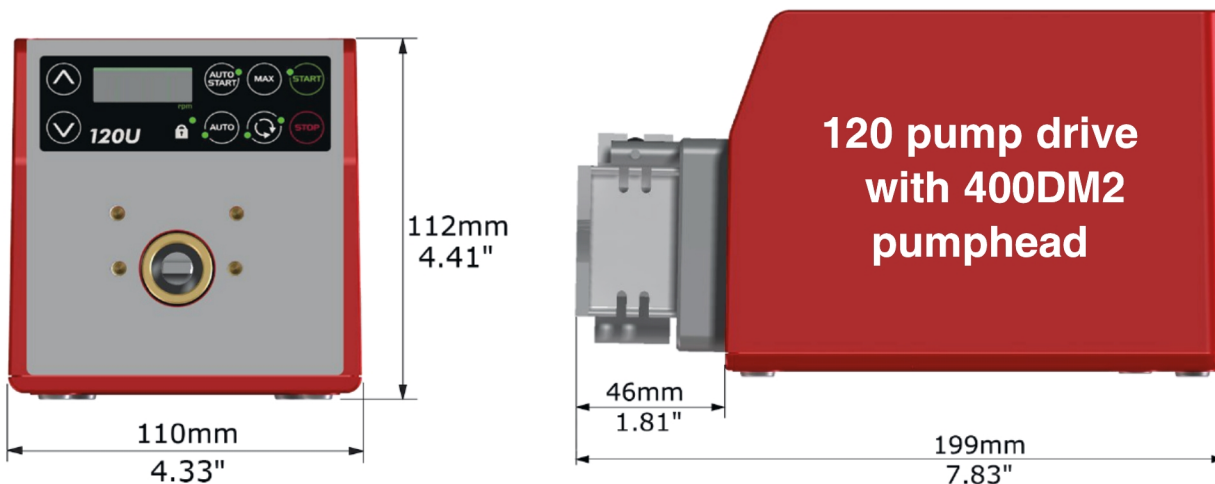
Materials of construction

| | 120 Drive with 400DM2 Pumphead |
|--------------------------|--------------------------------|
| Drive shaft | Stainless steel |
| Drive casework | ABS plastic |
| Keypad/HMI | Polyester |
| Pumphead guard | Polyethylene (PETG) |
| Pumphead roller assembly | Acetal |
| Pumphead rotor assembly | Aluminium (anodised) |
| Pumphead track | Aluminium (anodised) |
| Spindles | Stainless steel |

Information listed covers the complete range.

For detailed specifications of individual models/components refer to user manual or contact WMFTS representative.

120 Drive with 400DM2 Pumphead dimensions

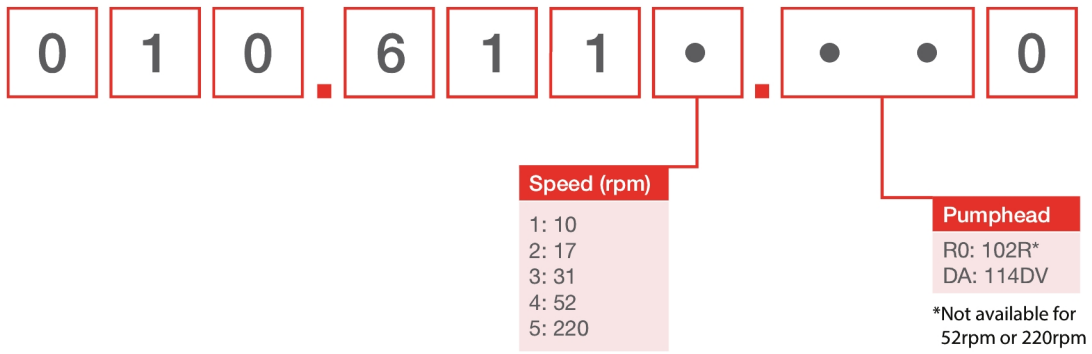


Control options

| 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 1rpm increments | | | | | | | | | | ✓ | |
| Variable speed 0.1rpm increments | | | | | | | | | | | ✓ |
| Numerical speed display | | | | | | | | | | ✓ | ✓ |
| Direction change | | | | | | | | | | ✓ | ✓ |
| Max (prime) | | | | | | | | | | ✓ | ✓ |
| Auto start | | | | | | | | | | ✓ | ✓ |
| Remote control and feedback | | | | | | | | | | | |
| Pump drives | | | | | | | | | 120F | 120S | 120U |
| Run/stop, direction change, auto/man toggle, alarm | | | | | | | | | | | ✓ |
| Analogue control | | | | | | | | | | | |
| Pump drives | | | | | | | | | 120F | 120S | 120U |
| Variable speed 0.1rpm increments | | | | | | | | | | | ✓ |
| Analogue speed input; 4-20mA, 0-10V | | | | | | | | | | | ✓ |
| Tacho speed output; 0-5V | | | | | | | | | | | ✓ |
| Security | | | | | | | | | | | |
| Pump drives | | | | | | | | | 120F | 120S | 120U |
| Keypad lock to protect set-up | | | | | | | | | | ✓ | ✓ |
| Control Ratio | | | | | | | | | | | |
| | 120F | 120S | | | | | 120U | | | | |
| Pumphead | N/A | 102R | 114DV | 400D1 | 400DM2 | 400DM3 | 102R | 114DV | 400D1 | 400DM2 | 400DM3 |
| Manual | Fixed | 1-32 rpm (32:1) | 1-200 rpm (200:1) | 1-200 rpm (200:1) | 1-100 rpm (100:1) | 1-100 rpm (100:1) | 0.1-32 rpm (320:1) | 0.1-200 rpm (2,000:1) | 0.1-200 rpm (2,000:1) | 0.1-100 rpm (1,000:1) | 0.1-100 rpm (1,000:1) |
| Automatic | N/A | N/A | N/A | N/A | N/A | N/A | 0.01-32 rpm (3,200:1) | 0.01-200 rpm (20,000:1) | 0.01-200 rpm (20,000:1) | 0.01-100 rpm (10,000:1) | 0.01-100 rpm (10,000:1) |

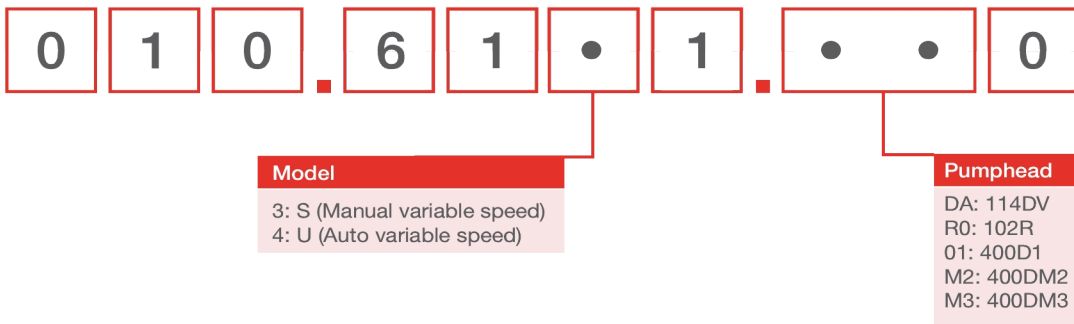
Product codes

120F



Note: All models are IP31 / NEMA 2

120S, 120U



Product codes

| Pumphead product codes | | |
|------------------------|--------------------------------|--------------|
| Model | Description | Product code |
| 400DM2 | 400DM2 pumphead kit, 2 channel | 043.001D.D2C |
| 120 PSU | 120V PSU kit 1A | MN2634B |

Notes:

The pumpheads can only be sold as 120 replacement heads

The pumpheads are not interchangeable between drive models as they use different shaft designs

| Tubing for DM2 pumphead | | | | |
|-------------------------|-----------|--------------|--------------|--------------|
| Colour code | Bore (mm) | Pharmed® BPT | Tygon® E3603 | Tygon® E-LFL |
| orange/black | 0.13 | | 981.A013.072 | |
| orange/blue | 0.25 | 979.A025.072 | 981.A025.072 | 988.A025.072 |
| orange/green | 0.38 | 979.A038.072 | 981.A038.072 | 988.A038.072 |
| green/yellow | 0.44 | | 981.A044.072 | |
| orange/yellow | 0.51 | 979.A051.072 | 981.A051.072 | 988.A051.072 |
| white/yellow | 0.57 | | 981.A057.072 | |
| orange/white | 0.64 | 979.A064.072 | 981.A064.072 | 988.A064.072 |
| black/black | 0.76 | 979.A076.072 | 981.A076.072 | 988.A076.072 |
| orange/orange | 0.89 | 979.A089.072 | 981.A089.072 | 988.A089.072 |
| white/black | 0.95 | | 981.A095.072 | |
| white/white | 1.02 | 979.A102.072 | 981.A102.072 | 988.A102.072 |
| white/red | 1.09 | | 981.A109.072 | |
| red/red | 1.14 | 979.A114.072 | 981.A114.072 | 988.A114.072 |
| red/grey | 1.22 | | 981.A122.072 | |
| grey/grey | 1.30 | | 981.A130.072 | 988.A130.072 |
| yellow/yellow | 1.42 | 979.A142.072 | 981.A142.072 | 988.A142.072 |
| yellow/blue | 1.52 | 979.A152.072 | 981.A152.072 | 988.A152.072 |
| blue/blue | 1.65 | 979.A165.072 | 981.A165.072 | 988.A165.072 |
| blue/green | 1.75 | | 981.A175.072 | |
| green/green | 1.85 | 979.A185.072 | 981.A185.072 | 988.A185.072 |
| purple/purple | 2.06 | 979.A206.072 | 981.A206.072 | 988.A206.072 |
| purple/black | 2.29 | 979.A229.072 | 981.A229.072 | 988.A229.072 |
| purple/orange | 2.54 | 979.A254.072 | 981.A254.072 | 988.A254.072 |
| purple/white | 2.79 | 979.A279.072 | 981.A279.072 | 988.A279.072 |

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 Watson-Marlow Limited 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, LoadSure, Pumpsil, PureWeld XL, Bioprene, Marprene are registered trademarks of Watson-Marlow Limited. Tri-Clamp is a registered trademark of Alfa Laval Corporate AB. GORE and STA-PURE are registered trademarks of W.L. Gore and Associates. Please state the product code when ordering pumps and tubing.

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07 August 2023