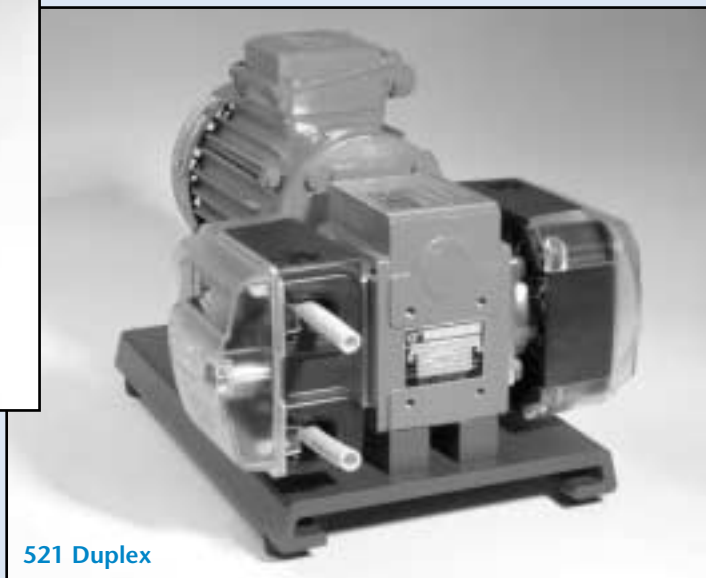




521 Simplex with Varmeca

## 521 Close Coupled Simplex and Duplex Pumps



521 Duplex

### Technical Information and Features

- Single-head flow rates up to 69 GPH (4,400 ml/min), Duplex flow rates up to 124 GPH (7,800 ml/min)
- Discharge pressures up to 30psi
- Fitted with easy loading twin sprung roller pumphead featuring:
  - \* Corrosion resistant PPS Rotor and Track
  - \* Impact resistant guard with tool lockable safety latch
  - \* Ergonomic handgrip rotor hub with shaft disengaging clutch for effortless tube loading
  - \* Reversible operation
  - \* 520R2C accepts tube sizes #105, 108, 119, 120, 15, 24, 121, 122 (0.5-9.6mm bore and 2.4mm thick wall)
  - \* 520RC accepts tube sizes #112, 13, 14, 16, 25, 17, 18 (0.5-8.0mm bore and 1.6mm thin wall)
- 24 Hr continuous duty with 2 year warrantee
- Foot mounting for bolt down installation. Optional baseplate available for free standing installation
- Versatile geardrive options including:
  - \* Varmeca integral electronically variable speed drive featuring 110VAC, 1-Phase
    - Ultra-compact combination gearbox, motor, and VFD for simple installation and operation
    - User friendly local speed potentiometer with 10:1 speed range and fwd/off/rev pushbuttons
    - Terminal strip for optional remote 4-20uA analog speed or fwd/off/rev control
    - IP65 washdown enclosure, UL approved
  - \* Inverter duty gearmotor 230/460VAC 3-phase for fixed speed or electronic variable speed control with a separate mount AC Variable Frequency Drive
  - \* NEMA C motors available for fixed speed single phase or fixed or electronic variable speed explosion proof applications
  - \* Pneumatic motor for air operation
  - \* Duplex 521, two pumpheads on one gearmotor available, for high flow capability

## Simplex and Duplex Pump Flow Rates - ml/min

### Flow Rates 520R2C or 520RC Continuous Tube Close Coupled Pumphead

#### 6-63 RPM VARMECA-CONTROLLED SIMPLEX PUMP

Tube Material	0.5mm	0.8mm	1.6mm	3.2mm	4.8mm	6.4mm	8.0mm	9.6mm
Marprene, Bioprene, Neoprene	.26-2.6	.66-6.6	2.6-26	11-110	24-240	42-420	66-660	95-950
Sta-Pure®, Chem-Sure®, Tygon®, Silicone	.27-2.7	.69-6.9	2.8-28	11-110	25-250	44-440	69-690	100-1000
Butyl, Fluorel®			2.0-20	8.1-81	18-180	32-320	50-500	

#### 27-275 RPM VARMECA-CONTROLLED SIMPLEX PUMP

Tube Material	0.5mm	0.8mm	1.6mm	3.2mm	4.8mm	6.4mm	8.0mm	9.6mm
Marprene, Bioprene, Neoprene	1.1-11	2.9-29	12-120	46-460	100-1000	180-1800	290-2900	420-4200
Sta-Pure®, Chem-Sure®, Tygon®, Silicone	1.2-12	3.0-30	12-120	48-480	110-1100	190-1900	300-3000	440-4400
Butyl, Fluorel®			8.8-88	35-350	79-790	140-1400	220-2200	

#### 57 RPM SIMPLEX PUMP\*

Tube Material	0.5mm	0.8mm	1.6mm	3.2mm	4.8mm	6.4mm	8.0mm	9.6mm
Marprene, Bioprene, Neoprene	2.3	6.0	2.4	96	220	380	600	860
Sta-Pure®, Chem-Sure®, Tygon®, Silicone	2.4	6.3	25	100	230	400	630	900
Butyl, Fluorel®			18	73	160	290	460	

#### 227 RPM SIMPLEX PUMP\*

Tube Material	0.5mm	0.8mm	1.6mm	3.2mm	4.8mm	6.4mm	8.0mm	9.6mm
Marprene, Bioprene, Neoprene	9.3	24	95	380	860	1500	2400	3400
Sta-Pure®, Chem-Sure®, Tygon®, Silicone	9.8	25	100	400	900	1600	2500	3600
Butyl, Fluorel®			73	290	650	1200	1800	

#### 65 RPM DUPLEX PUMP\*

Tube Material	0.5mm	0.8mm	1.6mm	3.2mm	4.8mm	6.4mm	8.0mm	9.6mm
Marprene, Bioprene, Neoprene	5.4	13.6	54	220	500	880	1360	1960
Sta-Pure®, Chem-Sure®, Tygon®, Silicone	5.6	14.4	58	220	520	920	1440	2000
Butyl, Fluorel®			42	166	380	660	1040	

#### 247 RPM DUPLEX PUMP\*

Tube Material	0.5mm	0.8mm	1.6mm	3.2mm	4.8mm	6.4mm	8.0mm	9.6mm
Marprene, Bioprene, Neoprene	20	52	200	820	1860	3400	5200	7400
Sta-Pure®, Chem-Sure®, Tygon®, Silicone	22	54	220	860	1960	3400	5400	7800
Butyl, Fluorel®			158	640	1420	2600	4000	

## Simplex and Duplex Pump Flowrates - Gal/hr

### Flow Rates 520R2C or 520RC Continuous Tube Close Coupled Pumphead

Tube Material	6-63 RPM VARMECA-CONTROLLED SIMPLEX PUMP							
	0.5mm	0.8mm	1.6mm	3.2mm	4.8mm	6.4mm	8.0mm	9.6mm
Marpren, Bioprene, Neoprene	.004-0.04	.01-0.1	.04-0.4	.17-1.7	.38-3.8	.67-6.7	1.0-10	1.5-15
Sta-Pure®, Chem-Sure®, Tygon®, Silicone	.004-0.04	.01-0.1	.04-0.4	.18-1.8	.40-4.0	.70-7.0	1.1-11	1.6-16
Butyl, Fluorel®			.03-0.3	.13-1.3	.29-2.9	.51-5.1	.8-8	

Tube Material	27-275 RPM VARMECA-CONTROLLED SIMPLEX PUMP							
	0.5mm	0.8mm	1.6mm	3.2mm	4.8mm	6.4mm	8.0mm	9.6mm
Marpren, Bioprene, Neoprene	.018-0.18	.05-0.5	.18-1.8	.73-7.3	1.6-16	2.9-29	4.6-46	6.6-66
Sta-Pure®, Chem-Sure®, Tygon®, Silicone	.019-0.19	.05-0.5	.19-1.9	.77-7.7	1.7-17	3.1-31	4.8-48	6.9-69
Butyl, Fluorel®			.14-1.4	.56-5.6	1.3-13	2.2-22	3.5-35	

Tube Material	57 RPM SIMPLEX PUMP*							
	0.5mm	0.8mm	1.6mm	3.2mm	4.8mm	6.4mm	8.0mm	9.6mm
Marpren, Bioprene, Neoprene	0.04	0.1	0.4	1.5	3.4	6.1	9.5	14
Sta-Pure®, Chem-Sure®, Tygon®, Silicone	0.04	0.1	0.4	1.6	3.6	6.4	9.9	14
Butyl, Fluorel®			0.3	1.2	2.6	4.6	7.2	

Tube Material	227 RPM SIMPLEX PUMP*							
	0.5mm	0.8mm	1.6mm	3.2mm	4.8mm	6.4mm	8.0mm	9.6mm
Marpren, Bioprene, Neoprene	0.15	0.4	1.5	6.0	14.0	24.0	38	54
Sta-Pure®, Chem-Sure®, Tygon®, Silicone	0.15	0.4	1.6	6.3	14.0	25.0	40	57
Butyl, Fluorel®			1.2	4.6	10.0	18.0	29	

Tube Material	65 RPM DUPLEX PUMP*							
	0.5mm	0.8mm	1.6mm	3.2mm	4.8mm	6.4mm	8.0mm	9.6mm
Marpren, Bioprene, Neoprene	0.08	0.2	0.8	3.4	7.8	13.8	22.0	32
Sta-Pure®, Chem-Sure®, Tygon®, Silicone	0.08	0.2	1.0	3.6	8.2	14.6	22.0	32
Butyl, Fluorel®			0.6	2.6	6.0	10.6	16.4	

Tube Material	247 RPM DUPLEX PUMP*							
	0.5mm	0.8mm	1.6mm	3.2mm	4.8mm	6.4mm	8.0mm	9.6mm
Marpren, Bioprene, Neoprene	0.32	0.8	3.2	13.2	30	52	82	118
Sta-Pure®, Chem-Sure®, Tygon®, Silicone	0.34	0.8	3.4	13.8	32.0	56.0	86	124
Butyl, Fluorel®			2.6	10.0	22.0	40.0	62	

NOTE: Flow rates shown are max for the stated pump speed under fixed speed operation. Flow is proportional to RPM.

Actual flow rates may vary because of changes in temperature, viscosity, inlet and discharge pressures, and system configuration.

\*For variable speed operation with a Variable Frequency Drive (VFD) and inverter duty motor, a 10:1 linear turndown from the listed max flow can be attained. With a pneumatic motor, 5:1 linear turndown from the listed max flow can be attained.

For duplex pumps, flow is total for both pumpheads. Flow per channel is 1/2 the flow rate listed.

Flow rates quoted are for 1.6mm thin wall and 2.4mm thick wall tubes of nominal bore.

0.5mm and 0.8mm bore are only available in 1.6mm wall thickness except for Platinum-cured silicone.

9.6mm bore is only available in 2.4mm wall thickness

## Simplex Pump Configuration, 1/3 HP

Description	Operating Speed	Estimated Weight
Variable Speed Pump with integrated Varmeca IP65 frequency inverter, motor & gearbox. Available 230/460VAC 3-ph or 120/240VAC 1-ph	6-63 or 27-275 rpm	90 lbs
521VI/R2C For use with 2.4 mm thick wall tube		
521VI/RC For use with 1.6 mm thin wall tube		
Fixed Speed Pump. Available 230/460VAC 3-ph or 120/240VAC 1-ph <sup>1,2</sup>	57 or 227 rpm	24 lbs*
521F/R2C For use with 2.4 mm thick wall tube		
521F/RC For use with 1.6 mm thin wall tube		
Fixed Speed Explosion Proof. Available 230/460VAC 3-ph or 120/240VAC 1-ph <sup>1,2,3,4</sup>	57 or 227 rpm	77 lbs*
521DF/R2C For use with 2.4 mm thick wall tube		
521DF/RC For use with 1.6 mm thin wall tube		
Variable Speed Pneumatic Pump Requires 100 psi filtered and lubricated air source <sup>5</sup>	11-57 or 45-227 rpm	48 lbs
521P/R2C For use with 2.4 mm thick wall tube		
521P/RC For use with 1.6 mm thin wall tube		

## Duplex Pump Configuration, 1/3 HP

Model	Description	Operating Speed	Estimated Weight
	Fixed Speed Pump. Available 230/460VAC 3-ph or 120/240VAC 1-ph <sup>1,2</sup>	65 or 247 rpm	23 lbs*
521FD/R2C	For use with 2.4 mm thick wall tube		
521FD/RC	For use with 1.6 mm thin wall tube		
	Fixed Speed Explosion Proof. Available 230/460VAC 3-ph or 120/240VAC 1-ph <sup>1,2,3,4</sup>	65 or 247 rpm	64 lbs*
521DFD/R2C	For use with 2.4 mm thick wall tube		
521DFD/RC	For use with 1.6 mm thin wall tube		
	Variable Speed Pneumatic Pump. Requires 100 psi filtered and lubricated air source <sup>5</sup>	13-65 or 50-247 rpm	34 lbs
521DP/R2C	For use with 2.4 mm thick wall tube		
521DP/RC	For use with 1.6 mm thin wall tube		

1 3-phase motor is inverter duty variable speed with VFD.

2 Optional VFD available in 230/3/60, 460/3/60, 115/1/60, 230/1/60 and either NEMA 1 or NEMA 4 enclosure, supplied loose.

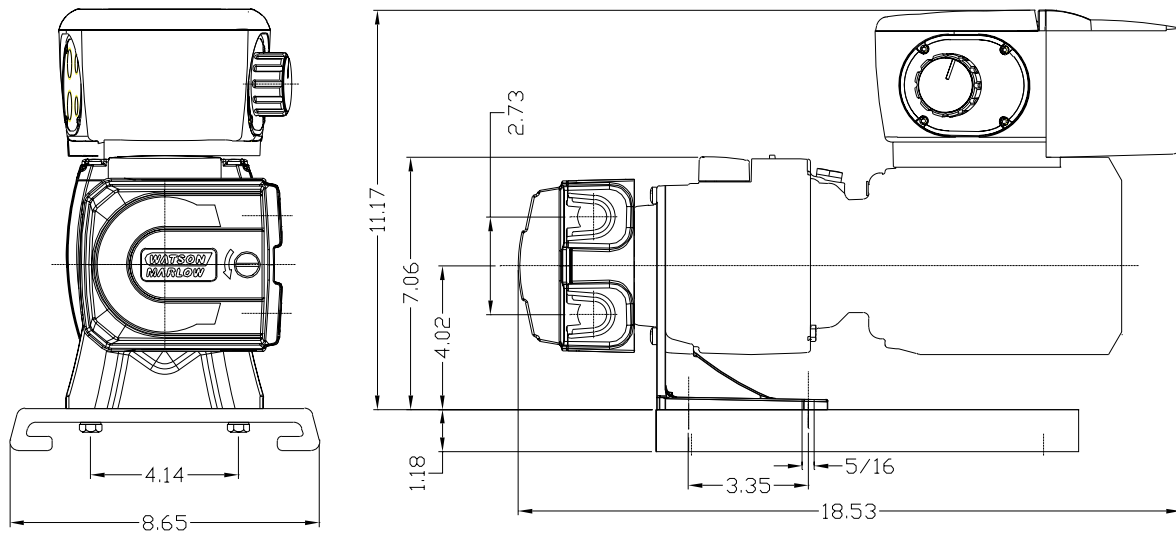
3 Consult Watson-Marlow Bredel for specific Division and Class XP ratings.

4 VFD's must be located outside explosion proof areas.

5 Customer assumes responsibility for selecting and installing an air motor in XP environments.

\* Weight does not include VFD

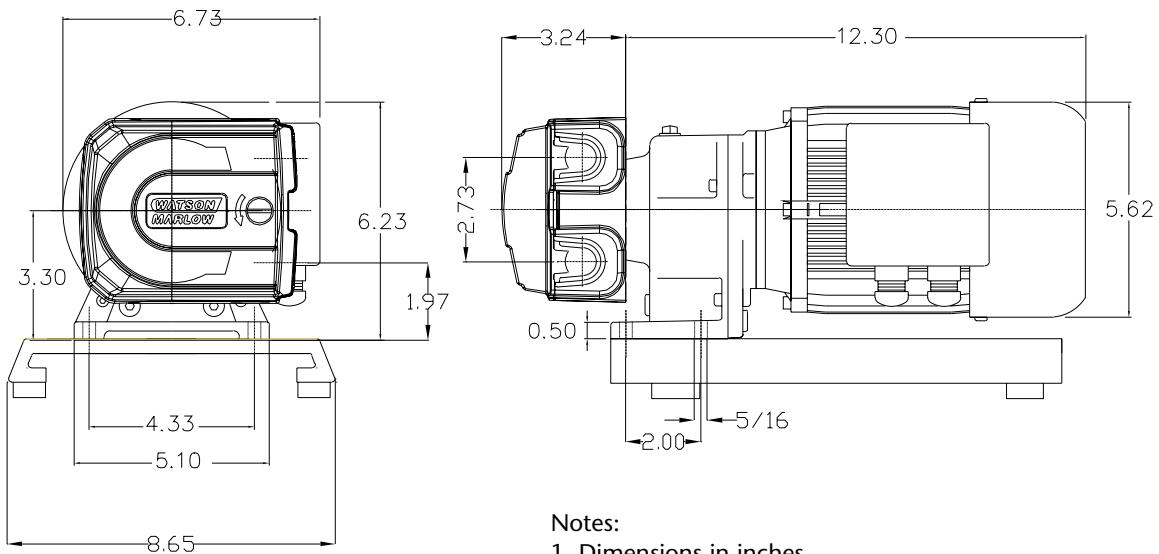
## 521 Simplex with Varmeca



### Notes:

1. Dimensions in inches
2. Shown with optional baseplate

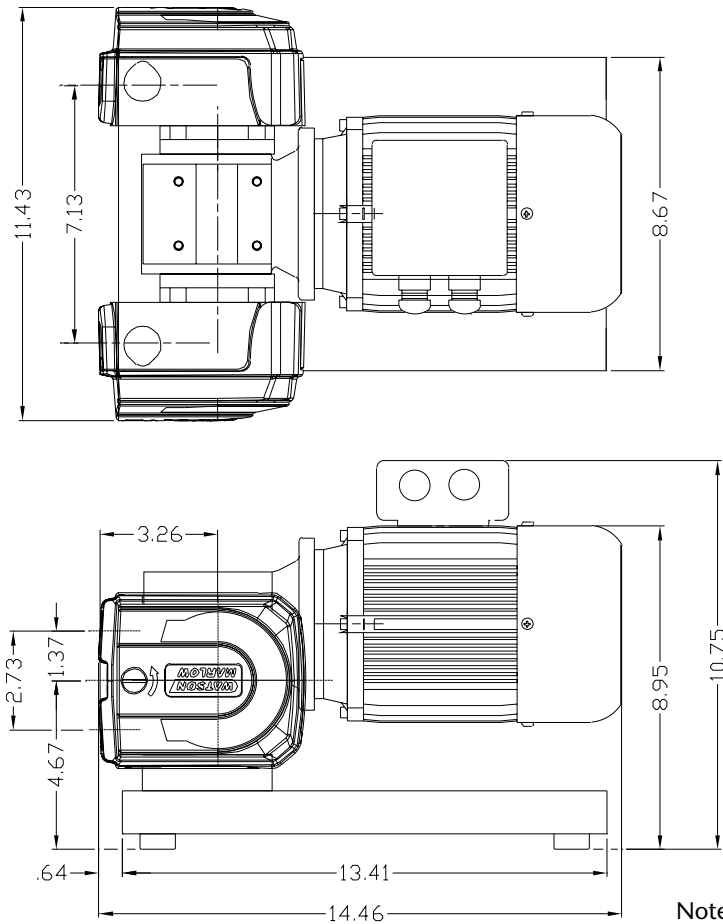
## 521 Simplex



### Notes:

1. Dimensions in inches
2. Length may vary if C-faced motor is used
3. Shown with optional baseplate

**521 Duplex**



**Notes:**

1. Dimensions in inches
2. Length may vary if C-faced motor is used

**Materials of Construction/Specifications**

**Track, Rotor Body, Rotor Arms:** PPS (polyphenylene sulfide) high performance engineering plastic

**Guard:** Polycarbonate

**Rollers and Bearings:** Low friction Stainless Steel with PTFE seals

**Gearbox:** Cast Iron

**Motor:** TEFC or TENV Construction of XP or alternate motors subject to vary

**Operational Temperature Range:** 5 deg C to 40 deg C

**Noise:** Max 70dBA at 1 meter

**Standards:** Complies with all applicable CE and UL requirements

**Available Tubing Materials**

**2.4 mm wall for 520R2C**

Bioprene® (excl. 0.5&0.8 mm)

Marprene® (excl. 0.5&0.8 mm)

Silicone

Sta-Pure® (excl. 0.5&0.8 mm)

Chem-Sure® (excl. 0.5&0.8 mm)

Neoprene (excl. 0.5&0.8 mm)

Butyl (excl. 0.5&0.8 mm)

Flourel® (excl. 0.5&0.8 mm)

**1.6 mm wall for 520RC**

Bioprene®

Marprene®

Silicone

Sta-Pure® (excl. 0.5&0.8 mm)

Chem-Sure® (excl. 0.5&0.8 mm)

Neoprene (excl. 0.5 mm)

Tygon® (excl. 0.5&0.8 mm)

Sta-Pure and Chem-Sure are registered trademarks of WL Gore and Associates. Flourel is a registered trademark of 3M Corp.  
Tygon is a registered trademark of Saint-Gobain Corp.

The information contained in this document is believed to be correct, but Watson-Marlow Bredel Pumps accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

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