

## FEATURES

- > Easy to use BLDC technology/operation
- > Compact & lightweight design for portable applications
- > On-board, integrated brushless DC motor controller
- > Seven convenient fixed speed output selections
- > Variable speed PWM input signal for full range flexibility
- > Closed loop speed operation for consistent performance
- > Pressure or vacuum capability
- > Proven WOB-L piston technology
- > User configurable pneumatic ports
- > Durable die-cast aluminium components
- > Wetted parts treated for corrosion resistance
- > Field serviceable

## TYPICAL APPLICATIONS

- > In-Vitro Diagnostics
- > Ventilator
- > Oxygen Concentrator
- > Dental Equipment
- > Spray Atomization
- > Pond Aeration

## CUSTOMER REQUIREMENTS

- > Externally supplied cooling air flow must be provided in most applications to ensure pump operates within product specifications
- > Refer to the Product Dimensions diagram for the supplemental cooling location and direction



## BASE MODEL

- 2320Z1C3624W (Pressure/Vacuum, 24Vdc)
- 2320Z1C3648W (Pressure/Vacuum, 48Vdc)
- 2320Z1B3624W (Vacuum, 24Vdc)
- 2320Z1B3648W (Vacuum, 48Vdc)

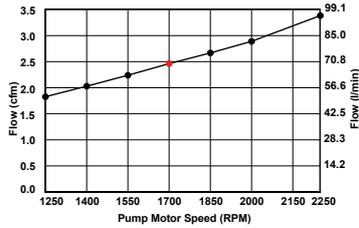


**WOB-L**

# 2320Z1 Series

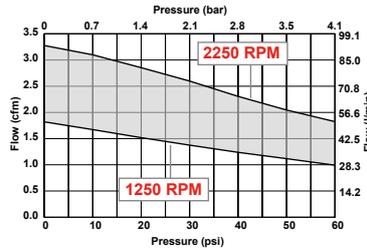
<b>Flow</b>	<b>3.38 cfm (95.8 l/min)</b>
<b>Max. pressure</b>	<b>60 psi (4.2 bar)</b>
<b>Max. vacuum</b>	<b>90% local barometer</b>

**Pump Open Flow at Each Pump Speed Selection**



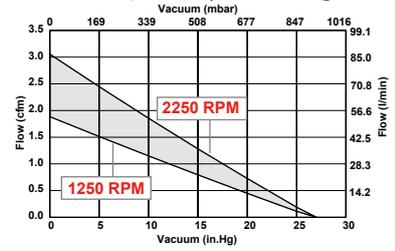
Factory set at the 1700 RPM setting

**Pump Flow and Pressure at Min. / Max. Speed Setting**



Performance of pressure configuration

**Pump Flow and Vacuum at Min. / Max. Speed Setting**



Performance of vacuum configuration



**Oil-less**

SPEED SELECTOR\*  
\*PUMP MUST BE OFF TO CHANGE SPEED

1250 - 1400 - 1550  
PWM - 1700  
2250 - 1850 - 2000

SEE INSTRUCTIONS FOR CONNECTIONS

TACH PWM

On board - integrated fixed or variable PWM speed control

NOTE: All test values are nominal and for reference only. They are not guaranteed maximum or minimum limits, nor do they imply mean or median.

PERFORMANCE DATA		Shaded column indicates factory pre-set *speed selector*						
Pump Configuration	Parallel Flow Pressure (Vacuum capable)							Note: pump is capable of continuous pressure and/or light duty vacuum. For vacuum only applications see table below
Model Number - 24VDC Nominal Voltage	2320Z1C3624W							
Model Number - 48VDC Nominal Voltage	2320Z1C3648W							
<b>Speed Setting</b>	<b>1250 RPM</b>	<b>1400 RPM</b>	<b>1550 RPM</b>	<b>1700 RPM</b>	<b>1850 RPM</b>	<b>2000 RPM</b>	<b>2250 RPM</b>	
Open Air Flow - cfm (l/min)	1.83 (51.7)	2.03 (57.5)	2.24 (63.4)	2.46 (69.7)	2.67 (75.5)	2.89 (81.8)	3.38 (95.8)	
Max. rated pressure - psi (bar)	60 (4.1)	60 (4.1)	60 (4.1)	60 (4.1)	60 (4.1)	60 (4.1)	60 (4.1)	
Flow at max. rated pressure [60psi] - Amps at 24Vdc	0.99 (28.0)	1.13 (32.0)	1.26 (35.8)	1.42 (40.2)	1.56 (44.1)	1.69 (47.8)	1.80 (50.9)	
Current at max. rated pressure [60psi] - Amps at 48Vdc	10.2	10.8	11.9	13.3	14.2	15.4	16.6	
Current at max. rated pressure [60psi] - Amps at 24Vdc	4.7	5.1	5.5	5.8	6.4	6.8	7.4	
Power max. rated pressure [60psi] - Watts at 24Vdc	244	257	286	320	341	370	399	
Power max. rated pressure [60psi] - Watts at 48Vdc	225	247	264	279	308	326	357	
Pump Configuration	Parallel Flow, Vacuum Only							Note: pump is not capable of positive pressure operation
Model Number - 24VDC Nominal Voltage	2320Z1B3624W							
Model Number - 48VDC Nominal Voltage	2320Z1B3648W							
<b>Speed Setting</b>	<b>1250 RPM</b>	<b>1400 RPM</b>	<b>1550 RPM</b>	<b>1700 RPM</b>	<b>1850 RPM</b>	<b>2000 RPM</b>	<b>2250 RPM</b>	
Open Air Flow - cfm (l/min)	1.88 (53.4)	2.05 (58.0)	2.25 (63.8)	2.43 (68.9)	2.60 (73.7)	2.78 (78.8)	3.06 (86.6)	
Current at peak load [15 inHg] - Amps at 24Vdc	3.7	4.1	4.6	5.0	5.5	6.2	7.6	
Current at peak load [15 inHg] - Amps at 48Vdc	1.7	1.9	2.1	2.3	2.5	2.8	3.4	
Power at peak load [15 inHg] - Amps at 24Vdc	89	99	110	120	133	148	182	
Power at peak load [15 inHg] - Amps at 48Vdc	80	90	101	111	122	135	164	

Test Reference: T21-0285, T22-0145, T22-0133

ELECTRICAL DATA	
Motor type	24Vdc or 48 Vdc BLDC
Motor insulation class	F
Motor protection	Thermal fuse - One shot
Power lead wire color, gauge	Black, 16 AWG   Green w/yellow, 18 AWG   Red, 16 AWG
Power lead wire color function/pin ID	Black: 0 VDC/Pin 1   Green w/yellow: Ground/Pin 2   Red: +Vdc/Pin 3
I/O lead wire color function/pin ID	White: PWM/Pin 1   Blue: Tach out/Pin 2 (See Speed Selection Instructions included with pump), I/O harness not included with pump.

GENERAL DATA	
Operating ambient temperature	50° to 104°F (10°C TO 40°C)*
Pump functionality	Pump pre-set to 1700 RPM. 7 fixed speeds or PWM (1250-2250 RPM) may be selected
Net weight	7.83 lbs (3.55 kg)

\*Broader ambient operating ranges may be possible depending on your specific application. Please consult your Thomas representative regarding your system needs.

PRODUCT DIMENSIONS																																	
<p>4X PIPE PLUG (1/4-18 NPT)</p> <p>PUMP SPEED I/O, PWM &amp; TACH CONNECTOR: MOLEX P/N: 436400200 2X TERMINAL: MOLEX P/N: 430310001</p> <p>POWER CONNECTOR: TE P/N: 350766-1 3X TERMINAL: TE P/N: 350218-3</p> <p>LEAD LENGTH (FROM GROMMET TO BACK OF CONNECTOR):</p>	<p>INTAKE 1/4-18 NPT</p> <p>EXHAUST 1/4-18 NPT</p> <p>SUPPLEMENTAL COOLING AIR FLOW DIRECTION AND LOCATION</p> <p>UNIT REQUIRES SUPPLEMENTAL COOLING AIR FLOW.</p> <table border="1"> <thead> <tr> <th colspan="5">LEAD IDENTIFICATION TABLE</th> </tr> <tr> <th>LEAD TYPE</th> <th>WIRE COLOR</th> <th>FUNCTION</th> <th>AWG</th> <th>CONNECTOR PIN ID</th> </tr> </thead> <tbody> <tr> <td rowspan="3">POWER</td> <td>BLACK</td> <td>0 (ZERO) VDC</td> <td>16</td> <td>1</td> </tr> <tr> <td>GREEN W/YELLOW</td> <td>GROUND</td> <td>18</td> <td>2</td> </tr> <tr> <td>RED</td> <td>+VDC NOMINAL</td> <td>16</td> <td>3</td> </tr> <tr> <td rowspan="2">PUMP SPEED I/O</td> <td>PWM</td> <td></td> <td>22</td> <td>1</td> </tr> <tr> <td>TACH OUT</td> <td></td> <td>22</td> <td>2</td> </tr> </tbody> </table>	LEAD IDENTIFICATION TABLE					LEAD TYPE	WIRE COLOR	FUNCTION	AWG	CONNECTOR PIN ID	POWER	BLACK	0 (ZERO) VDC	16	1	GREEN W/YELLOW	GROUND	18	2	RED	+VDC NOMINAL	16	3	PUMP SPEED I/O	PWM		22	1	TACH OUT		22	2
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