

2775Z1 SERIES

FEATURES

- > Easy to use BLDC technology/operation
- > 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
- > Integrated cooling fan for simple thermal management
- > Durable die-cast aluminium components
- > Field serviceable

BASE MODEL

- 2775Z1C5048
- 2775Z1C6048
- 2775Z1C7548
- 2775Z1T60-4048
- 2775Z1B7548
- 2775Z1V7548

TYPICAL APPLICATIONS

- > In-Vitro Diagnostics
- > Dental Equipment
- > Spray Atomization
- > Pond Aeration
- > Surgical Suction
- > Pond Aeration



WOB-L

2775Z1 SERIES

Flow	up to 9.1 cfm (258 l/min)
Max. pressure	up to 175 psi (12.1 bar)
Max. vacuum	up to 99% local barometer

SPEED SELECTOR*
*PUMP MUST BE OFF
TO CHANGE SPEED

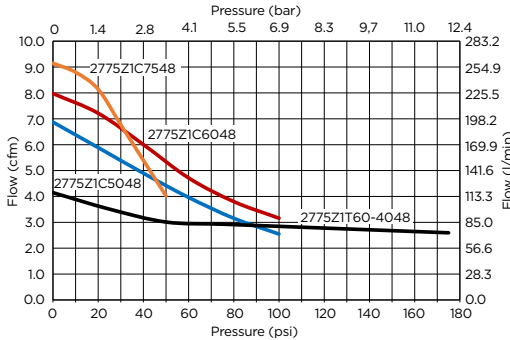
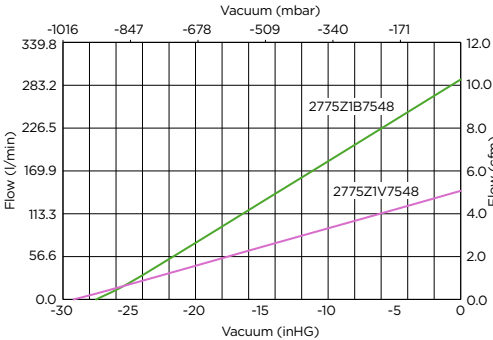
1250 1440 1550
PWM 1770
2250 1850
2000

SEE INSTRUCTIONS
FOR CONNECTIONS

TACH PWM



Integrated fixed speed or PWM variable speed control



GENERAL PERFORMANCE INFORMATION*

Pump Configuration	Max. Open Air Flow: cfm (l/min)	Max. Rated Pressure: psi (bar)	Max. Vacuum: inHg** (% local baro.)	Max. Power & Current Watts (Amps)	Voltage	Model Number / Order Number
0.50" Stroke Parallel Flow Pressure (Vacuum capable)	6.9 (195)	100 (6.9)	-27.4 (91.7%)	791 (16.4)	48Vdc	2775Z1C5048
0.60" Stroke Parallel Flow Pressure (Vacuum capable)	8.0 (226)	100 (6.9)	-27.7 (92.7%)	850 (17.6)	48Vdc	2775Z1C6048
0.75" Stroke Parallel Flow Pressure (Vacuum capable)	9.1 (258)	50 (3.4)	-27.97 (93.5%)	810 (16.8)	48Vdc	2775Z1C7548
0.60" - 0.40" Stroke 2-Stage , Pressure Only	4.1 (117)	175 (12.1)	-	790 (16.4)	48Vdc	2775Z1T60-4048
0.75" Stroke Parallel Flow, Vacuum Only	10.27 (290.8)	-	-27.5 (93.4%)	309 (6.4)	48Vdc	2775Z1B7548
0.75" Stroke 2-Stage, Vacuum Only	5.07 (143.5)	-	-29.2 (99%)	293 (6.1)	48Vdc	2775Z1V7548

* typical performance at maximum 2250 RPM speed setting
** When measured at an elevation of 635 feet

ELECTRICAL DATA

Motor type	48V Brushless DC (BLDC) with integrated controller, including selectable 7 speeds or PWM
Motor insulation class	F
Motor protection	Primary: Integrated controller stall, over-current, over-temp protection; Secondary: thermal fuse - one shot
Controller over-current protection	17 Amps for 2775Z1C5048, 2775Z1T60-4048, 2775Z1B7548, 2775Z1V7548; 18 Amps for 2775Z1C6048, 2775Z1C7548
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 (pump will operate without chasis ground)
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. (See service parts information below)"
PWM Input	Frequency: 100 Hz to ±20Hz, Voltage: 10 - 48Vdc, Duty Cycle Range: 5 - 95% (5% = 1250 RPM , 95% = 2250 RPM)
Tachometer Output	Frequency: 4 pulse per rotation, Voltage: 0 - 3.3Vdc

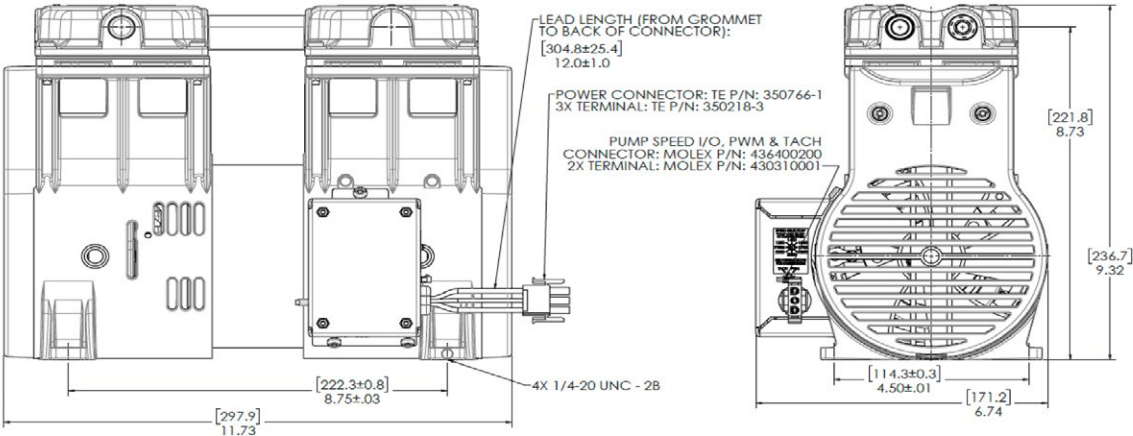
GENERAL DATA

Operating ambient temperature	10 to 40°C
Agency certifications	The pump is designed to facilitate UL certification of the customer's complete system. Electrical components are designed with compliant creepage and clearance dimension guidelines, using agency approved materials. Reference standards include IEC60601 and UL 840/1004. Consult your Thomas representative regarding additional agency requirements.
Net weight	17.25 lbs. (7.8 kg.) for the 0.50" stroke; 17.25 lbs. (7.8 kg.) for the 0.60"-0.40" stroke 2-stage; 18.75 lbs. (8.5 kg.) for the 0.60" and 0.75" stroke

SERVICE PARTS & ACCESSORIES INFORMATION

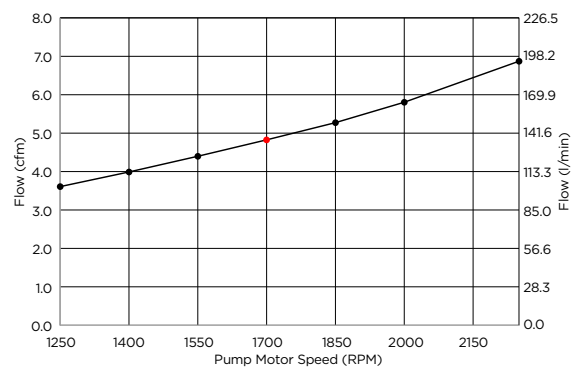
Compatible Model Number	Instruction Sheet Number	Service Kit Number	Kit Contents
2775Z1C5048	FSM0209A	SK2775	2.75" Piston cups, cylinder sleeves, valves, gaskets, screws
2775Z1C6048	FSM0209A	SK2775	2.75" Piston cups, cylinder sleeves, valves, gaskets, screws
2775Z1C7548	FSM0209A	SK2775	2.75" Piston cups, cylinder sleeves, valves, gaskets, screws
2775Z1T60-4048	642938	SK2755T	1.5" + 2.75" Piston cups, cylinder sleeves, valves, gaskets, screws
2775Z1B7548	FSM0209A	SK2775	2.75: Piston cups, cylinder steeves, valves, gaskets, screws
2775Z1V7548	FSM0209A	SK2775	2.75: Piston cups, cylinder steeves, valves, gaskets, screws
All Models	642933A	-	BLDC Pump with Speed Selector Operating Instructions
All Models	-	603277-S	Optional I/O wire harness for PWM and Tachometer (12 inch / 305mm length)
All Models	-	660588	Recommend filter/muffler with 3/8-18 NPT threads

PRODUCT DIMENSIONS

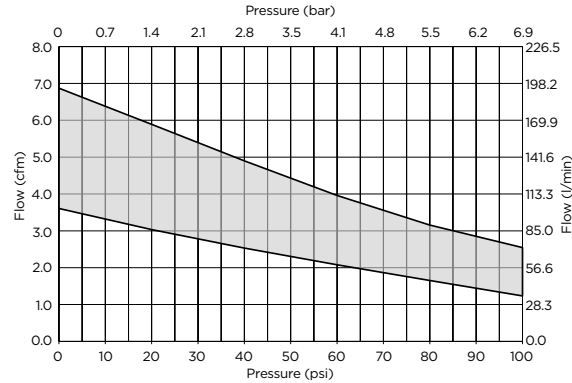


2775Z1C5048

Pump Open Flow at Each Speed Selection



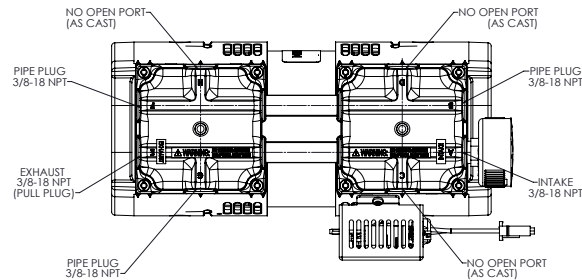
Pump Flow and Pressure



Pump Configuration	0.50" Stroke Parallel Flow Pressure (Vacuum capable)							Note: pump is capable of continuous pressure and/or light duty vacuum.
Model Number - 48Vdc Nominal Voltage	2775Z1C5048							
Speed Setting	1250 RPM	1400 RPM	1550 RPM	1700 RPM Factory pre-set speed	1850 RPM	2000 RPM	2250 RPM	
Open Air Flow - cfm (l/min)	3.6 (102)	4 (113)	4.4 (125)	4.8 (137)	5.3 (149)	5.8 (164)	6.9 (195)	
Max. rated pressure - psi (bar)	100 (6.9)	100 (6.9)	100 (6.9)	100 (6.9)	100 (6.9)	100 (6.9)	100 (6.9)	
Restart pressure capability - psi (bar)	30 (2.1)	30 (2.1)	30 (2.1)	30 (2.1)	30 (2.1)	30 (2.1)	30 (2.1)	
Flow at max. rated pressure [100 psi / 6.9 bar] - cfm (l/min)	1.2 (35)	1.4 (40)	1.6 (46)	1.8 (52)	2 (58)	2.2 (63)	2.5 (72)	
Current at max. rated pressure [100 psi / 6.9 bar] - Amps at 48Vdc	9.1	10	11	12	13.1	14.3	15.9	
Power at max. rated pressure [100 psi / 6.9 bar] - Watts at 48Vdc	441	483	531	582	634	691	769	

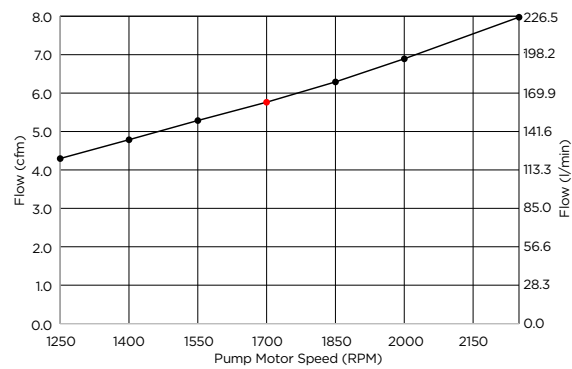
Test Reference: T22-0189

PNEUMATIC PORT CONFIGURATION

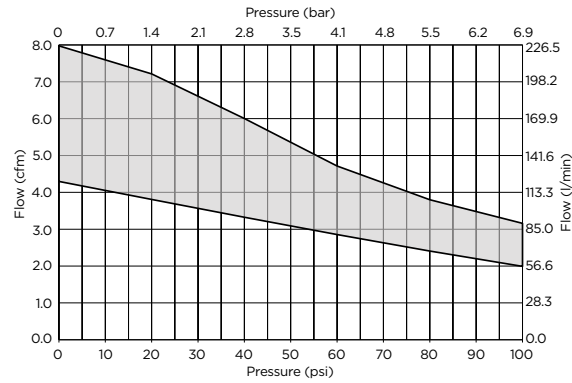


2775Z1C6048

Pump Open Flow at Each Speed Selection



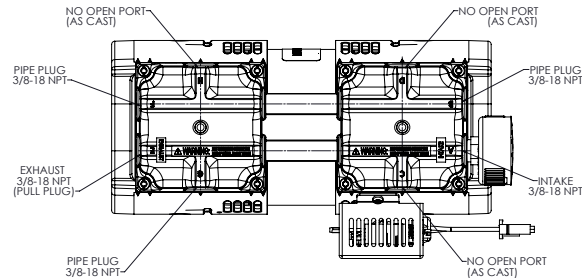
Pump Flow and Pressure



Pump Configuration	0.60" Stroke Parallel Flow Pressure (Vacuum capable)							Note: pump is capable of continuous pressure and/or light duty vacuum.
Model Number - 48Vdc Nominal Voltage	2775Z1C6048							
Speed Setting*	1250 RPM	1400 RPM	1550 RPM	1700 RPM Factory pre-set speed	1850 RPM	2000 RPM	2250 RPM	
Open Air Flow - cfm (l/min)	4.3 (121.7)	4.8 (136)	5.3 (149.7)	5.8 (163.2)	6.3 (178.2)	6.9 (195.2)	8.0 (225.8)	
Max. rated pressure - psi (bar)	100 (6.9)	100 (6.9)	100 (6.9)	100 (6.9)	100 (6.9)	55 (3.8)	30 (2.1)	
Restart pressure capability - psi (bar)	30 (2.1)	30 (2.1)	30 (2.1)	30 (2.1)	30 (2.1)	30 (2.1)	30 (2.1)	
Flow at max. rated pressure [100 psi / 6.9 bar] - cfm (l/min)	2.0 (56.4)	2.2 (63.1)	2.5 (70.4)	2.8 (78)	3 (85.1)	5.0 (142.3)	6.6 (188.1)	
Current at max. rated pressure [100 psi / 6.9 bar] - Amps at 48Vdc	11.6	12.9	14.2	15.5	16.8	17.7	16.1	
Power at max. rated pressure [100 psi / 6.9 bar] - Watts at 48Vdc	562	621	683	750	812	853	778	

*the pump power is regulated by the controller. At higher pressures, the pump may not maintain the set speed due to the power regulation, this is normal operation.

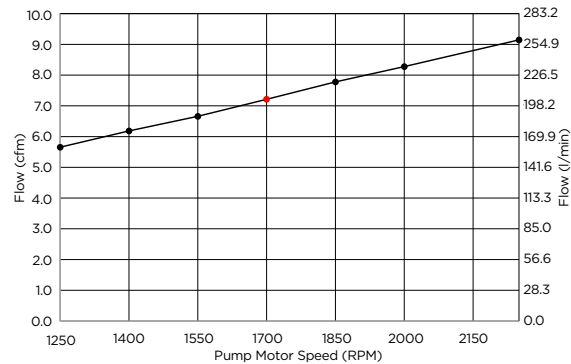
PNEUMATIC PORT CONFIGURATION



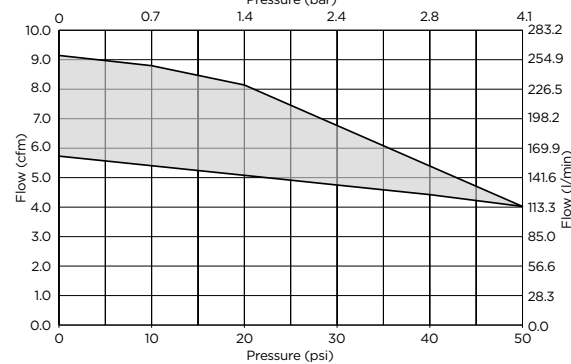
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2775Z1C7548

Pump Open Flow at Each Speed Selection



Pump Flow and Pressure

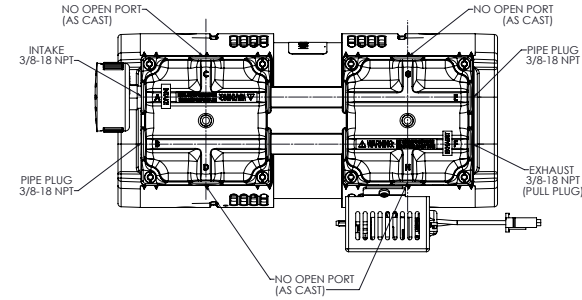


Pump Configuration	0.75" Stroke Parallel Flow Pressure (Vacuum capable)							Note: pump is capable of continuous pressure and/or light duty vacuum.
Model Number - 48Vdc Nominal Voltage	2775Z1C7548							
Speed Setting*	1250 RPM	1400 RPM	1550 RPM	1700 RPM Factory pre-set speed	1850 RPM	2000 RPM	2250 RPM	
Open Air Flow - cfm (l/min)	5.7 (160.1)	6.2 (175.1)	6.7 (188.5)	7.2 (204.2)	7.8 (220.3)	8.3 (234.4)	9.2 (259.0)	
Max. rated pressure - psi (bar)	50 (3.4)	45 (3.1)	40 (2.8)	35 (2.4)	30 (2.1)	25 (1.7)	15 (1.0)	
Restart pressure capability - psi (bar)	45 (3.1)	45 (3.1)	40 (2.8)	35 (2.4)	30 (2.1)	25 (1.7)	15 (1.0)	
Flow at max. rated pressure [50 psi / 3.4 bar] - cfm (l/min)	4.0 (113.7)	4.7 (133.4)	5.4 (151.6)	6.0 (170.1)	6.7 (189.1)	7.4 (209.6)	8.6 (244.2)	
Current at max. rated pressure [50 psi / 3.4 bar] - Amps at 48Vdc	15.3	16.4	16.5	17.3	17.3	17.4	16.6	
Power at max. rated pressure [50 psi / 3.4 bar] - Watts at 48Vdc	738	790	797	836	843	837	801	

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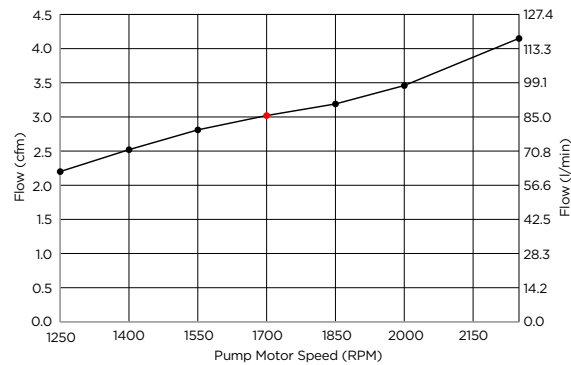
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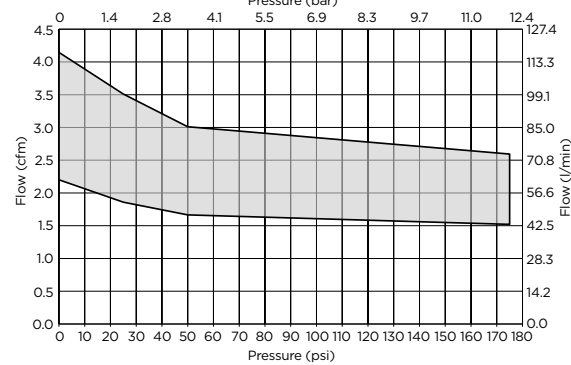


2775Z1T60-4048

Pump Open Flow at Each Speed Selection



Pump Flow and Pressure

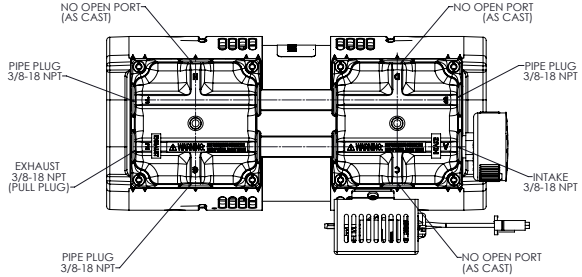


Pump Configuration	0.60" - 0.40" Stroke 2-Stage , Pressure Only							Note: pump is capable of continuous pressure.
Model Number - 48Vdc Nominal Voltage	2775Z1T60-4048							
Speed Setting*	1250 RPM	1400 RPM	1550 RPM	1700 RPM Factory pre-set speed	1850 RPM	2000 RPM	2250 RPM	
Open Air Flow - cfm (l/min)	2.20 (62.3)	2.5 (71.4)	2.81 (79.5)	3.02 (85.6)	3.19 (90.4)	3.46 (98.1)	4.15 (117.4)	
Max. rated pressure - psi (bar)	175 (12.1)	175 (12.1)	175 (12.1)	175 (12.1)	175 (12.1)	175 (12.1)	175 (12.1)	
Restart pressure capability - psi (bar)	33 (2.3)	33 (2.3)	33 (2.3)	33 (2.3)	33 (2.3)	33 (2.3)	33 (2.3)	
Flow at max. rated pressure [175 psi / 12.1 bar] - cfm (l/min)	1.52 (43.1)	1.69 (47.9)	1.87 (53.0)	2.01 (57.0)	2.17 (61.3)	2.33 (66.1)	2.59 (73.5)	
Current at max. rated pressure [175 psi / 12.1 bar] - Amps at 48Vdc	9.62	10.63	11.68	12.74	13.73	14.86	16.36	
Power at max. rated pressure [175 psi / 12.1 bar] - Watts at 48Vdc	466	514	565	616	665	719	792	

*the pump power is regulated by the controller. At higher pressures, the pump may not maintain the set speed due to the power regulation, this is normal operation.

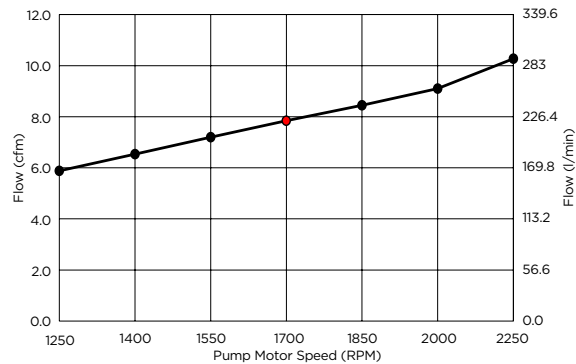
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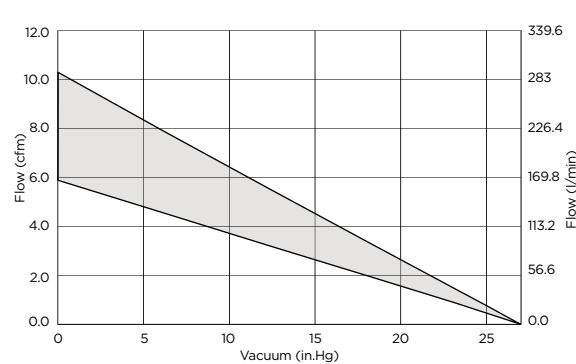


2775Z1B7548

Pump Open Flow at Each Speed Selection



Pump Flow and Vacuum

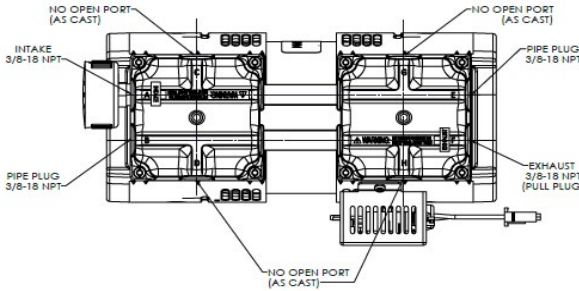


Pump Configuration	0.75" Stroke Parallel Flow, Vacuum Only							
Model Number - 48Vdc Nominal Voltage	2775Z1B7548							
Speed Setting*	1250 RPM	1400 RPM	1550 RPM	1700 RPM Factory pre-set speed	1850 RPM	2000 RPM	2250 RPM	
Open Air Flow - cfm (l/min)	5.88 (166.5)	6.54 (185.1)	7.20 (203.9)	7.84 (222.1)	8.44 (239.1)	9.10 (257.7)	10.27 (290.8)	
Max. rated vacuum - % local barometer ("Hg)	93.4% (-27.5)	93.4% (-27.5)	93.4% (-27.5)	93.4% (-27.5)	93.4% (-27.5)	93.4% (-27.5)	93.4% (-27.5)	
Flow at 15inhg - cfm (l/min)	2.63 (74.5)	2.93 (82.9)	3.22 (91.2)	3.49 (98.9)	3.77 (106.8)	4.05 (114.6)	4.55 (128.8)	
Current at 15 inhg - Amps at 48 Vdc	4.8	5.5	6.1	6.9	7.7	8.7	10	
Power at 15 inhg - Watts at 48 Vdc	232	262	295	331	371	417	482	

*the pump power is regulated by the controller. At higher pressures, the pump may not maintain the set speed due to the power regulation, this is normal operation.

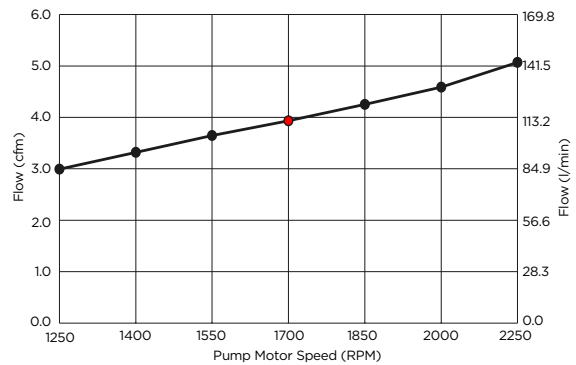
PNEUMATIC PORT CONFIGURATION

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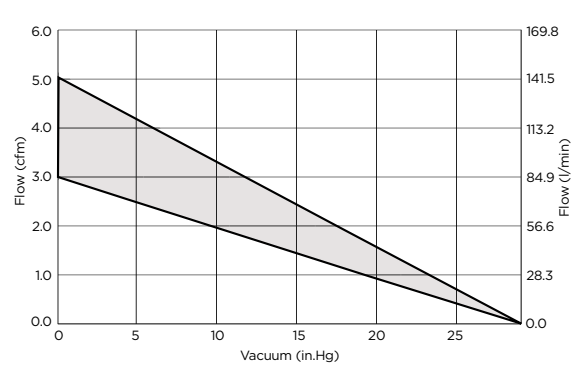


2775Z1V7548

Pump Open Flow at Each Speed Selection



Pump Flow and Vacuum



Pump Configuration	0.75" Stroke 2-Stage, Vacuum Only							
Model Number - 48Vdc Nominal Voltage	2775Z1V7548							
Speed Setting*	1250 RPM	1400 RPM	1550 RPM	1700 RPM Factory pre-set speed	1850 RPM	2000 RPM	2250 RPM	
Open Air Flow - cfm (l/min)	2.99 (84.8)	3.32 (93.9)	3.65 (103.3)	3.93 (111.4)	4.25 (120.3)	4.59 (129.9)	5.07 (143.5)	
Max. rated vacuum - % local barometer ("Hg)	99% (-29.6)	99% (-29.6)	99% (-29.6)	99% (-29.6)	99% (-29.6)	99% (-29.6)	99% (-29.6)	
Flow at 15inhg - cfm (l/min)	1.43 (40.6)	1.58 (44.8)	1.74 (49.2)	1.88 (53.3)	2.03 (57.6)	2.19 (62.0)	2.45 (69.2)	
Current at 15 inhg - Amps at 48 Vdc	3.3	3.8	4.2	4.7	5.3	6.1	7.2	
Power at 15 inhg - Watts at 48 Vdc	160	181	203	225	255	291	348	

*the pump power is regulated by the controller. At higher pressures, the pump may not maintain the set speed due to the power regulation, this is normal operation.

PNEUMATIC PORT CONFIGURATION

Test Reference: T23-0198

