



**Electro Optical Components, Inc.**

5464 Skylane Boulevard, Suite D, Santa Rosa, CA 95403

Toll Free: 855-EOC-6300

[www.eoc-inc.com](http://www.eoc-inc.com) | [info@eoc-inc.com](mailto:info@eoc-inc.com)



## TECHNICAL DATA SHEET V/P1500



### Affordable Orange edition gas pumps

2. General information & flow performance
3. Standard models
4. Electronic interface
6. Performance charts
7. Drawings

### ORANGE EDITION

The orange edition is suitable for those who need a high quality micro pump with a lifetime of 5 000 hours.

- High quality
- Affordable solution
- Guaranteed service lifetime

### GUARANTEED LIFETIME OF 5 000 HOURS

With the Orange edition, you get a micro pump that is guaranteed to work for the full 5 000 hours it was designed to do, at a very good price. In this way, you do not need to pay for pumps with a longer lifetime in order to be assured that the pumps will actually work for the stated number of hours.

### HIGH QUALITY AT AN AFFORDABLE PRICE

Xavitech's trademark of high quality also pervades our Orange edition pumps. Flexibility is limited in the Orange edition, which allows for such an affordable price. It is sold in a limited number of standard designs for each pump model. If more flexibility is required, check out our Black edition instead.



### GENERAL FLOW PERFORMANCE

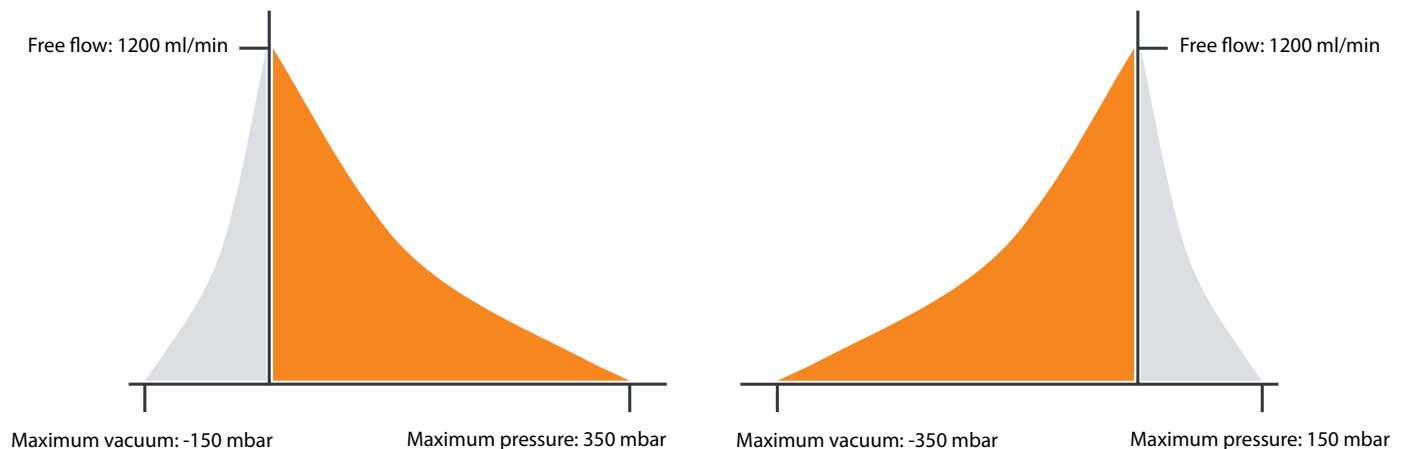


Figure 1: General flow performance for Xavitech P1500 (left) and V1500 (right) pumps

### IMPORTANT NOTES

- Pump Flow: Flow is one-directional, it cannot be reversed
- Filters: To ensure lifetime, air filters should be used to prevent contaminations like dust to enter the pump
- Capacitor: Missing VCC capacitor can damage the pump on 24-volt variants. See the electronic interface section for capacitor suggestions
- Connections: Incorrect lead connection can damage the pump

# P/V1500 ORANGE AFFORDABLE PUMP

## Standard models

### STANDARD MODELS (PART NUMBER)

The Orange version is only available in fixed voltages and cannot be customized with flow calibration. The lifetime is also fixed. Choose the Black edition if you need more flexible solutions.

PART NUMBER	VOLTAGE (V DC)	FREE FLOW (ml/min)	MAXIMUM PRESSURE/ MAXIMUM VACCUM (mbar)	CONNECTION	ANALOG CONTROL	SERIAL INRERFACE (RS-232)	LIFETIME
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P1500-O2C5V	12	1200	300	2 Wires	✗	✗	5 000
P1500-O2C12V	24	1200	350	2 Wires	✗	✗	5 000
V1500-O2C5V	12	1200	-300	2 Wires	✗	✗	5 000
V1500-O2C12V	24	1200	-350	2 Wires	✗	✗	5 000

# P/V1500 ORANGE AFFORDABLE PUMP

## Electronic interface

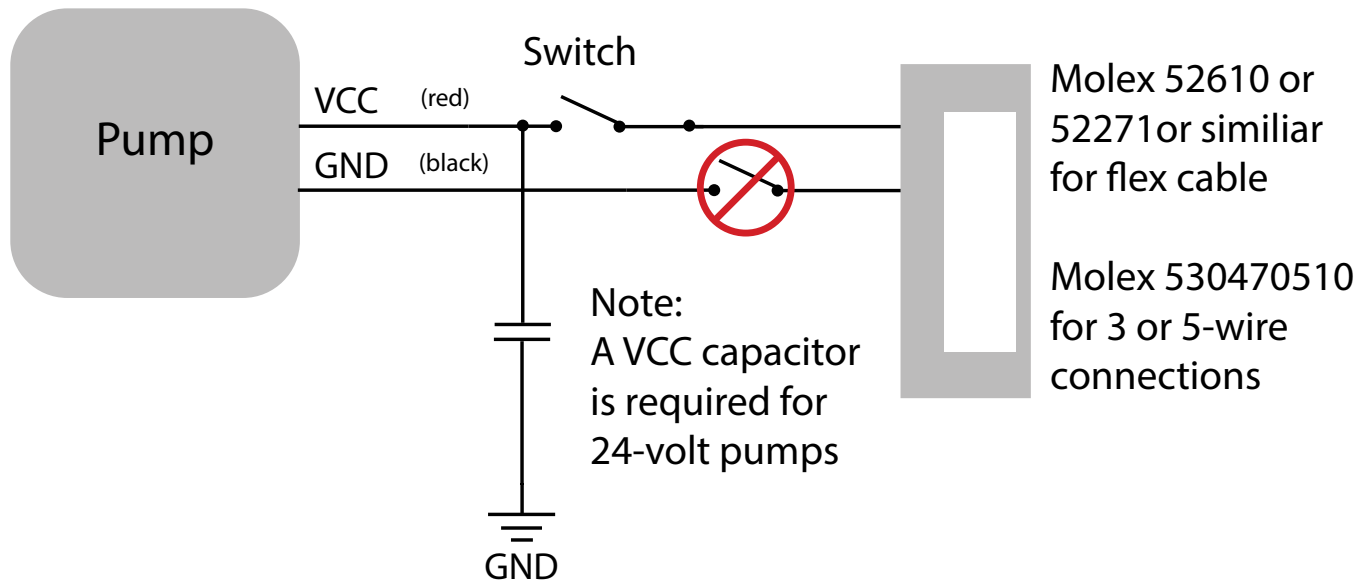


Figure 2: Electronic interface

### INTERFACE DESCRIPTION

#### VCC (SUPPLY VOLTAGE)

Each pump is setup to run at 12 or 24 V DC.

Maximum input voltage: Calibrated voltage + 0.5 V DC. The pump can be damaged otherwise.

Minimum input voltage: 5 V DC. However, the pump performance is reduced if the voltage is set lower than calibrated value. Xavitech recommends to always run the pump at the calibrated voltage.

Figure 3 shows in terms of current consumption a typical pump stroke cycle. Since the motor of Xavitech pumps is based on an electromagnet, a negative current will occur when the electromagnet is turned off. It is because of this current a capacitor between VCC and GND is needed.

If your system cannot handle this spike generated by the electromagnet, a Schottky diode (flyback diode) can be used instead of the capacitor.

#### SWITCH THE POWER ON AND OFF

Note that the power has to be switched off on the supply connector (see Figure 2) and that the capacitor has to be placed between the pump and the switch. This is because of the current that the electromagnet generates. The pump will be damaged if the switch is placed on the ground connector. The pump will in this case not consume any power, but the microcontroller will perform the start-

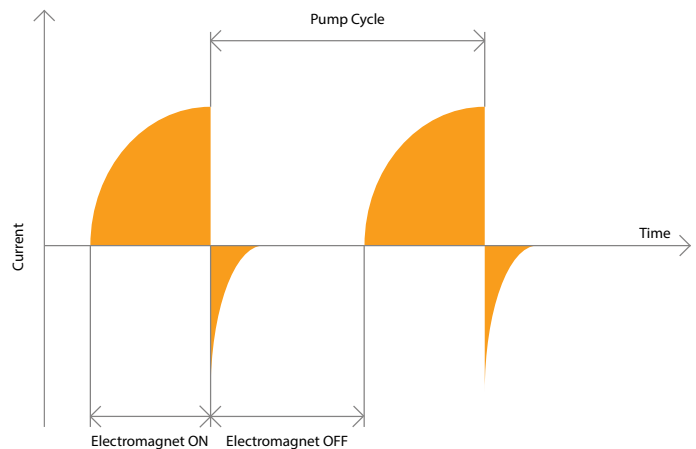


Figure 3: Typical pump cycle

up procedure which takes up to 3 s (depending on default pump frequency) when the power is turned on. During this time, the pump adjusts the stroke length to reach its calibrated length. The regulation adjusts the stroke length for every pump stroke thus it depends on the pump frequency.

## CAPACITOR SPECIFICATIONS

Xavitech recommends using a capacitor parallel to the power supply (see Figure 2) to reduce the power spikes generated by the electromagnetic motor. For 24-volt pumps, a VCC capacitor is required to not damage the pump. See the recommended capacitors sizes below.

Pump	Recommended capacitor
V/P1500-12V	470 $\mu$ F, 25 V
V/P1500-24V	1000 $\mu$ F, 35 V

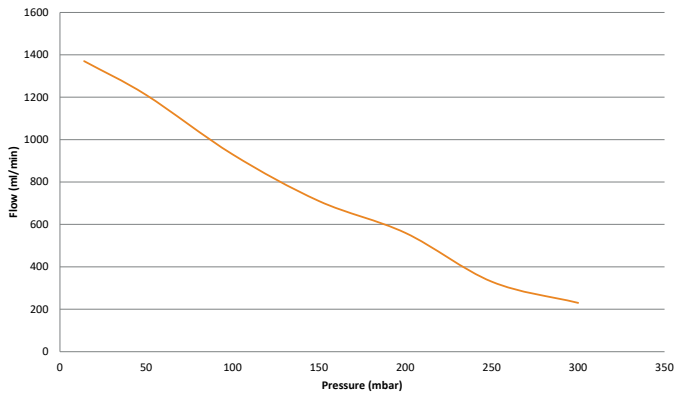
# P/V1500 ORANGE AFFORDABLE PUMP

## Performance charts

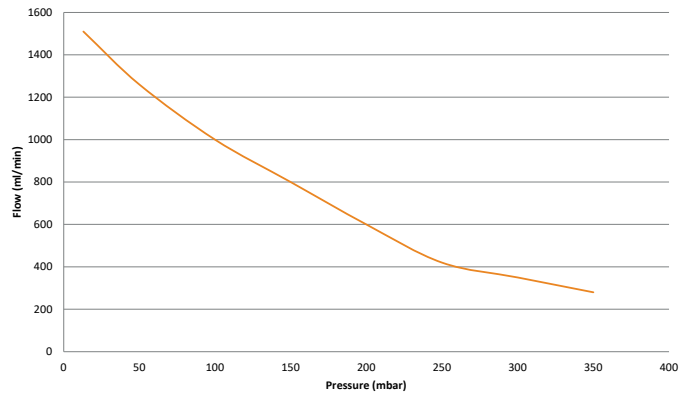
### PERFORMANCE CHARTS

The charts show typical performance and are provided as a reference. Exact performance will differ between pump individuals.

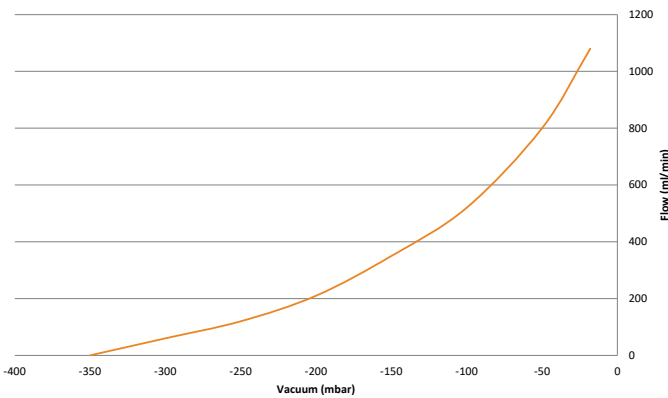
Flow Vs. Pressure (P1500 @ 12 V DC)



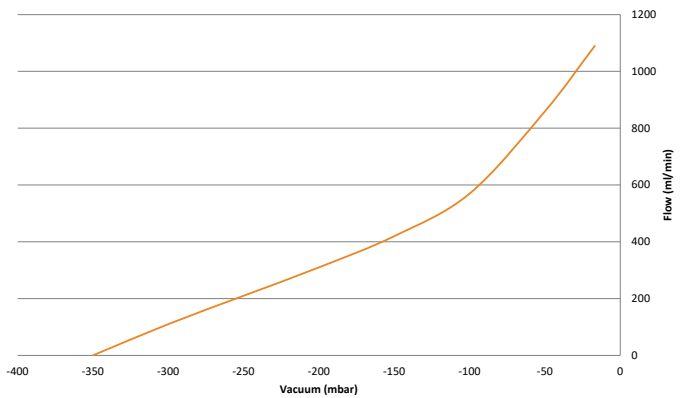
Flow Vs. Pressure (P1500 @ 24 V DC)



Flow Vs. Vacuum (V1500 @ 12 V DC)

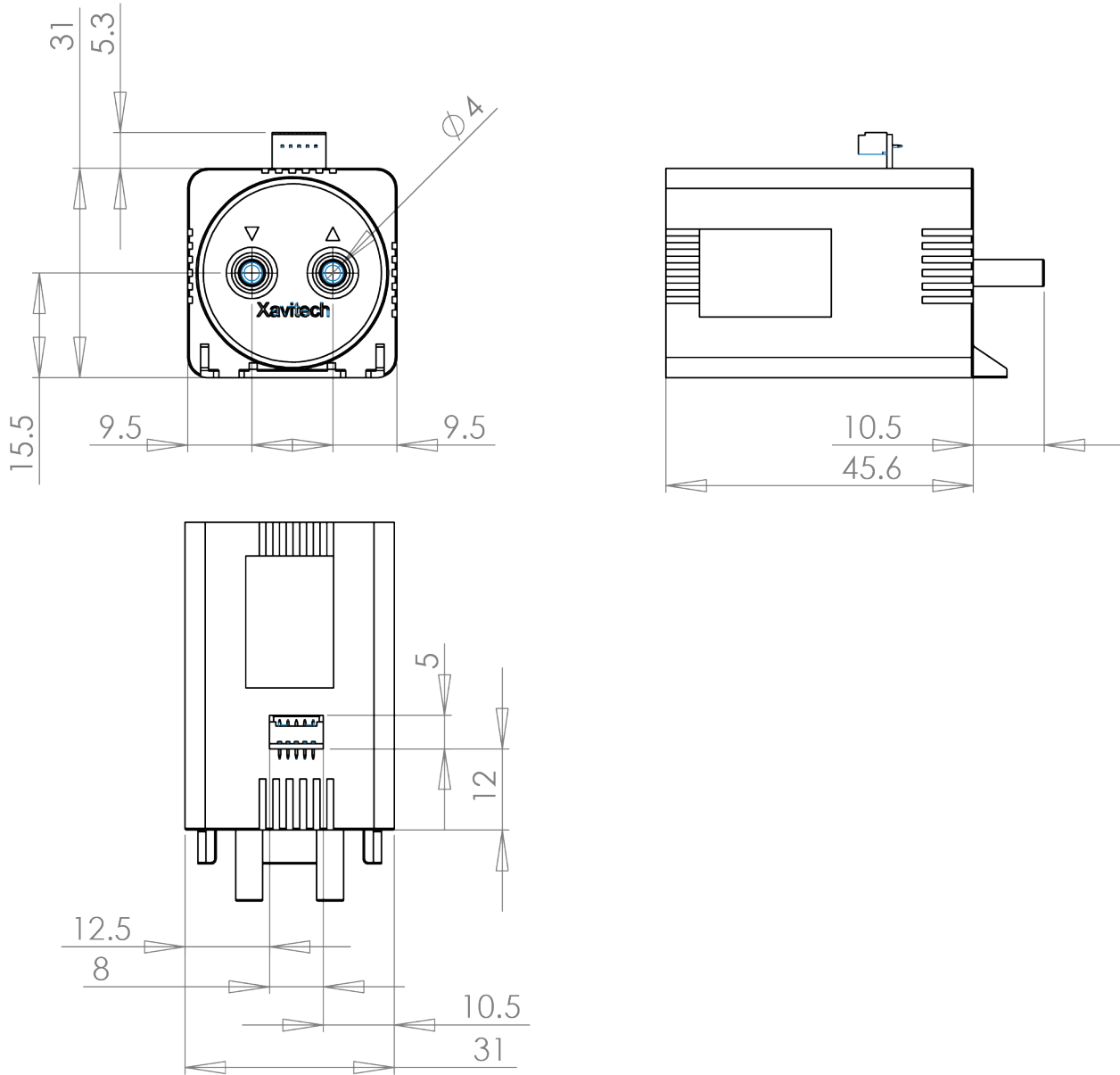


Flow Vs. Vacuum (V1500 @ 24 V DC)



# P/V1500 ORANGE AFFORDABLE PUMP

## BLACK EDITION P1500 AND V1500 WITH 2 WIRE CONNECTION



PUMP MODEL	V1500 AND P1500 ORANGE EDITION
Connection	2 wires
Drawing Scale	1:1
Dimension Tolerance	$\pm 0.5$ mm
Pump Weight	108 $\pm$ 2 g
Recommended Connectors	MOLEX 530470510 (Picoblade)
Recommended Tube Inner Diameter	2.8 - 3.8 mm (Material dependent)

This information is accurate and reliable. However, specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. Xavitech products are not authorized for use as critical components in life support devices or systems without express written approval of Xavitech.

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XAVITECH MICROPUMPS AB. INDUSTRIGATAN 17. 871 53. HÄRNÖSAND. SWEDEN. TELEPHONE +46 (0) 611 55 61 00. E-MAIL: XAVITECH@XAVITECH.COM