



## D200 Brushless Micropump Range



### TCS MICROPUMPS: D220BL and D250BL

(Patents Pending, Quality Assured ISO 9001, RoHS compliant, IP45 and IP67 protection rating)

#### INTRODUCTION

The TCS D series Micropumps are high-quality self priming miniature pumps for liquids and gases. They are highly efficient, small and lightweight. The solid construction and wide temperature tolerance, enable them to perform reliably even in hostile environments. Your Micropump can be quickly and easily installed into the smallest spaces, in a vast range of laboratory, prototype and production equipment.

#### ELECTRICAL CONNECTION

**CAUTION: REVERSED OR INCORRECT CONNECTION WILL PERMANENTLY DAMAGE THE ELECTRONICS IN YOUR PUMP!**

Voltage: 3.0 to 6.0 Volts dc (Maximum 0.5Amps)

The simplest connection is Red, Green and Grey together to +ve (Positive) supply, Black to -ve (Negative) of supply

Wire Colour	Description	Connection	Status
Black	GRD The negative connection	-Ve	Required
Grey	VM Motor Power Supply	+Ve 3.0-6.0	Required
Red	Vcc Onboard Controller Supply Circuit	+Ve 3.0-6.0	Required
Green	CW/CCW Motor Rotation	+Ve 3.0-6.0	Required
Yellow	RPM Signal Wire	GND Vcc 4 pulse / revolution square wave signal	Optional

Your Micropump can be connected to batteries, a DC power source of up to 6V or a TCS power supply TCS-600 (see accessories page on website).

Pumping rate can be adjusted by varying input voltages between 3.0v and 6.0v dc. Further fine tuning can be made by restricting the outlet of your pump using a fixed jet restriction or flexible tubing and an adjustable clamp. The pump is quite happy to run even with the outlet completely blocked with gases but the **flow must NOT be blocked when pumping fluids** as pressure inside the pump will increase and damage may occur.

### Materials

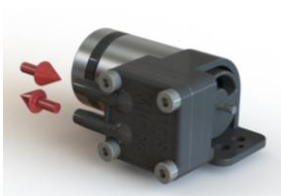
Housing	Anodised Aluminium (D250) or Glass Filled Nylon (D220)
Tubing Connectors	Stainless Steel 316 (D250) or Glass Filled Nylon (D220)
Seals	'Silicon, Silicon Nitrile', 'EPDM, EPDM' or Viton, Viton

### TUBING

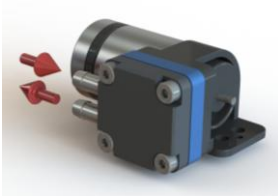
D200 series: 2.4mm (3/32") bore flexible tubing

### Notes on Operation

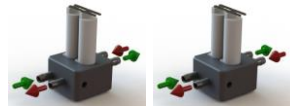
All 'D series' pumps are self priming by design. Simply connect the pump into your flow circuit, noting the flow direction shown below, and begin pumping.



D220BL



D250BL



Flow reversing manifold.  
For use with both gases and liquids. Changes the direction of flow within a given circuit

Accessory - TCS-303

Performance	Input Voltage	Power Usage	Max Pressure	Max Free Flow
	(v)	(w)	(psi)	(mlpm)
D220BL - AIR	3.0 - 6.0	0.1 - 0.6	11	450
D250BL - AIR	3.0 - 6.0	0.1 - 0.6	12	620
D220BL - WATER	3.0 - 6.0	0.6 - 1.8	8	90
D250BL - WATER	3.0 - 6.0	0.6 - 1.8	9	100