



### Product Detail

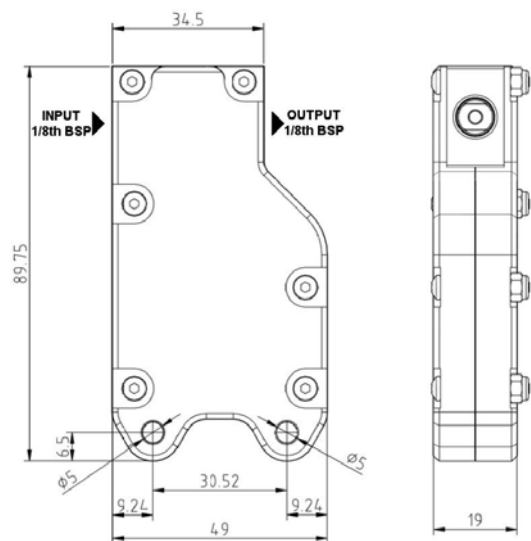
Part Number : #2313  
Name : 450 Digital High Pressure REVO  
Description : Digitally Controlled 2-Way valve

The REVO valve is an innovative flow control valve with integrated digital motor designed specifically to produce linear flow characteristics with accuracy, repeatability and millisecond response and operation. The high pressure version of the REVO valve is suitable for use with numerous non-abrasive media types from 0 to 1500 Psig working pressure and offers a number of benefits over traditional flow control valves such as:

- Accurate high resolution flow control.
- Quick action with <0.3sec response time from 0 – FULL at maximum pressure.
- Highly efficient single axis flow path.
- Excellent Linearity.
- Low operating current requirements < 3 Amps.
- Near zero hold current requirements < 200 mA
- Suitable for a wide range of fluids from gases and liquids to liquefied gases such as Liquid Nitrous Oxide & Carbon Dioxide.
- Superior durable valve internals.
- Compact & lightweight design.
- Digital Control suitable for wireless adaptation.

### Physical Data

Input Port : 1/8<sup>th</sup> BSP  
Output Port : 1/8<sup>th</sup> BSP  
Wiring : Flying Lead (See Electrical Data)  
Height : 92.2mm [3.630"]  
Width : 49mm [1/929"]  
Thickness : 19.08mm [0.750"] – 21.7mm [0.854"] inc. Bolt Heads  
Weight : 196g [0.432 lb]  
Exc. input/output fittings  
Inc. 2m Electrical Cord  
30.5mm [1.200"] between Centres  
Mounting : 5mm [0.196"] Diameter Holes  
Wetted : **Core Materials**  
Material(s) : Nickel Silver, Virgin PTFE, PTFE Bronze.  
Composite & Anodised 6061 Aluminium.  
: **Optional alternative materials**  
Brass or Stainless Steel  
Viton, Polyurethane, NBR (other alternatives on request)



## Electrical Data

Standard Connection	: Flying Lead (3-Core 7/32 0.25mm PVC insulated, Foil Shielded) <ul style="list-style-type: none"><li>- Positive [Red 24 AWG]</li><li>- Negative [Black 24 AWG]</li><li>- Input Signal [White 24 AWG]</li><li>- Shielding, Connect to Negative</li></ul>
Control Driver (Industrial)	: Servomotor PWM Input
Direct Control	: Positive Pulse Width Control 1500usec Neutral
Required Pulse	: 3.0 – 5.0 Volt Peak to Peak Square Wave
Operating Voltage Range	: 4.8-6.0 Volts
Core Operating Temperature Range	: -20° to +60° C [-4°F to +140°F]
Flash External Temperature Range	: -60° to +120° C [-76°F to +248°F] Flash maximum temperature soak 45 Sec, min 5 minute rest at room temp. Flash temperatures out of these ranges will reduce soak duration and may require addition of heat shielding on the cable.
Operating Speed (4.8V)	: 0.26sec/0-Full at no load (Pressure) : 0.32sec/0-Full at 950 psi [65.5 Bar]
Operating Speed (6.0V)	: 0.22sec/0-Full at no load (Pressure) : 0.3sec/0-Full at 950 psi [65.5 Bar]
Direction	: Clockwise/Pulse Travelling 1500 to 1900usec (Drive Motor)
Full Open Angle	: Approx. 60Deg
Current Drain (4.8V)	: 200mA/idle and 2.0 amps at lock/stall
Current Drain (6.0V)	: 240mA/idle and 3.0 amps at lock/stall
Dead Band Width	: 2usec
Individually Programmable	: Servomotor digital program adjustable features include... <ul style="list-style-type: none"><li>- Dead Band Width</li><li>- Direction of Rotation</li><li>- Speed of Rotation (slower)</li><li>- End Points (up to 120 degrees)</li><li>- Neutral Points</li><li>- Fail Safe On/Off</li><li>- Fail Safe Points</li><li>- Resolution (default is set at high)</li><li>- Overload Protection (default is off)</li></ul>
Programmer Required	: HPP-21 Plus PC Hitec Digital Programmer
Resolution	: 2950 Steps/60° Max – (Driver dependant)
Hysteresis	: +/- 1.5°
Positional Feedback Sensor	: (Optional Extra) <ul style="list-style-type: none"><li>- None contacting high accuracy position sensor.</li><li>- 12 – 14v DC Input</li><li>- 0-5V Analogue Output</li><li>- Alternative outputs available on Bulk requests.</li></ul>

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### Highpower Systems International Ltd.

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## Flow Data

Orifice Area : 8.4813mm<sup>2</sup> [0.0131sqin]  
 Equivalent Diameter : 3.286mm [0.129"]  
 Compatible Media : Nitrous Oxide (Gas & Liquid), Carbon Dioxide (Gas & Liquid), Nitrogen (Gas)

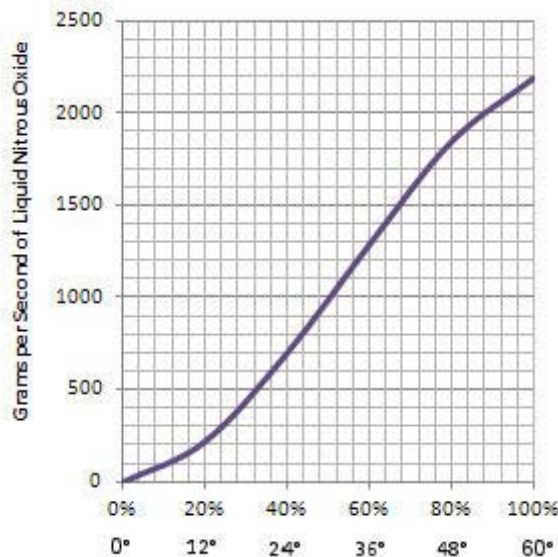
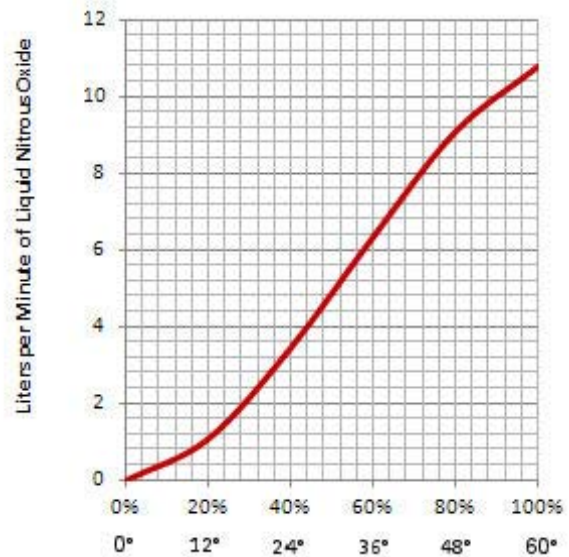
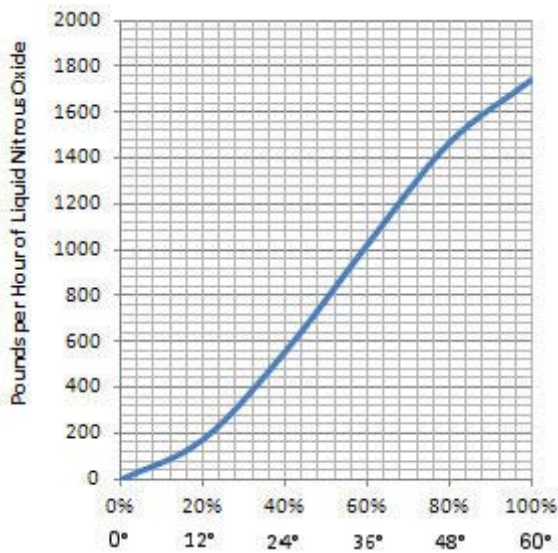
The above list of Media types have been fully tested with this product. Due to the corrosion resistance of the wetted materials and specification of the valve internals many more media types will be suitable. Possible media's may include:

: Water (Steam), Hydraulic Fluids, Hydrocarbon Fuels + More

Flow at Maximum : 1739 Lbs/Hr [Kg/Hr] (Liquid Nitrous Oxide @ 65.5 Bar)  
 Flow at Park : 7.56 < g/sec [0.26 oz/Sec , 0.017 lb/Sec]

## Flow Characteristics

The following characteristics are based on the inconsistent characteristics of flowing liquid Nitrous Oxide. For non-liquefied gases ie. Hydraulic fluids/Air, flow characteristics maintain closer linearity tolerances.



POSITION	Valve Open %	0%	20%	40%	60%	80%	100%
	Shaft Angle	0°	12°	24°	36°	48°	60°
	Example Input Signal above base. (Approx. Base 1300 μsec)	0 μsec	120 μsec	240 μsec	360 μsec	480 μsec	600 μsec
FLOW	Lb/Hr	<60	175	556	1022	1466	1739
	L/Min	<0.37	1.080	3.440	6.320	9.060	10.75
	g/Sec	<76	220	700	1288	1847	2191
Above flow figures are based on Liquid Nitrous Oxide at 950 Psig Input Pressure							

- Orifice Open Percentage [ 0 – 100% ]
- Shaft Angle from Zero [ 0-60° ]

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**Operational Notes:**

The REVO valve is primarily designed to meter fluid flow and is not designed to be a permanent Shut-Off device. To maintain optimum REVO performance, we recommend that the contents of the feed line be released at the earliest convenience after use (within 30 minutes) if used at pressures above 500 psi. When a REVO is to be part of a system subjected to pressures above 500 psi for longer periods of time, a suitable in-line shut-off device with a purge should be added before the inlet to remove the pressure from the REVO, while maintaining line pressure.