



Our newest product line, the HP Series, targets applications requiring high pressure in a compact form factor. The first model delivers in excess of 600 mbar. The ability to generate such high pressures from a small, controllable, and non-pulsatile pump opens up exciting opportunities in microfluidics – or particularly in pressure-driven-flow (air-over-liquid) systems – and in medical and industrial applications where high differential pressure is required.

Key Features

- Silent, vibration-free operation
- Ultrafast millisecond response
- Lightweight, compact form
- High-precision controllability
- True pulsation-free flow
- Infinite turn-down ratio
- Maintenance free
- RoHS compliant

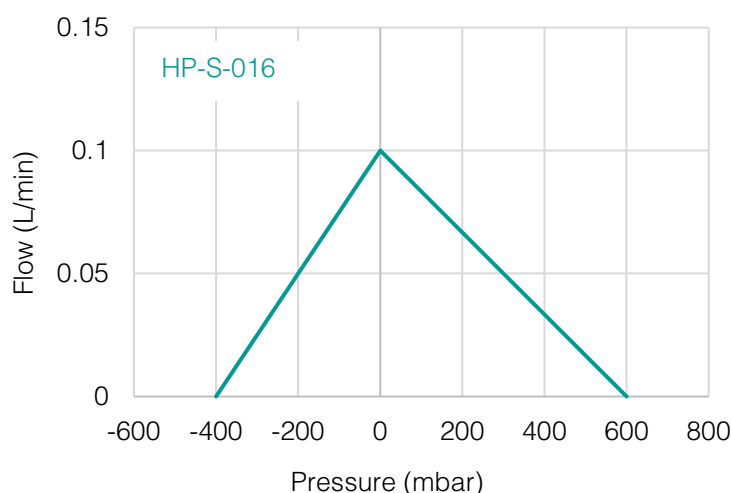
Typical Applications

- Microfluidics
- Point-of-Care diagnostics
- Liquid handling
- Vacuum prosthetics
- Distributed pneumatics
- Blood pressure monitoring
- Portable instrumentation
- Wearable medical devices

	Pressure	Flow	Vacuum
HP-S-016 ^{1,2}	> 600 mbar	> 0.10 L/min	> 400 mbar

Operational	
Temperature range	5 to 40 C
Humidity range ³	0 to 95% RH
Pumping medium ⁴	Air
Noise level ⁵	< 10 dB
Control precision ⁶	< 0.1%
Turn-down ratio ⁷	Infinite

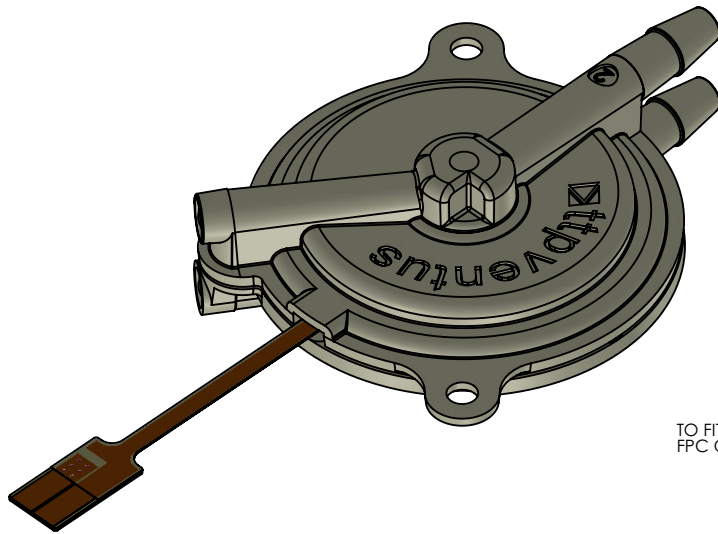
Mechanical	
Size	29 dia. x 11 mm
Weight	5 g



TTP Ventus is actively developing higher performance pump designs; if the performance listed above is not sufficient for your application, please contact us to discuss whether we have an alternative design that meets your requirements.

DRAFT DATASHEET AWAITING DRAWING.

STEP FILE CAN BE DOWNLOADED FROM TTPVENTUS.COM/SUPPORT

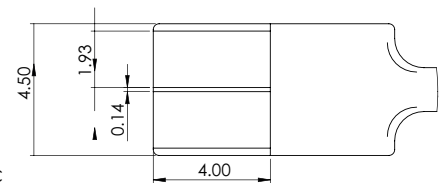


PORT 1 IS OUTLET

PORT 2 IS INLET

TO FIT 8-WAY 0.5MM
FPC CONNECTOR

DETAIL C
SCALE 8 : 1



MOUNTING GUIDANCE

MOUNT IN ANY ORIENTATION USING COMPLIANT MATERIALS. IF USING MOUNTING EYES ON PUMP BODY, IT IS RECOMMENDED TO USE A COMPLIANT O-RING (E.G. 1.42 ID X 1.78 CS NITRILE 70 SHORE A), NYLON M2 BOLT AND THREADED MOUNTING STUD (E.G. WURTH ELEKTRONIK 9774050243R).

ALL DIMS MM

Electrical

- Electronic driver is required to identify and track optimum drive frequency.
- Driver provides:
 - AC drive waveform of 20-22 kHz at 0 to 40 V peak.
 - 0 to 1 W into pump (continuous).
- Typical driver implementation requires 3.7 to 5 V supply.
- Efficiency depends on specific implementation.
- Evaluation PCB / systems available.
- Reference circuits and firmware available to support product integration.
- See support materials on website or contact support@ttpventus.com to discuss.

Disc Pump Evaluation Kit: EK-M-015

Our evaluation kits come with everything necessary to start testing, including pump, electronics and PC application for configuration and control. The evaluation kits are suitable for laboratory testing, proof of concept and product prototyping. [Contact us to request a quotation.](#)

See our [support pages](#) for a "Getting Started" guide for more information and a video of the evaluation kit.



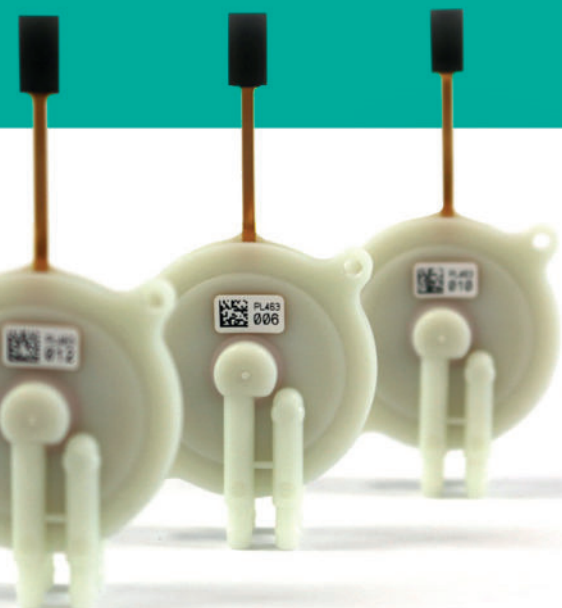
Notes

1. Continuous operation at 1 W drive power (into pump).
2. Performance data presented collected under Normal Temperature and Pressure and ambient humidity conditions. Performance under other conditions may vary. In particular, note that performance decreases with altitude and may decrease at elevated temperature.
3. Non-condensing; ingress of liquid-phase water will halt pump operation.
4. Liquid may be pumped indirectly in a "pressure-driven flow" / "air displacement" regime.
5. Per ISO 226:2003 and related studies; 30 cm equivalent measurement distance.
6. Pressure and flow. Requires pump under closed-loop control with suitable sensor and drive electronics.
7. Disc Pump's piezoelectric drive actuator has no stall speed. The pump can be controlled continuously between 0 and 100% maximum output.

The information presented herein is based on engineering data and test results of nominal preliminary units. It is believed to be accurate and reliable and is offered as an aid to guide in the selection of TTP Ventus products. It is the responsibility of the customer to determine the suitability of the product for the intended use and the customer assumes all risk and liability whatsoever in connection therewith. TTP Ventus does not warrant, guarantee or assume any obligation or liability in connection with this information. Product specifications may change without notice.

XP SERIES

Series Configuration models DP-S2-007 / XP-S2-028



Our XP Series offers our highest performance, efficiency and widest operating temperature range of -25 to 55°C to support the most demanding applications.

Key Features

- Exceptional pressure and flow
- Silent, vibration-free operation
- Ultrafast millisecond response
- Lightweight, compact form
- High-precision controllability
- True pulsation-free flow
- Infinite turn-down ratio
- Maintenance free
- RoHS compliant

Typical Applications

- Blood pressure monitoring
- Capnography
- Compression therapy
- Point-of-Care diagnostics
- Microfluidics
- Liquid handling
- Gas detection and analysis
- Leak detection
- Inkjet pressure control

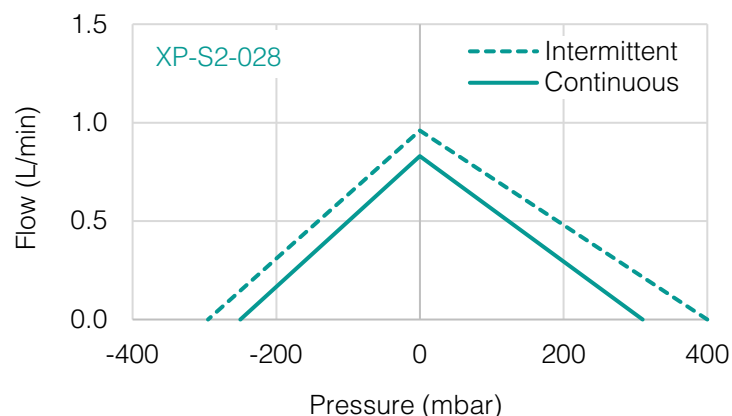
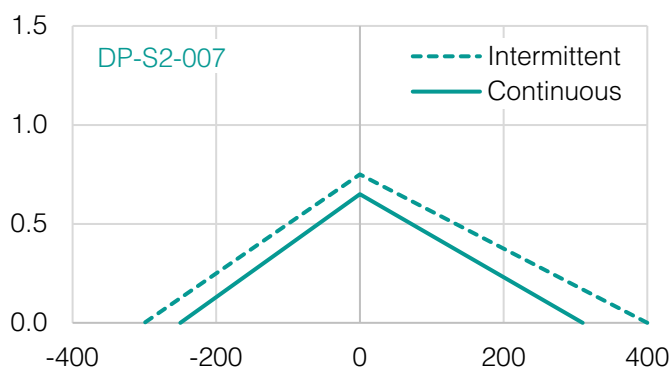
DP-S2-007	Pressure	Flow	Vacuum
Intermittent ^{1,3}	> 400 mbar	> 0.75 L/min	> 300 mbar
Continuous ^{2,3}	> 310 mbar	> 0.65 L/min	> 250 mbar

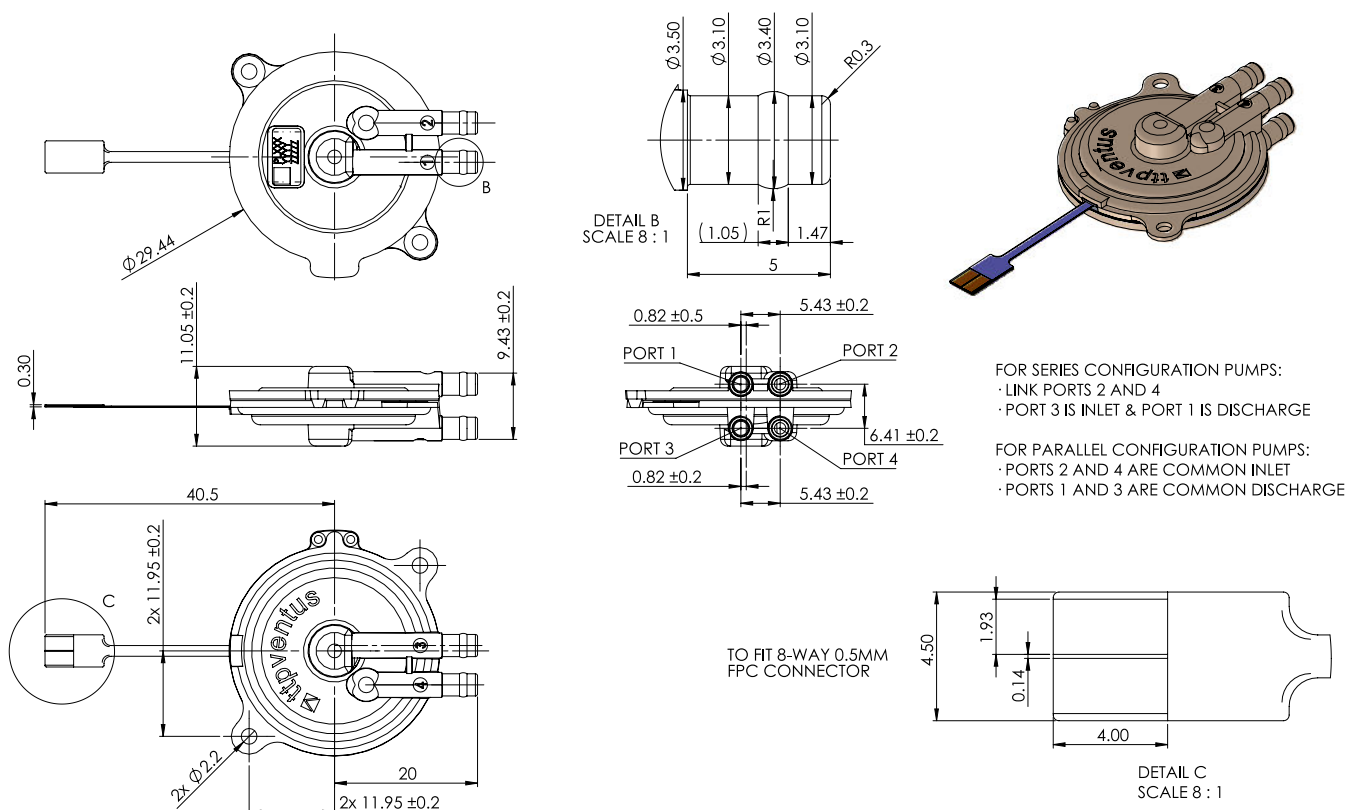
XP-S2-028	Pressure	Flow	Vacuum
Intermittent ^{1,3}	> 400 mbar	> 0.96 L/min	> 295 mbar
Continuous ^{2,3}	> 310 mbar	> 0.83 L/min	> 250 mbar

Operational	
Temperature range	-25 to +55 C
Humidity range ⁴	0 to 95% RH
Pumping medium ⁵	Air
Noise level ⁶	< 10 dB
Control precision ⁷	< 0.1%
Turn-down ratio ⁸	Infinite

Mechanical	
Size	29 dia. x 11 mm
Weight	5 g

TTP Ventus is actively developing higher performance pump designs; if the performance listed above is not sufficient for your application, please contact us to discuss whether we have an alternative design that meets your requirements.





FOR SERIES CONFIGURATION PUMPS:
 · LINK PORTS 2 AND 4
 · PORT 3 IS INLET & PORT 1 IS DISCHARGE

FOR PARALLEL CONFIGURATION PUMPS:
 · PORTS 2 AND 4 ARE COMMON INLET
 · PORTS 1 AND 3 ARE COMMON DISCHARGE

TO FIT 8-WAY 0.5MM
 FPC CONNECTOR

DETAIL C
 SCALE 8 : 1

MOUNTING GUIDANCE

MOUNT IN ANY ORIENTATION USING COMPLIANT MATERIALS. IF USING MOUNTING EYES ON PUMP BODY, IT IS RECOMMENDED TO USE A COMPLIANT O-RING (E.G. 1.42 ID X 1.78 CS NITRILE 70 SHORE A), NYLON M2 BOLT AND THREADED MOUNTING STUD (E.G. WURTH ELEKTRONIK 9774050243R).

ALL DIMS MM

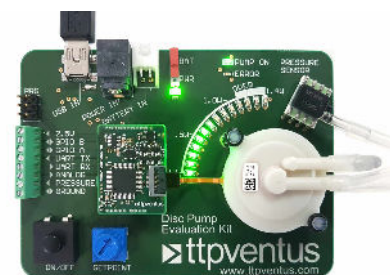
Electrical

- Electronic driver is required to identify and track optimum drive frequency.
- Driver provides:
 - AC drive waveform of 20-22 kHz at 0 to 60 V peak.
 - 0 to 1 W into pump (continuous); up to 1.4 W intermittent.
- Typical driver implementation requires 3 to 5 V supply.
- Efficiency depends on specific implementation.
- Evaluation PCB / systems available.
- Reference circuits and firmware available to support product integration.
- See support materials on website or contact support@ttpventus.com to discuss.

Disc Pump Evaluation Kit: EK-M-015

Our evaluation kits come with everything necessary to start testing, including two pumps, electronics and PC application for configuration and control. The evaluation kits are suitable for laboratory testing, proof of concept and product prototyping. [Contact us to request a quotation.](#)

See our [support pages](#) for a "Getting Started" guide for more information and a video of the evaluation kit.



Notes

1. Intermittent operation at 1.4 W drive power (into pump). With intermittent operation, the mean power should be less than 1 W with a duty cycle period less than 20s. Operational life may be shortened where mean pump drive power exceeds 1 W.
2. Performance at 1 W measured after 30 seconds of continuous operation.
3. Performance data presented collected under Normal Temperature and Pressure and ambient humidity conditions. Performance under other conditions may vary. In particular, note that performance decreases with altitude and may decrease at elevated temperature.
4. Non-condensing; ingress of liquid-phase water will halt pump operation.
5. Liquid may be pumped indirectly in a "pressure-driven flow" / "air displacement" regime. Other gases / gaseous mixtures may be pumped. Contact TTP Ventus to discuss.
6. Per ISO 226:2003 and related studies; 30 cm equivalent measurement distance.
7. Pressure and flow. Requires pump under closed-loop control with suitable sensor and drive electronics.
8. Disc Pump's piezoelectric drive actuator has no stall speed. The pump can be controlled continuously between 0 and 100% maximum output.

The information presented herein is based on engineering data and test results of nominal units. It is believed to be accurate and reliable and is offered as an aid to guide in the selection of TTP Ventus products. It is the responsibility of the customer to determine the suitability of the product for the intended use and the customer assumes all risk and liability whatsoever in connection therewith. TTP Ventus does not warrant, guarantee or assume any obligation or liability in connection with this information. Product specifications may change without notice.