

## MX-Series (Magnetic Drive Gear Pumps)

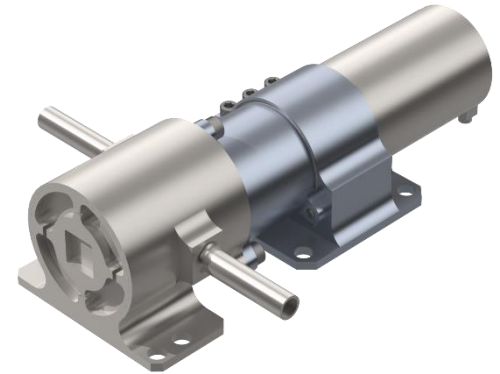
# MODEL S-3040-M07XS34A-HG-HP

## Bi-Propellant Space Pump

S-3040-M07XS34A-HG-HP

### DESCRIPTION

Flight Works M-Series (Magnetic Drive) Gear Pumps offer the highest level of quality, reliability, and versatility in the Flight Works product catalog. The S-3040-M07XS34A-HG-HP model uses precision-machined parts, magnetic coupling mechanics, and a high-end brushless motor designed for spaceflight applications to reliably produce exceptional performance. The motor allows for simple control, with minimal power draw, while the tight tolerances of both the driving and driven pump components raise performance to optimal levels.



### STANDARD SPECIFICATIONS

Max Flow Rate	.....	1100 ml/min @ 0.1 psid*
Diff. Pressure (Max)	.....	300 psid* (fluid dependent; see data chart)
Proof / Burst Pressure	.....	525 psia / 875 psig
Design Req. NPSH	.....	23 psi above saturation pressure (fluid dependent)
Predicted Mass	.....	800 grams (does not include motor wires)
Envelope & Interfaces	.....	See page 2. For full interface details refer to ICD
Seals	.....	Fully welded (no static or dynamic seals)
Permissible Fluid	.....	Hydrazine, NTO, Isopropyl Alcohol
Wetted Materials	.....	See page 2
Design Temperature	.....	non-operational: -15°C to +60°C operational/fluid: +5°C to +40°C
Design Environments	.....	random vibration (NASA GEVS levels) and vacuum; hall sensors (COTS) <i>not tested</i> for radiation tolerance
Nominal Voltage	.....	28 V
Control Options (requires controller)	.....	Ground: hall sensor or back-EMF feedback Space: back-EMF feedback

### APPLICATIONS

This micro gear pump has been designed for spaceflight applications and features a level of versatility and customization that would also allow for use in a wide field of applications with vibration or low atmospheric pressure/vacuum.

\*Temperature & Fluid Dependent – Consult factory for extended range.

### ⚠ IMPORTANT

**This pump is designed to run with an inlet filter (<25 microns recommended). It may be possible to operate the pump outside of these design limits in certain applications, but this must be checked and validated by the customer.**

Specifications and data in this document are for informational purposes only, may vary depending on the system in which the pump is integrated, and are subject to change without notice. Flight Works, Inc. makes no warranties concerning the suitability of this pump for a particular application; as such, it is the customer's responsibility to determine the safety and technical suitability of the system. Refer to the Pump User Guide for more details on handling, setup, operation, and more. This pump is a precision unit, built and assembled as a complete product. Opening, adjusting, or dropping the pump can permanently damage assembly integrity. Please contact Flight Works, Inc. by phone or email with any further questions regarding this product or its function.

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Product Export Controlled (ECCN 9A106.d)  
Subject to Export Administration Regulations (EAR)

## CONFIGURATION OPTIONS

<b>Space Standard</b>	Fluid compatible, designed for vibration and vacuum, Configuration control, ICD, Product Data Sheet, Precision cleaned (Sample capture post ATP to pass cleanliness level 100 per IEST-STD-CC1246D), ATP data and Certificate of Conformance	
<b>OPTIONAL PROCESSES</b>		
<ul style="list-style-type: none"> <li>Precision cleaning and certification</li> <li>100% Radiographic Inspection of welds and certification</li> <li>Vibe acceptance testing</li> <li>Thermal vacuum testing</li> </ul>		
<b>WIRE HARNESS OPTIONS</b>		
<b>Standard (P/N)</b>	<b>Shielded (P/N-1)</b>	<b>Shielded w/ Sensors (P/N-2)</b>
<ul style="list-style-type: none"> <li>Motor power and hall effect sensor flying leads</li> <li>300±20 mm length</li> <li>Nema HP-3 Type E AWG20 19x.203 PTFE</li> <li>UL style 1213 AWG26 7x0.16 PTFE</li> </ul>	<ul style="list-style-type: none"> <li>Shielded motor power leads</li> <li>Motor power terminated w/ Glenair 790-045PE-7P3MM</li> <li>300±20 mm length</li> <li>EMI shielding of connector is tested to meet EIA 364-83 and EIA-364-66</li> <li>Interfaces with Flight Works space motor controller</li> </ul>	<ul style="list-style-type: none"> <li>Shielded motor power leads</li> <li>2x RTD mounted on assembly w/ twisted leads</li> <li>Motor power and sensors terminated w/ Glenair 790-045PE-7P3MM</li> <li>300±20 mm length</li> <li>Interfaces with Flight Works space motor controller</li> </ul>

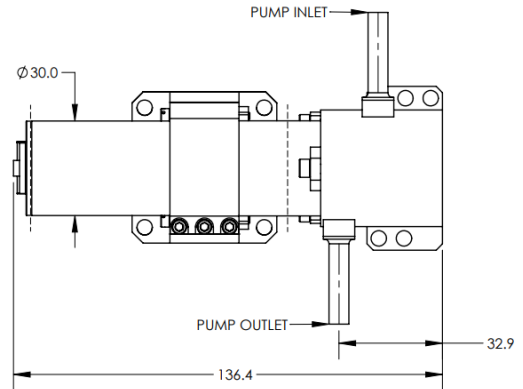
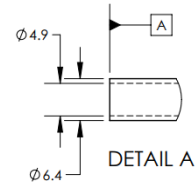
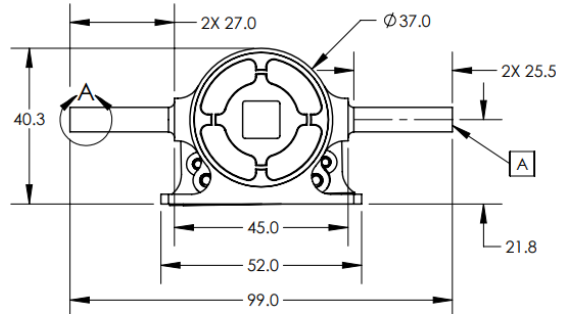
### PUMP WETTED MATERIALS

- CRES 302/304
- CRES 304/304L
- CRES 420
- CRES 440C
- CRES A286
- Nickel Alloy 625
- Silicon Carbide

For use with Hydrazine, MMH, NTO, MON-3, MON-25, Isopropyl Alcohol

<b>FLUIDIC INTERFACE</b>	<b>1/4 Inch Tube Stub</b>
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## DIMENSIONS (mm) & WIRING



### WIRING DIAGRAM - MOTOR

ESCC 3901 024 06 (AWG 20)

<u>COLOR</u>	<u>POWER</u>
BLACK	WINDING 2
WHITE	WINDING 3
RED	WINDING 1

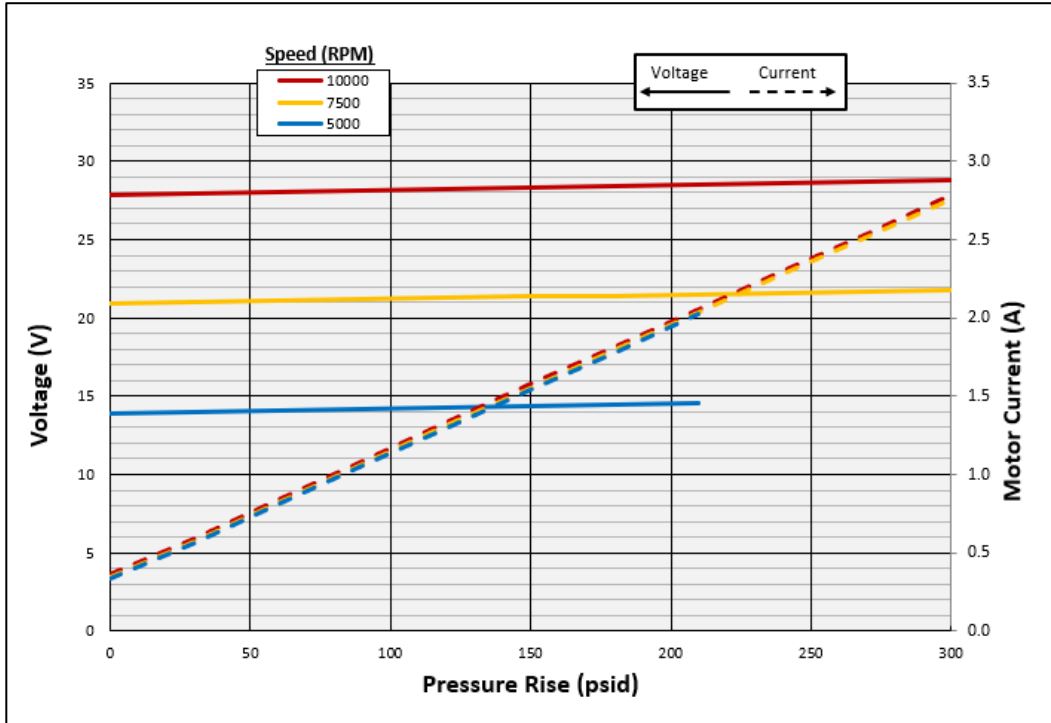
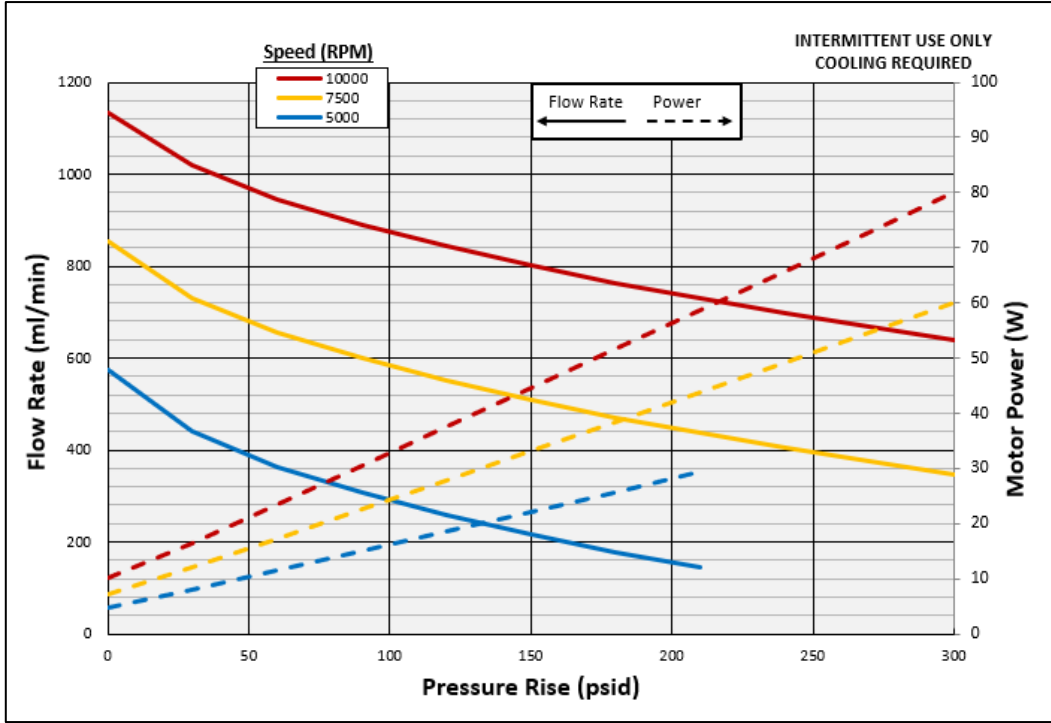
### WIRING DIAGRAM - SIGNAL

ESCC 3901 024 03 (AWG 26)

<u>COLOR</u>	<u>POWER</u>
VIOLET	NTC-SENSOR
VIOLET	NTC-SENSOR
ORANGE	HALL SENSOR 3
BROWN	HALL SENSOR 2
YELLOW	HALL SENSOR 1
BLUE	GND
GREEN	+V HALL

Custom configurations/materials can be provided upon request (ex. welding, custom wiring, interfaces, alternate seals, etc.)

## Pump Predicted Performance with Water/Hydrazine @ 25°C

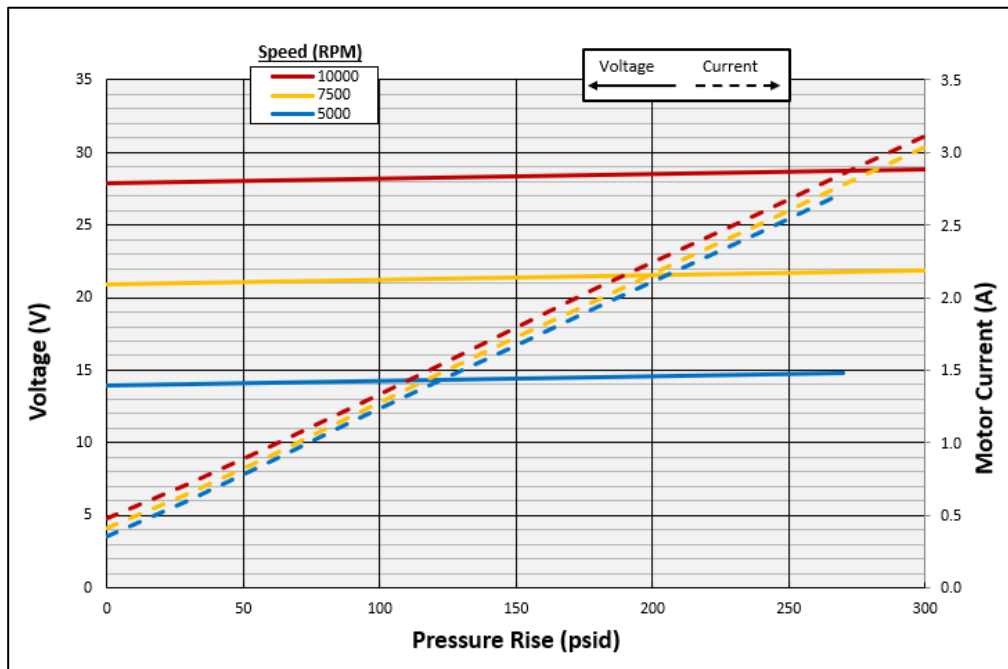
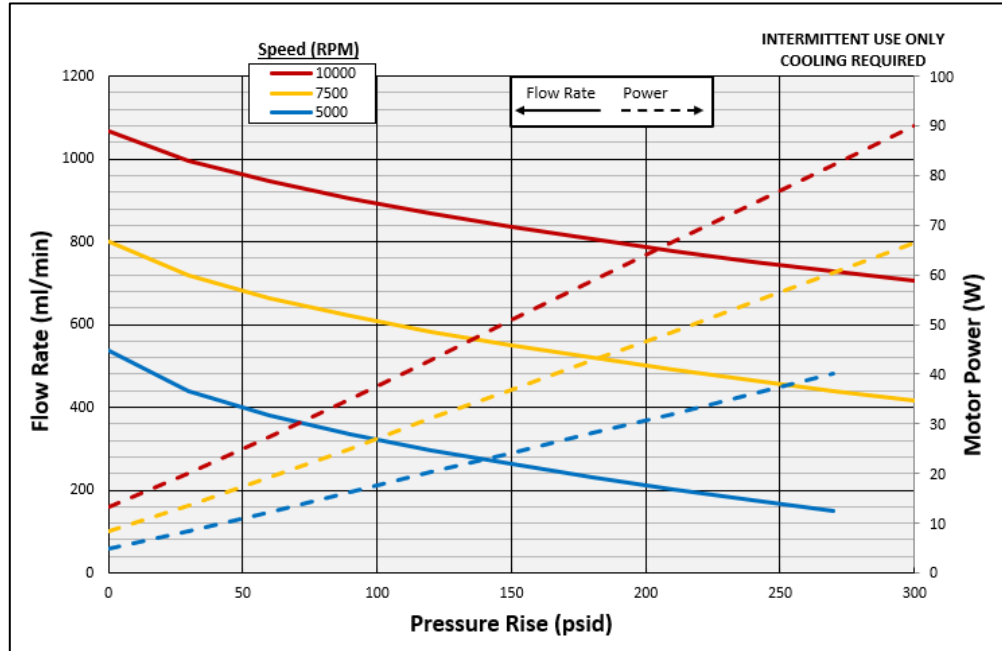


Can be operated at lower pressures and higher flowrates – Please contact Flight Works for more information.  
 \*Higher pressures and flow rates available – please inquire [info@flightworksinc.com](mailto:info@flightworksinc.com)

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## Pump Predicted Performance with NTO/MON-3 @ 25°C



*Can be operated at lower pressures and higher flowrates – Please contact Flight Works for more information.  
 \*Higher pressures and flow rates available – please inquire [info@flightworksinc.com](mailto:info@flightworksinc.com)*

### MOTOR DATA

Motor	Nominal Voltage	Max Nominal Current	No Load Speed Constant	No Load Speed at Nominal Voltage
<b>XS34A</b>	28 V	4.90 A	359 RPM/V	10,000 RPM

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