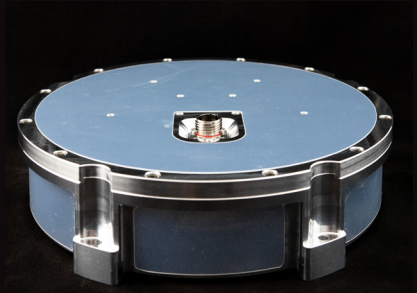


REACTION WHEEL

12.0 Nms RWA
RW4 [Rad-Hard] & RW5 [Standard]
Data Sheet



MOMENTUM	+/-12 Nms
TORQUE	+/-0.2 Nm
CONTROL MODE	Speed or torque, with built-in control CPU
MECHANICAL	264 mm diameter x 70 mm height; Mass: 5 kg max
THERMAL	Non-Operational: -40 to 70° C Operational: -20 to 60° C
VIBRATION (QUAL)	In-Plane: 16.7 gRMS Normal: 20 gRMS
SHOCK (QUAL)	100Hz – 39g 1kHz – 729g 10kHz – 729g
RELIABILITY	Bearings: Hybrid ceramic bearings for improved life and microvibration performance Electronics: LDRS tested. Hardware TMR on all flip-flops, EDAC on all RAM
UNBALANCE	<26.7 g-mm static, <800g-mm ² dynamic

FEATURES

- > Designed for long-life and reliability
- > Based on lessons learned from more than 250 wheels on-orbit heritage
- > Constellation-class manufacturing capabilities for large volume deliveries
- > Standard and more radiation-hardened variants
- > Modular assembly designed for volume manufacturing
- > Low mass and volume envelope
- > CAN-FD or full/half duplex RS-485
- > Fully demisable

	RW5-12.0	RW4-12.0
Supply Voltage	30 V to 50 V	24 V to 34 V
Power (Idle)	<1.6W	<2.0W
Power (Active)	<38W at 12Nms steady state <200W during full acceleration <100W regeneration during full deceleration	<38W at 12Nms steady state <170W during full acceleration <100W regeneration during full deceleration
Communications	CAN-FD, bus common, galvanically isolated from primary power	Redundant RS-485, with galvanic isolation from primary
Radiation	>12 krad TID, 2.5 mm Al equivalent shielding; SEL >15 MeV-cm ² /mg	>60 krad TID, >5 mm Al equivalent shielding; Heavy Ion >50 MeV-cm ² /mg
PRICE	US \$100,000 each	US \$120,000 each

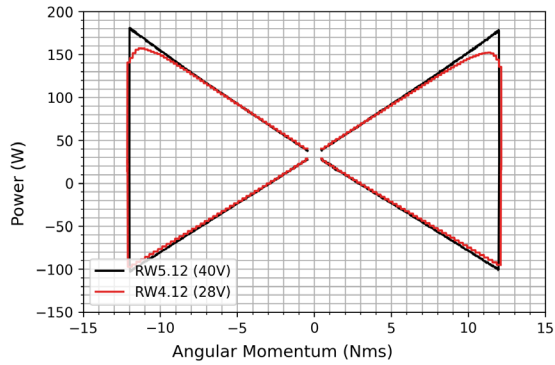
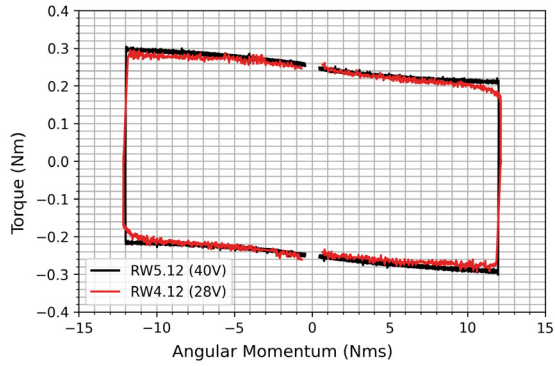


Fig 1: Reaction torque and power measurements in vacuum using current control mode (6.2A)

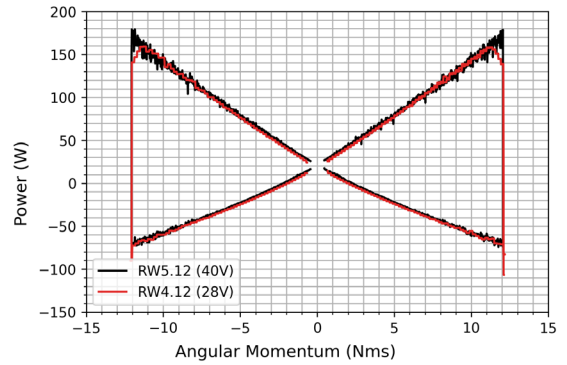
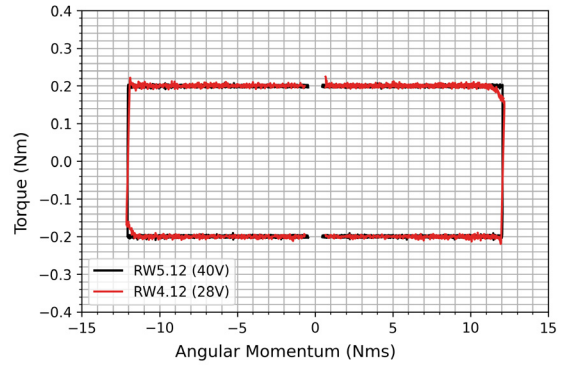


Fig 2: Reaction torque and power measurements in vacuum using torque control mode (0.2Nm)

