PlaneWave INSTRUMENTS

www.planewaveinstruments.de

PRODUCTS

CDK700

0,7 Meter Observatory Telescope-System

The CDK700 is a complete observatory class telescope and direct drive alt-azimuth mounting system designed and engineered by PlaneWave.
With a 70mm image circle , the CDK700 is designed to excel at imaging on large format CCD cameras. The optical system utilizes a Nasmyth focus through both altitude bearings allowing your camera or eyepiece to remain at a fixed height while holding heavy instruments without needing to rebalance the optical tube assembly. Instrumentation can be installed on both sides of the fork mount and easily accessed using the included rotating tertiary mirror system. With direct drive motors, high resolution encoders and zero backlash or periodic error the CDK700 sets a new standard for small observatory telescopes.

Specification

Optical Design	Corrected Dall-Kirkham (CDK)
Aperture	700 mm (27.56 inch)
Focal Length	4540 mm
Focal ratio	f/6.5
Central Obstruction	47% of the Primary Mirror Diameter
Back Focus	309 mm (12.2 ") from Mounting Surface
Weight	1,200 lbs
Optical Tube	Dual truss structure with Nasmyth focus
Spot Size 21mm off-axis	4.4 micron RMS
Spot Size 35mm off-axis	6.8 micron RMS
Field of View	70 mm (0.86 degrees)

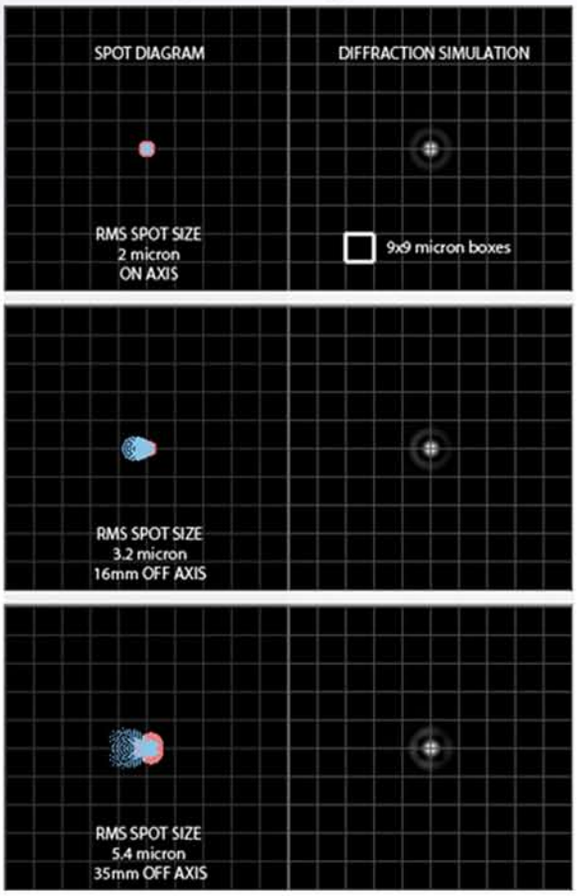
MOTION CONTROL

Motor Control	Direct Drive 3 Phase Axial-Flux Torque Motor
Encoder	10 inch disk built into both axes with stainless steel encoder tape on the circumference with 16 million counts per revolution (0.08" resolution)
Motor Torque	Approx. 35 ft-lbs
Control Software	Incorporates PointXP mount modeling software by Dave Rowe All ASCOM compatible.

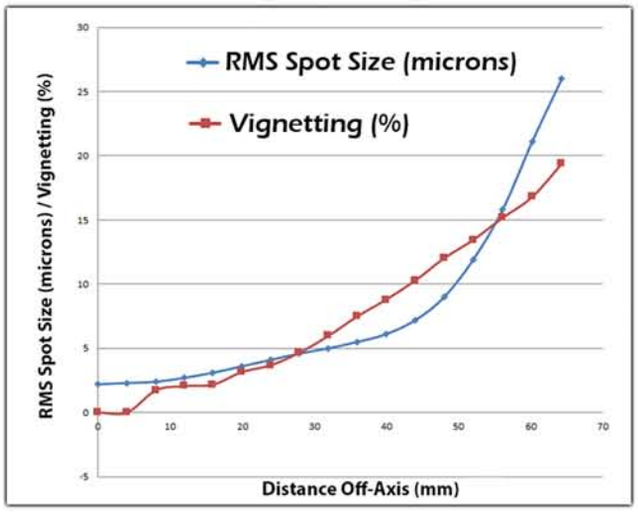
SYSTEM PERFORMANCE

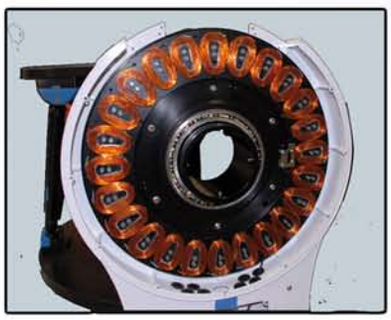
Pointing Accuracy	10 arcsecond RMS with PointXP Model
Pointing Precision	2 arcsecond
Tracking Accuracy	1 arcsecond error over 3 minute period
Max Slew Speed	15 degrees per second
System Natural Frequency	10 Hz or greater
Field De-Rotator Accuracy	3 microns of peak to peak error at 35mm off-axis over 1 hour of tracking (18 arc sec)

Spot Diagram



Vignetting





Direct drive motors and encoders - Direct Drive motors mean that there are no gears to cause backlash or periodic error. With high-resolution encoders providing the feedback for the direct drive motors, not only will the telescope track without periodic error or have any backlash at all, but the mount will be able to counter against wind gusts. The direct drive motors can move the telescope at incredible speeds for tracking satellites or just to minimize target acquisition time.

Rotating Tertiary Mirror - The CDK700 includes an integrated rotator for the tertiary mirror, with magnetic locks to position the mirror precisely for either Nasmyth focus position. The rotator can move from one port to the other in under 10 seconds allowing observers to easily transition between imaging and visual use.

Nasmyth Focus - Dual Nasmyth Focus ports along the altitude axis virtually eliminates balancing issues as you change out equipment. Eyepieces remain at a constant wheelchair-accessible height, greatly simplifying access to the telescope for public observatories. Includes the IRF90 field de-rotator/focuser which de-rotates the field and allows for long exposure Alt-Az tracking.

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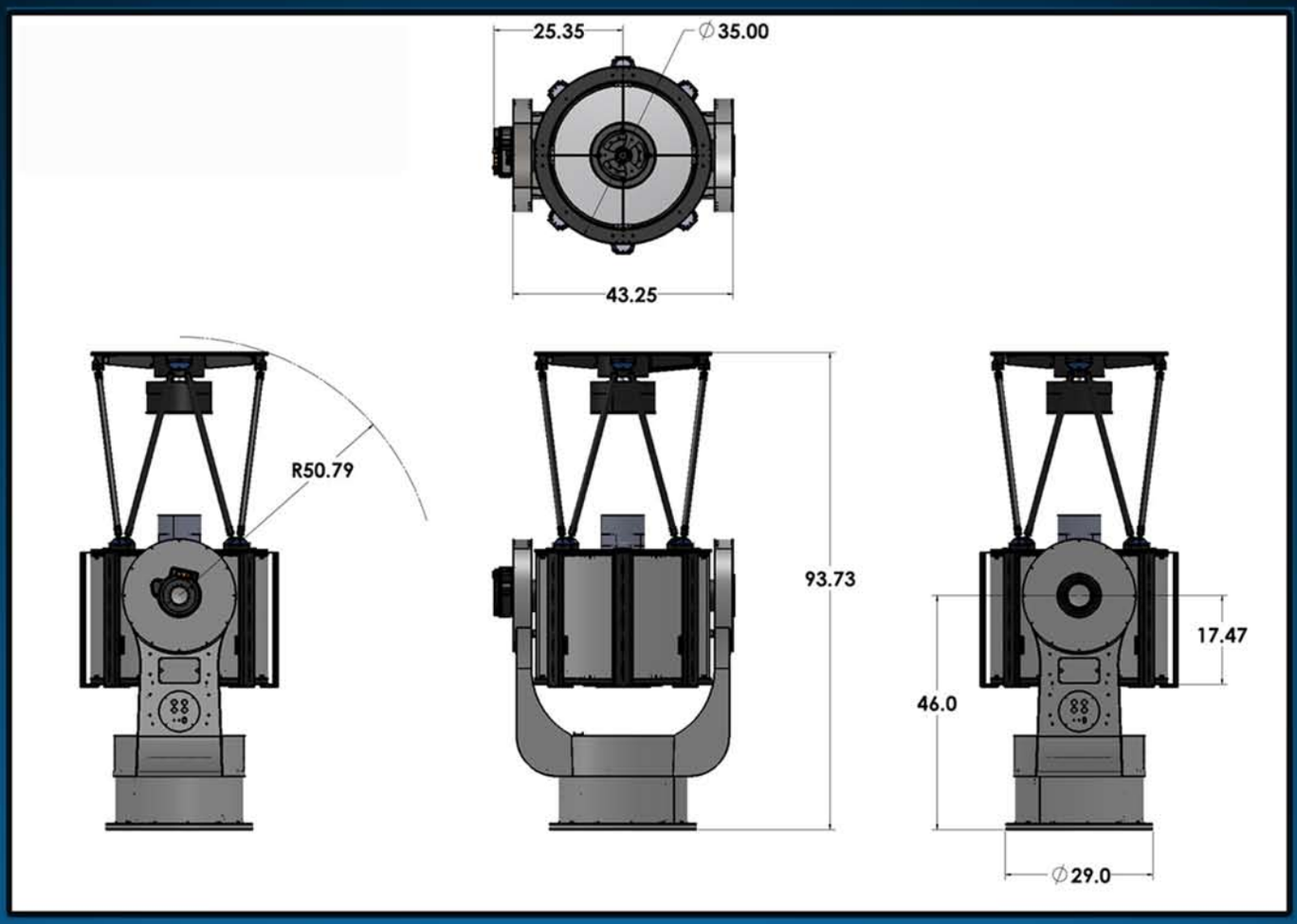

Helix Nebula
by Damian Peach
taken with CDK 700

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