

Stack Array Deformable Mirrors for Astronomy

Ensuring the highest wavefront correction performances at high speed, CILAS Stack Array Mirrors (SAM) are perfectly suited for ground-based telescopes. Featuring high optical quality, SAMs are adapted to high order correction with a large interactor stroke, leading to unmatched correction performances.

A team of experts is at your service to design, customize and manufacture the most appropriate Deformable Mirror (DM) to your specific correction needs.

Major references for astronomy

Stack Array Mirror	Number of actuators	Pupil diameter
Woofer DM for Gemini Planet Imager	97	45 mm
DM for NAOS at VLT (ESO)	195	112 mm
High Order DM for Gregor Solar Telescope	256	50 mm
DM for AO at Gran Telescopio Canarias	373	140 mm
High Order DM for SPHERE at VLT (ESO)	1377	180 mm
Upcoming DM0 for TMT	3125	325 mm
Upcoming DM11 for TMT	4548	386 mm

...From 50 to 5000 actuators

Aperture
386 mm

DESIGN

- Pupil diameter: up to Ø 500 mm
- Number of actuators: up to 5000
- New generation of actuators with high reliability
- Standard actuator pitch: 3.5 mm, 5 mm, 7 mm, 10 mm
- Customized actuator pitch upon request
- Compatible with integration in a tip-tilt mount

TYPICAL PERFORMANCES

- Maximum stroke for 3x3 actuators: from 10 µm to 20 µm PtV wavefront
- Interactor stroke: up to > 8 µm PtV wavefront
- Low hysteresis: < 5 % over full range
- Actuator resonance frequency: from 10 kHz to 20 kHz
- No heat dissipation

OPTICAL FEATURES

- Optical quality: < 20 nm RMS wavefront
- Surface roughness: < 15 Å RMS mechanical
- Coating: protected silver or aluminum coating
- Other coatings available upon request and on www.cilas.com

ENVIRONMENT

- Operating temperature: -30°C to +40°C
- Compatible with environmental conditions for night and solar telescopes

ELECTRONIC DRIVER

- Analog or digital electronic drivers are supplied with deformable mirrors