



- 1 SEM micrograph of an Echelle grating in silicon with 20 microns period.
- 2 Transmission grating 208 mm x 160 mm for the NIR channel.
- 3 Mounted NIR reflection grating with Black chromium aperture.
- 4 GRISM for the SWIR 1 channel. Grating area 109 mm x 56 mm, elliptic.

HIGH PERFORMANCE DIFFRACTION GRATINGS FOR SPECTROMETER APPLICATIONS

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Description

Customized diffraction gratings are designed, manufactured with lithographic technologies, machined for mechanical interface, assembled and fully characterized with respect to their optical parameters.

Parameters

- Reflection (R) or Transmission (T)
- Line density: 10 to 3500 l/mm
- Polarization: TE, TM or unpolarized down to < 2%
- Channels: UV, VIS, NIR, SWIR1/2/3
- Bandwidth:
 - Low resolution 200–600 nm
 - High resolution 50–200 nm
- Element size: < 260 x 120 mm² or < 200 x 200 mm² or < 270 mm diameter
- Efficiency depends on grating configuration

Service / technology

- Grating design
- Lithographic wafer-level processing
 - Electron beam lithography
 - Reactive ion etching and/or wet chemical etching
- Characterization
 - Diffraction efficiency
 - Wave front error
 - Stray light
- Machining of mechanical interface
- Backside anti-reflection coating (T)
- Aperture-stop coating
- Bonding / Assembly

References

- ESA GAIA mission
- Sentinel 4 mission