

Ball Aerospace Replicated Diffractive Optics (MOIRE) Video Script

VIDEO Products	AUDIO
Words on screen: <i>Agility to innovate...strength to deliver</i>	Music Bed
Montage of Hubble, Hubble images, James Webb, Kepler,	VO: When NASA envisioned a space-based telescope called Hubble...Ball Aerospace was called on to build the optical instruments...when the James Webb infrared telescope was conceived....Ball was chosen to build the mirrors....and when the planet-hunting spacecraft named Kepler was imagined...Ball was selected to build the photometer.
Lower Third: Jeanette L. Domber, Ph.D. Program Manager, MOIRE	DOMBER: C005 – 2:25 – 2:37 So, where Kepler is....targeted science.
MOIRE graphic	VO: That type of targeted science could benefit from a replicated diffractive optics approach to telescopes proven to work by Ball Aerospace.
	DOMBER: 0012 -0019 - MOIRE is the Membrane Optical Imager for Real Time Exploitation...a program that DARPA sponsored here at Ball Aerospace & Technologies Corporation.
1 st clean room footage	VO: DARPA...the Defense Advanced Research Projects Agency asked Ball to demonstrate a large space telescope 20 meters in diameter... based on light-weight diffractive membranes that would reduce cost and schedule compared to conventional telescopes.
	DOMBER: C005 - 10:54 This is a....made on a membrane.
2 nd clean room footage	VO: And how would membrane technology benefit telescope design?
COVER: Infographic	DOMBER: 0035 – 0052 If we compare that to see what that really means we can compare it to the HST primary which is 2 ½ meters in diameter and the JWST primary which is going to be 6 ½ meters in

	diameter. So, we're talking about a huge leap forward in technology in terms of getting to that larger size.
Combo additional clean-room footage/graphic/Kepler mirror photos	VO: The ultra-lightweight membrane is thinner than a human eyelash and weighs seven times less than reflective systems of similar size. Another advantage is the membranes don't require polishing, like traditional mirrors. These two factors make a membrane telescope approximately 10 times less expensive to build than a traditional telescopes
Clean-room footage cover created earlier	DOMBER: 0041- 0046 - And you can tailor the properties of the membrane in order to meet the requirements of the telescope.
Clean-room footage/remote sensing images/animation from WorldView	VO: For the DARPA demonstration Ball built a prototype that proved its diffractive membrane telescope can provide persistent surveillance at meter-scale resolution in a real-time scenario from geosynchronous orbit. That's just one of many applications....
	DOMBER: C0005 5:39 – The replicated... around Europa.
Ball stock astronomy images	VO: Other uses include Earth observation with lidar, exoplanet spectrometry and targeted astronomy missions.
Final sequence of clean room footage with animation.	VO: Ball's telescope design uses a deployable diffractive aperture mounted at one end of three deployable booms. The primary unfolds like an umbrella after the booms are deployed from the spacecraft, where the remainder of the imaging system optics are mounted.
	DOMBER: ...where we belong in the universe.
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