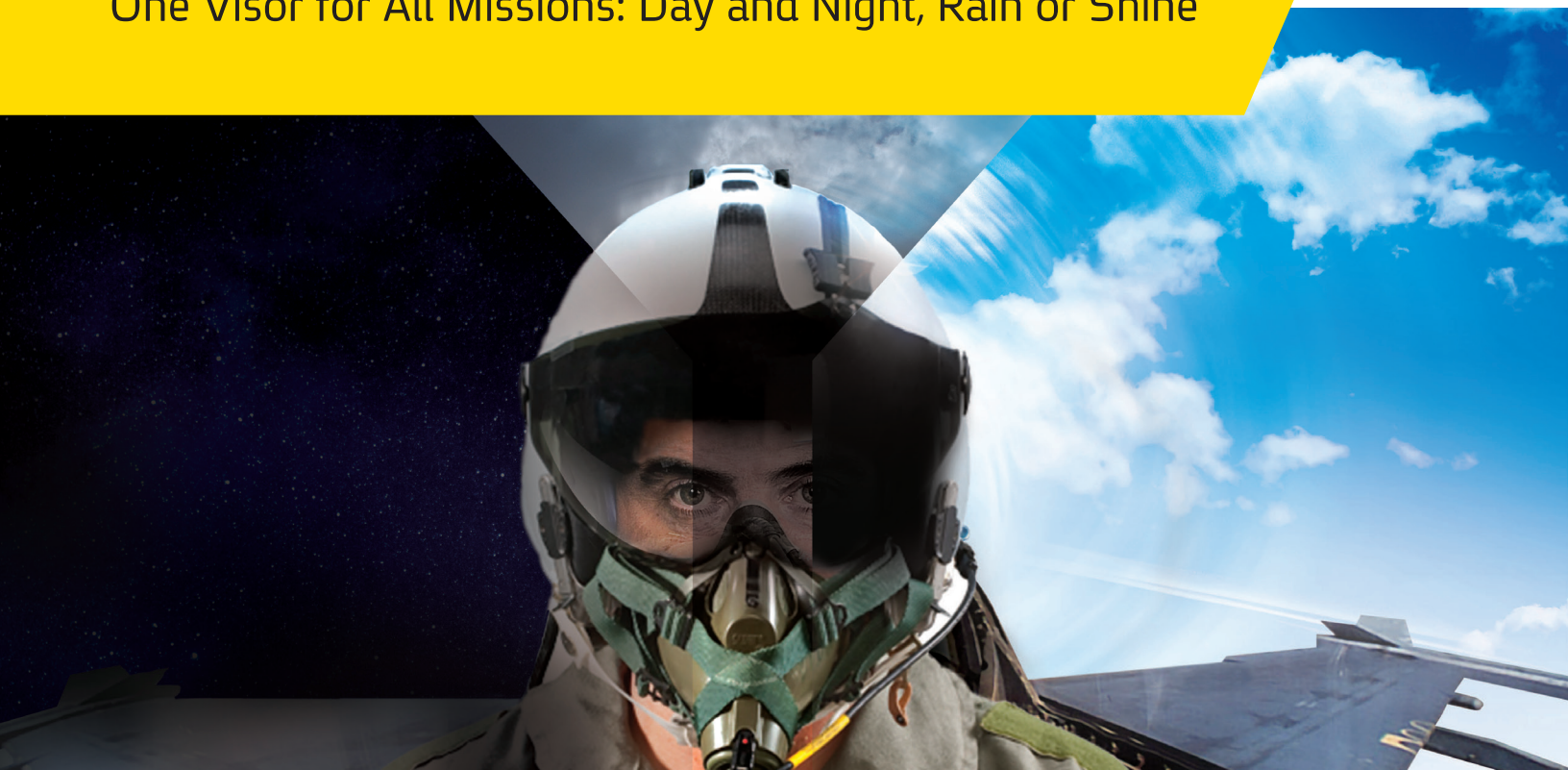


# VTV Variable Transmittance Visor

One Visor for All Missions: Day and Night, Rain or Shine



## The Visor Re-envisioned

Bright sunlight conditions pose various challenges in the cockpit. In addition to limiting pilots' vision, extreme illumination may alter the visibility of Helmet Mounted Display symbology and video presentation. Existing solutions entail a dual visor operation, requiring a manual, in-flight visors change.

Elbit Systems' Variable Transmittance Visor (VTV) is coated with an advanced photochromic layer that uses proprietary technology to dynamically limit the passage of light according to intensity.

As the visor automatically adapts to the intensity of the light, a clear view of the cockpit, the outside world and the display is maintained at all times, allowing pilots to fly with a single adaptable visor for all light and weather conditions.

## Variable Transmittance Visor

### Photochromic Technology for Clear Vision

VTV leverages Elbit Systems' unparalleled experience in the area of Head Mounted Displays, together with advanced nanotechnology capabilities, to create a unique, patented photochromic layer, tailored to the stringent requirements of the pilot visor.

### Dynamic Sunlight Filter Technology

Based on Elbit Systems' proprietary technology, V-DSF™ (Visible Dynamic Sunlight Filter) is a unique passive optical layer, transparent in normal light, which darkens in strong light conditions to attenuate the intensity of the light passing through it. With properties far superior to even the most advanced technologies used today, V-DSF's light-limiting characteristics are triggered by the intensity of the light alone, without any human intervention or electronic circuitry. Additionally, unlike conventional photochromatic lenses that darken only when exposed to UV light, V-DSF's darkening mechanism is triggered by visual wavelengths as well, allowing the visor to respond to external light conditions even behind a UV-blocked canopy.

### Operational Benefits

After extensive evaluation, the results show VTV offers:

- Full operational performance 24/7 ultra-thin layer
- A single visor for both day and night missions
- Can reach more than 85% and higher transmission for night missions
- Can go as low as 15% light transmission in bright sunlight environment
- No manual, in-flight visors change
- Enhanced pilot comfort
- Reduced head-borne weight

### Technology at a Glance

- 100% passive technology
- Triggered by all wavelengths
- Triggered behind UV-absorbent blocked glass (behind the cockpit canopy)
- Ultra-thin layer
- Fast clear-to-dark and dark-to-clear transition time
- Successfully passing environmental and safety testing (including ballistic impact, windblast and more)
- Fully tailored optimize performance to unique customer requirements:
  - Optical performance – dynamic range and transition speed
  - Customized color
- Implementation in various HMD systems (supporting color symbology and video presentation capabilities)



**Elbit Systems Ltd.**

Advanced Technology Center, P.O.B. 539, Haifa 3100401 Israel  
E-mail: aerospace@elbitsystems.com www.elbitsystems.com

Follow us on