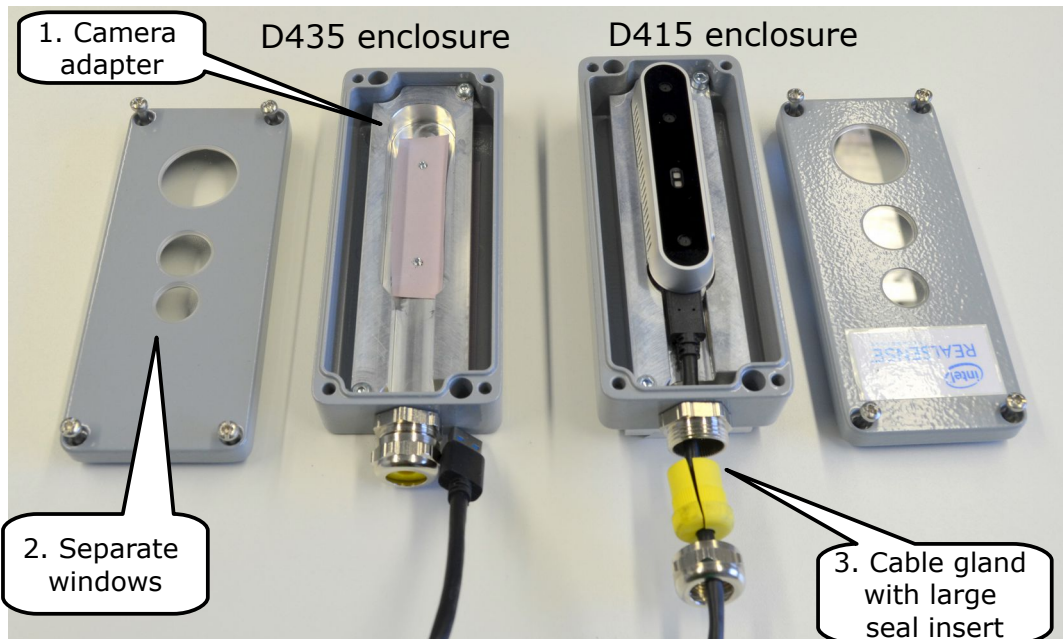


AutoVimation enclosures for Intel sensors

D415 and D435 Realsense enclosures



1. Camera Adapter: massive aluminium block ensures good heat dissipation in conjunction with 2 layer of high performance heat conductive tape. The camera stays within the permitted temperature under normal conditions!
2. Separate window: no back reflection of led light into optics. No corner shading thanks to large enough window close enough to lenses / projector. Windows are not glued but mounted with a special seal. Easy to replace and no problems with heat expansion of different materials.
3. Standard cable (USB C connector) fits trough special cable gland with large seal insert. A connector with locking screws is not required since the cable gland with cord grip ensures that the connector stays in place.
4. Using higher quality electronics enclosures we are flexible to adapt to different sensor shapes and sizes while minimising manufacturing and tooling costs.
5. With a dovetail adapter plate the enclosures can be used with our Machine Vision Construction kit, consisting of mounting kits and – brackets as well as dovetail profiles. This makes it easy to robustly adjust and position the sensor – even in industrial or outdoor environments.
6. Other accessories like pressure equalising valve, enclosure heating with controller, water cooling systems, sun roof, peltier climatiation, dust protection and so on could be fitted to the enclosures (depending on quantities required).
7. High degree of protection: IP66 and IP67.

AutoVimation Sensors for Intel Realsense sensors. Confidential to Intel Realsense!

autoVimation GmbH

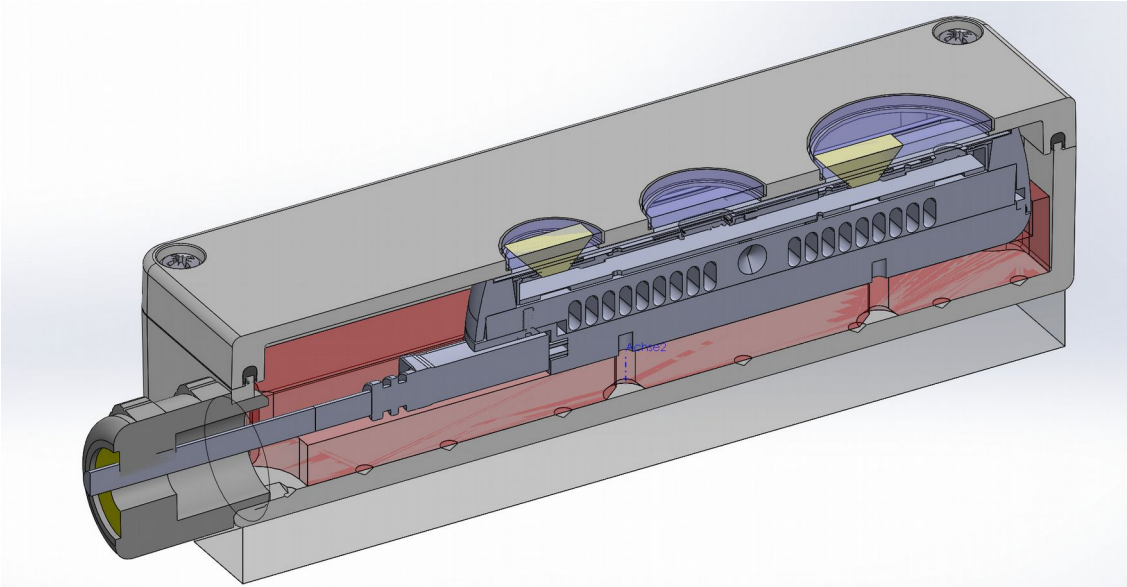
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Challenge: Window design in order to avoid corner shading

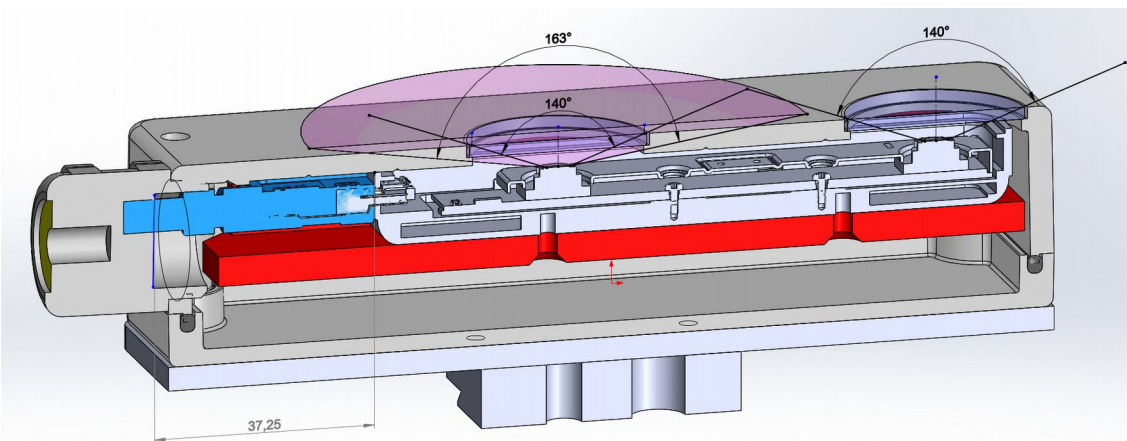


Estimated viewing pyramids (yellow) for Intel Realsense D415

For us it is difficult to estimate, if an enclosure window truncates the image in the corners, even if we know the image angles. Reason for that is that we don't know the position of the „image pyramid“ in front of the lens. We usually look at the diameter of the front lens and take the worst case scenario, i.e. the maximum size image pyramid that just fits into the front lens.

For us it would be great to get CAD models with the exact location of the “viewing angle pyramids”.

Design of the Chameleon XS for the Tracking camera T265



For the T265 it was particularly difficult to design an enclosure as the image angle of the fisheye lens was specified with 163°. We decided to build an enclosure with maximum window diameter as close as possible and get it tested though Stemmer imaging.

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Testing of the T256 enclosure through Stemmer imaging



Left fisheye image without enclosure



Right fisheye image without enclosure



Left image with enclosure. Only marginal restriction if at all. Slight concentric artefacts at bottom of the image through refraction at shallow angle at the window.



Right image with enclosure. Same small refractions at the lower edge of the image.

Questions:

1. Does a minimal viewing angle restriction matters to the operation of the camera? According to Stemmer at least it doesn't.
2. Do the slight refraction lines at the edge of the image matter?
3. Does the sensor require re-calibration after mounting into the enclosure (Question also valid for D415 and D435)? Is this something your support can check if I send them the original images?

Temperature after 1 hour:



„The camera temperature remained virtually at constant 37°C during one hour of continuous testing“.