

NIR ZOOM 70XL
7:1 OPTICAL SYSTEM

630 - 2000nm
250,000 Cycles Guaranteed



OPTICALLY DESIGNED FOR NEAR-INFRARED PRECISION

Thales Optem's NIR Zoom 70XL is specifically designed for the near-infrared wavelengths used in emission microscopy and the telecommunications industry. The NIR Zoom 70XL can be used for various applications, such as aligning fibers, inspecting laser diodes, and backside viewing thin sections of silicon.

All optical components are specifically designed for 630 to 2000nm. This extremely broad spectral band is capable of satisfying most customers' applications. The NIR Zoom 70XL is parfocal throughout its zoom range and chromatically corrected for its designed spectral band. A revolutionary new anti-reflection coating is on every lens to improve contrast and increase transmission.

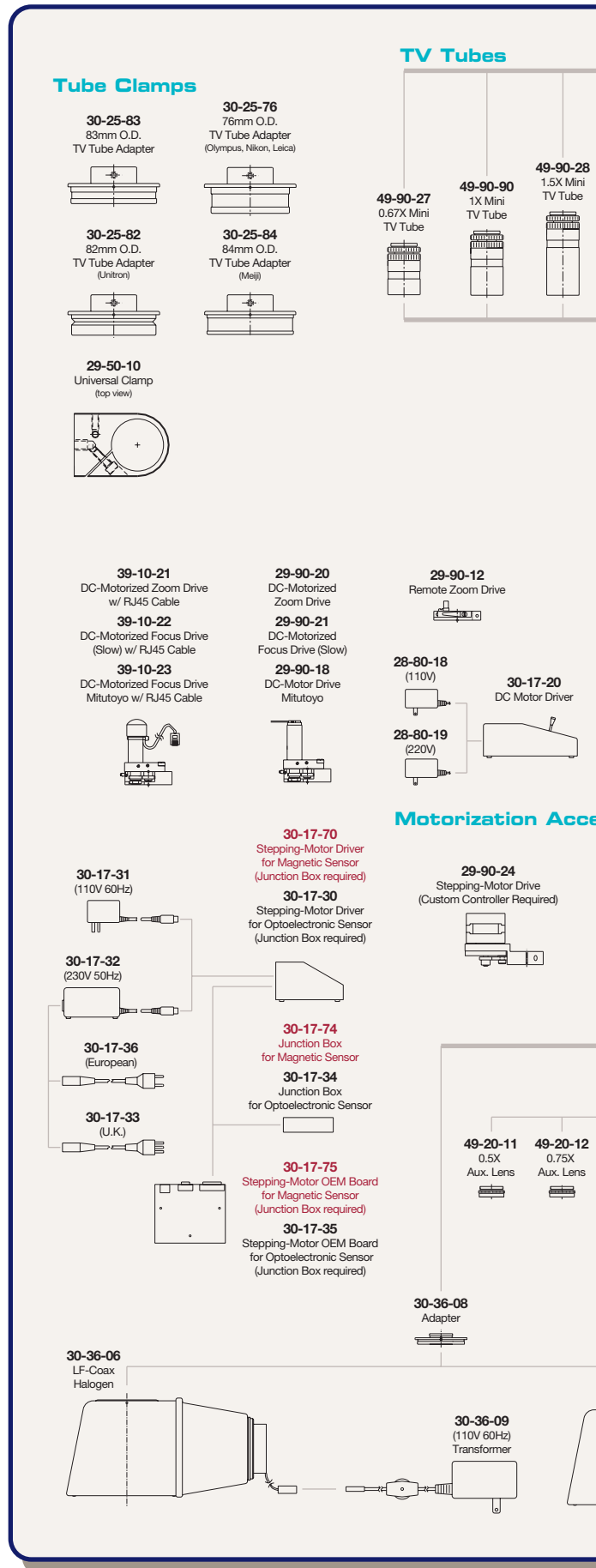
MECHANICALLY DESIGNED TO GO THE DISTANCE

Backed with superior engineering and materials the NIR Zoom 70XL Optical System represents the pinnacle in heavy-duty cycling reliability. Thales Optem guarantees a minimum of 250,000 cycles without mechanical failure! This durability makes the NIR Zoom 70XL ideal for applications where minimizing "down-time" is vital.



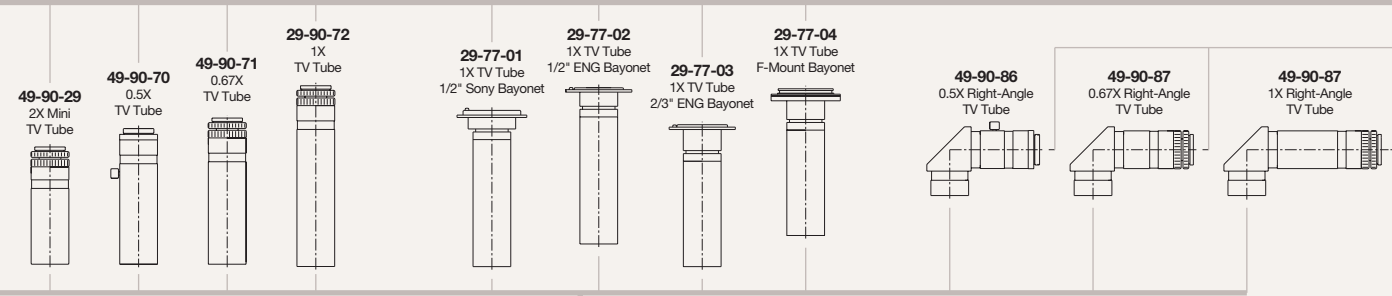
With a 7:1 core zoom ratio, and a magnification range of 0.75X – 5.25X, the NIR Zoom 70XL provides dependable, high-quality optics at an affordable price. The core zoom optics boast a numerical aperture range of 0.024 to 0.08.

Flexibility and modularity are standard features. Mix and match the Upper Zoom Modules with the Lower Function Modules for the combination that best fits your needs. Thales Optem offers a second series of Non-Modular NIR Zoom 70XL Models that are fully motorized (DC or Stepper) and are completely assembled for your immediate use.



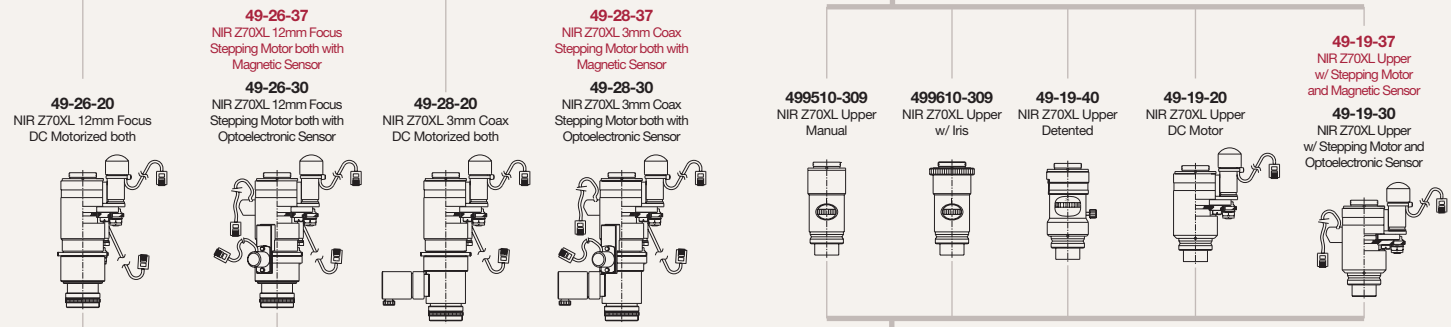
NIR ZOOM 70XL SYSTEM DIAGRAM

CONNECT CAMERA TO TV TUBE

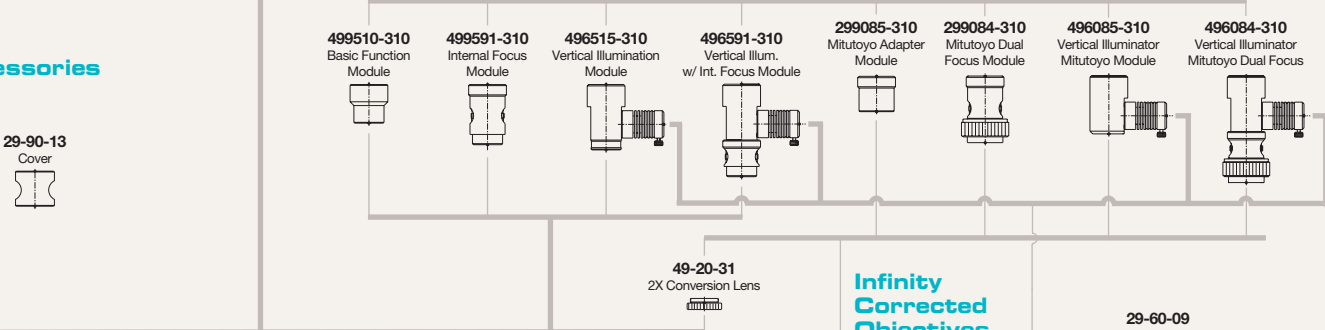


Non-Modular Zooms

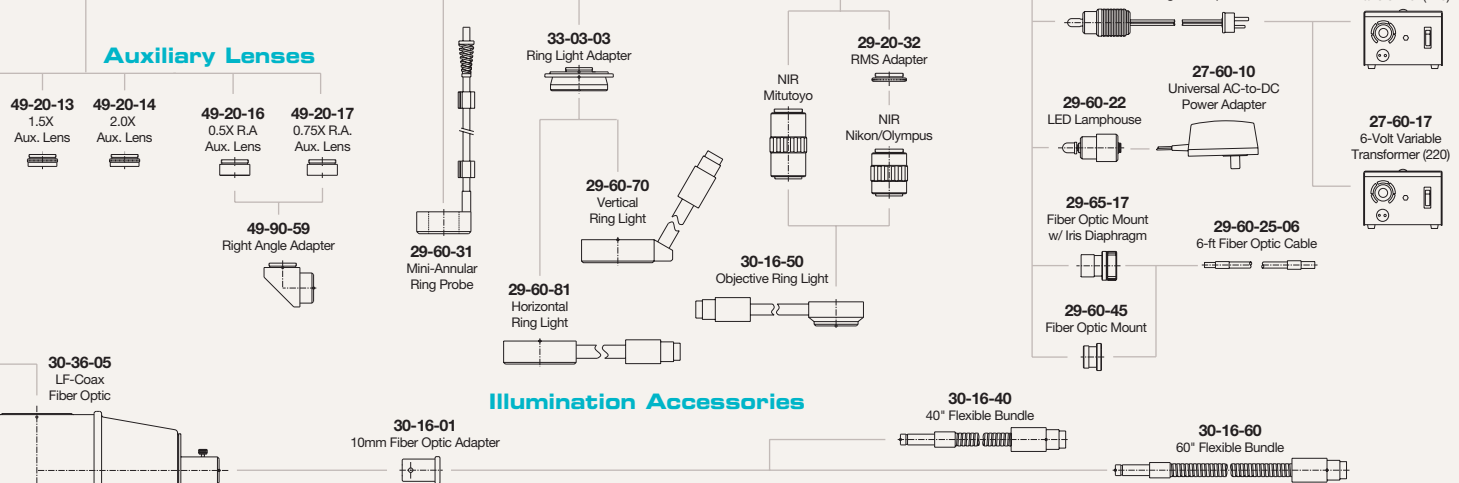
Upper Zoom Modules



Lower Function Modules



Infinity Corrected Objectives



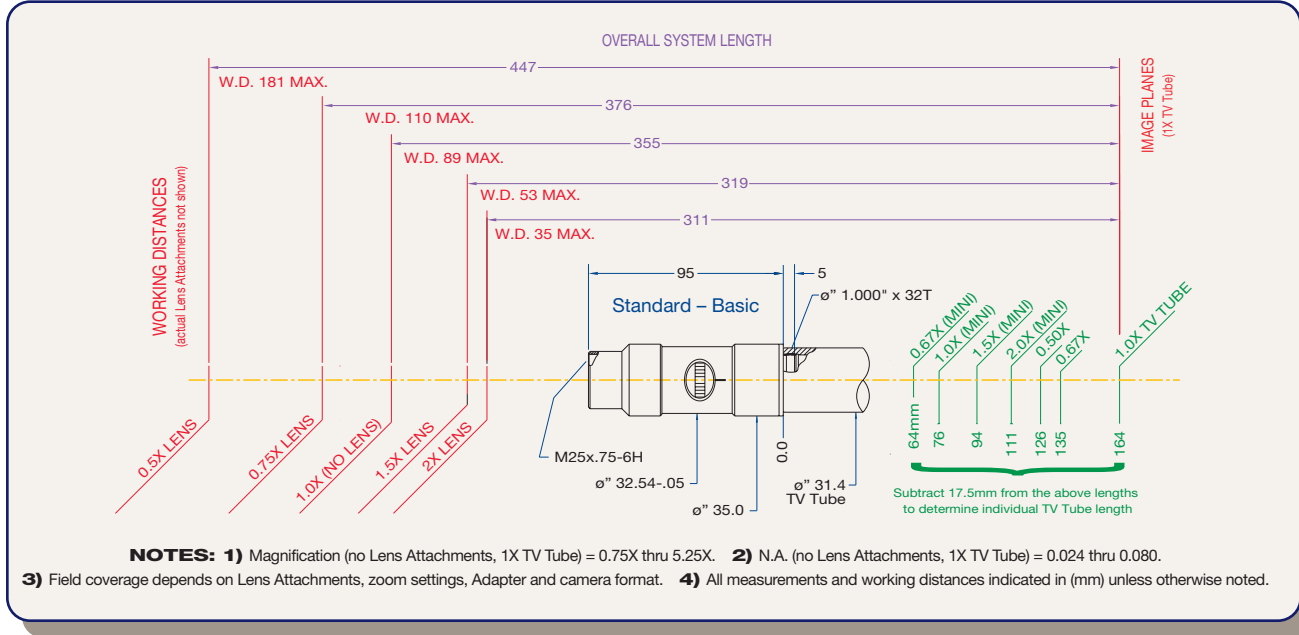
NOTE: All part numbers shown in red include, or are designed to work with, Hall Effect (Magnetic) Sensors.

OPTICAL PERFORMANCE

| AUXILIARY LENS | | 0.5X TV TUBE | | 0.67X TV TUBE | | 1.0X TV TUBE | | 1.5X TV TUBE | | 2.0X TV TUBE | | |
|------------------------------|------------------------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|---------------|-----------|
| | | Low | High | Low | High | Low | High | Low | High | Low | High | |
| 0.5X 49-20-11 | N.A. MAG. | 0.012 0.19 | 0.040 1.3 | 0.012 0.25 | 0.040 1.7 | 0.012 0.38 | 0.040 2.6 | 0.012 0.56 | 0.040 3.9 | 0.012 0.75 | 0.040 5.2 | |
| 181mm WORKING DISTANCE | F.O.V. (mm) camera format | 1/4" | 14.5x19.4 | 2.0x2.7 | 10.9x14.5 | 1.5x2.0 | 7.2x9.7 | 1.0x1.3 | 4.8x6.4 | 0.69x0.92 | 3.6x4.8 | 0.52x0.69 |
| | | 1/3" | 19.1x25.5 | 2.7x3.6 | 14.3x19.1 | 2.0x2.7 | 9.5x12.7 | 1.3x1.8 | 6.3x8.5 | 0.91x1.2 | 4.7x6.3 | 0.68x0.91 |
| | | 1/2" | 25.5x34.0 | 3.6x4.8 | 19.1x25.5 | 2.7x3.6 | 12.7x17.0 | 1.8x2.4 | 8.5x11.3 | 1.2x1.6 | 6.3x8.5 | 0.91x1.2 |
| | | 2/3" | — | — | 26.3x35.1 | 3.7x5.0 | 17.5x23.4 | 2.5x3.3 | 11.7x15.6 | 1.6x2.2 | 8.7x11.7 | 1.2x1.6 |
| 0.75X 49-20-12 | N.A. MAG. | 0.018 0.28 | 0.060 2.0 | 0.018 0.38 | 0.060 2.6 | 0.018 0.56 | 0.060 3.9 | 0.018 0.84 | 0.060 5.9 | 0.018 1.1 | 0.060 7.9 | |
| 110mm WORKING DISTANCE | F.O.V. (mm) camera format | 1/4" | 9.6x12.9 | 1.3x1.8 | 7.2x9.7 | 1.0x1.3 | 4.8x6.4 | 0.69x0.92 | 3.2x4.3 | 0.46x0.61 | 2.4x3.2 | 0.34x0.46 |
| | | 1/3" | 12.7x17.0 | 1.8x2.4 | 9.5x12.7 | 1.3x1.8 | 6.3x8.5 | 0.91x1.2 | 4.2x5.6 | 0.61x0.81 | 3.1x4.2 | 0.45x0.61 |
| | | 1/2" | 17.0x22.7 | 2.4x3.2 | 12.7x17.0 | 1.8x2.4 | 8.5x11.3 | 1.2x1.6 | 5.6x7.5 | 0.81x1.0 | 4.2x5.6 | 0.61x0.81 |
| | | 2/3" | — | — | 17.5x23.4 | 2.5x3.3 | 11.7x15.6 | 1.6x2.2 | 7.8x10.4 | 1.1x1.4 | 5.6x7.8 | 0.84x1.1 |
| 1.0X no aux. lens | N.A. MAG. | 0.024 0.38 | 0.080 2.6 | 0.024 0.50 | 0.080 3.5 | 0.024 0.75 | 0.080 5.2 | 0.024 1.1 | 0.080 7.9 | 0.024 1.5 | 0.080 10.5 | |
| 89mm WORKING DISTANCE | F.O.V. (mm) camera format | 1/4" | 7.2x9.7 | 1.0x1.3 | 5.4x7.2 | 0.78x1.0 | 3.6x4.8 | 0.52x0.69 | 2.4x3.2 | 0.34x0.46 | 1.8x2.4 | 0.26x0.34 |
| | | 1/3" | 9.5x12.7 | 1.3x1.8 | 7.1x9.5 | 1.0x1.3 | 4.7x6.3 | 0.68x0.91 | 3.1x4.2 | 0.45x0.61 | 2.3x3.1 | 0.34x0.45 |
| | | 1/2" | 12.7x17.0 | 1.8x2.4 | 9.5x12.7 | 1.3x1.8 | 6.3x8.5 | 0.91x1.2 | 4.2x5.6 | 0.61x0.81 | 3.1x4.2 | 0.45x0.61 |
| | | 2/3" | — | — | 13.1x17.5 | 1.8x2.5 | 8.7x11.7 | 1.2x1.6 | 5.8x7.8 | 0.84x1.1 | 4.3x5.8 | 0.63x0.84 |
| 1.5X 49-20-13 | N.A. MAG. | 0.036 0.56 | 0.12 3.9 | 0.036 0.75 | 0.12 5.2 | 0.036 1.1 | 0.12 7.9 | 0.036 1.7 | 0.12 11.8 | 0.036 2.3 | 0.12 15.7 | |
| 53mm WORKING DISTANCE | F.O.V. (mm) camera format | 1/4" | 4.8x6.4 | 0.69x0.92 | 3.6x4.8 | 0.52x0.69 | 2.4x3.2 | 0.34x0.46 | 1.6x2.1 | 0.23x0.30 | 1.2x1.6 | 0.17x0.23 |
| | | 1/3" | 6.3x8.5 | 0.91x1.2 | 4.7x6.3 | 0.68x0.91 | 3.1x4.2 | 0.45x0.61 | 2.1x2.8 | 0.30x0.40 | 1.5x2.1 | 0.22x0.30 |
| | | 1/2" | 8.5x11.3 | 1.2x1.6 | 6.3x8.5 | 0.91x1.2 | 4.2x5.6 | 0.61x0.81 | 2.8x3.7 | 0.40x0.54 | 2.1x2.8 | 0.30x0.40 |
| | | 2/3" | — | — | 8.7x11.7 | 1.2x1.6 | 5.8x7.8 | 0.84x1.1 | 3.9x5.2 | 0.56x0.74 | 2.9x3.9 | 0.42x0.56 |
| 2.0X 49-20-14 | N.A. MAG. | 0.048 0.75 | 0.16 5.2 | 0.048 1.0 | 0.16 7.0 | 0.048 1.5 | 0.16 10.5 | 0.048 2.3 | 0.16 15.7 | 0.048 3.0 | 0.16 21.0 | |
| 35mm WORKING DISTANCE | F.O.V. (mm) camera format | 1/4" | 3.6x4.8 | 0.52x0.69 | 2.7x3.6 | 0.39x0.52 | 1.8x2.4 | 0.26x0.34 | 1.2x1.6 | 0.17x0.23 | 0.90x1.2 | 0.13x0.17 |
| | | 1/3" | 4.7x6.3 | 0.68x0.91 | 3.5x4.7 | 0.51x0.68 | 2.3x3.1 | 0.34x0.45 | 1.5x2.1 | 0.22x0.30 | 1.1x1.5 | 0.17x0.22 |
| | | 1/2" | 6.3x8.5 | 0.91x1.2 | 4.7x6.3 | 0.68x0.91 | 3.1x4.2 | 0.45x0.61 | 2.1x2.8 | 0.30x0.40 | 1.5x2.1 | 0.22x0.30 |
| | | 2/3" | — | — | 6.5x8.7 | 0.94x1.2 | 4.3x5.8 | 0.63x0.84 | 2.9x3.9 | 0.42x0.56 | 2.1x2.9 | 0.31x0.42 |

N.A. = Numical Aperture MAG. = Magnification F.O.V. = Field-of-View "—" Indicates limited zoom range due to vignetting

NOMINAL DIMENSIONS



THALES

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