



Machine Vision Lenses

Low Magnification Video Lenses



Navitar's Machine Vision, factory automation lenses are the benchmark for which all low magnification machine vision video lenses should be measured.

Quality all metal/glass construction coupled with precision engineering and manufacturing results in optically precise video lenses for your most demanding application. Short M.O.D.'s (minimum object distance) and compact design are ideally suited for your most challenging industrial and robotic image processing application.

Navitar offers a complete selection of machine vision quality video lenses from wide angle to telephoto, all with high resolution, low distortion and even illumination across the image plane of your camera.

Available Formats

1.1" Format 12MP C-Mount Lens

4/3" Format 8MP C-Mount Lens

1" and 2/3" Format Megapixel C-Mount Lenses (up to 10MP)

1/2" Format High Resolution C-Mount Lens

SWIR 1" Format C-Mount Lens (800nm to 1900nm)

Large Format F-Mount Lens (43.3mm diag.)

Large Format F-Mount NIR Broad Band Coated Lens (400nm to 1200nm)

Manual focus and iris control with locking screws are standard on all lens models.

1.1" 12 MP C-Mount Fixed Focal Length Lenses

Resolution (Center - Edge) 160 lp/mm - 100 lp/mm

Compatible Pixelink Cameras

PL-D7512 & PL-D7912

| Part # | Focal Length (mm) | F-Stop | M.O.D. | Object Area (mm) at M.O.D. 1.1" | Object Area (mm) at M.O.D. 1" | Object Area (mm) at M.O.D. 2/3" | Lens Dimensions (mm) | Filter Diameter |
|------------|-------------------|----------|--------|---------------------------------|-------------------------------|---------------------------------|----------------------|-----------------|
| NMV-6M1.1 | 6.5 | 2.5 - 16 | 0.1 m | 256.0 x 190.0 | 231.0 x 172.0 | 157.0 x 117.0 | 84.0 x 79.1 | Ø82 P=0.75 |
| NMV-8M1.1 | 8.5 | 2.5 - 16 | 0.1 m | 184.0 x 138.0 | 167.0 x 125.0 | 115.0 x 86.0 | 64.0 x 73.36 | Ø62 P=0.75 |
| NMV-12M1.1 | 12 | 1.8 - 16 | 0.1 m | 135.0 x 101.0 | 123.0 x 92.0 | 84.0 x 63.0 | 54.0 x 73.8 | Ø52 P=0.75 |
| NMV-16M1.1 | 16 | 1.8 - 16 | 0.1 m | 102.0 x 77.0 | 93.0 x 70.0 | 64.0 x 48.0 | 43.0 x 65.7 | Ø35.5 P=0.5 |
| NMV-25M1.1 | 25 | 1.8 - 16 | 0.1 m | 64.0 x 48.0 | 58.0 x 44.0 | 40.0 x 30.0 | 45.0 x 69.4 | Ø35.5 P=0.5 |
| NMV-35M1.1 | 35 | 1.8 - 16 | 0.2 m | 84.0 x 63.0 | 76.0 x 57.0 | 52.0 x 39.0 | 45.0 x 66.0 | Ø40.5 P=0.5 |
| NMV-50M1.1 | 50 | 1.8 - 16 | 0.2 m | 59.0 x 44.0 | 54.0 x 40.0 | 37.0 x 28.0 | 45.0 x 74.5 | Ø40.5 P=0.5 |

4/3" MP C-Mount Fixed Focal Length Lenses (23mm diag.)

Resolution (Center - Edge) 160 lp/mm - 80 lp/mm

| Part # | Focal Length (mm) | F-Stop | M.O.D. | Object Area (mm) at M.O.D. 1.1" | Object Area (mm) at M.O.D. 1" | Object Area (mm) at M.O.D. 2/3" | Lens Dimensions (mm) | Filter Diameter |
|---------|-------------------|----------|--------|---------------------------------|-------------------------------|---------------------------------|----------------------|-----------------|
| 1-24719 | 8 | 2.8 - 22 | 0.1 m | 239.0 x 179.0 | 179.3 x 134.3 | 119.5 x 89.5 | 100 x 74 | Ø72 P=0.75 |
| 1-19910 | 12 | 2.0 - 22 | 0.1 m | 182.0 x 136.0 | 126.6 x 94.6 | 87.0 x 65.0 | 57 x 85 | Ø55 P=0.75 |
| 1-19911 | 16 | 2.0 - 22 | 0.1 m | 135.0 x 101.0 | 93.9 x 70.2 | 64.5 x 48.3 | 45 x 79.5 | Ø40.5 P=0.5 |
| 1-19912 | 25 | 2.0 - 16 | 0.15 m | 125.0 x 93.0 | 86.9 x 64.7 | 59.8 x 44.5 | 45 x 89 | Ø40.5 P=0.5 |
| 1-19913 | 35 | 2.0 - 16 | 0.2 m | 100.0 x 75.0 | 69.6 x 52.2 | 47.8 x 35.9 | 45 x 74 | Ø37.5 P=0.5 |
| 1-19914 | 50 | 2.0 - 22 | 0.3 m | 100.0 x 75.0 | 69.6 x 52.2 | 47.8 x 35.9 | 45 x 78 | Ø37.5 P=0.5 |

1" MP C-Mount Fixed Focal Length Lenses

Resolution (Center - Edge) 120 lp/mm - 80 lp/mm

Compatible Pixelink Cameras

PL-D759 & PL-D799

| Part # | Focal Length (mm) | F-Stop | M.O.D. | Object Area (mm) at M.O.D. 1.1" | Object Area (mm) at M.O.D. 1" | Object Area (mm) at M.O.D. 2/3" | Lens Dimensions (mm) | Filter Diameter |
|----------|-------------------|----------|--------|---------------------------------|-------------------------------|---------------------------------|----------------------|-----------------|
| NMV-6M1 | 6 | 1.8 - 16 | 0.1 m | 267.4 x 196.3 | 183.8 x 134.9 | 133.7 x 98.1 | 54 x 56.2 | none |
| NMV-8M1 | 8 | 1.4 - 16 | 0.1 m | 147.0 x 110.5 | 101.2 x 75.9 | 73.6 x 55.2 | 57 x 58 | Ø55 P=0.75 |
| NMV-12M1 | 12.5 | 1.4 - 16 | 0.3 m | 307.5 x 230.5 | 211.2 x 158.4 | 153.6 x 115.2 | 42 x 52 | Ø35.5 P=0.5 |
| NMV-16M1 | 16 | 1.4 - 16 | 0.3 m | 227.0 x 170.5 | 156.2 x 117.1 | 113.6 x 85.2 | 42 x 52.9 | Ø35.5 P=0.5 |
| NMV-25M1 | 25 | 1.4 - 16 | 0.3 m | 140.8 x 105.6 | 96.8 x 72.6 | 70.4 x 52.8 | 42 x 43 | Ø35.5 P=0.5 |
| NMV-35M1 | 35 | 1.4 - 16 | 0.3 m | 96.9 x 72.7 | 66.6 x 50.0 | 48.5 x 36.4 | 42 x 43 | Ø35.5 P=0.5 |
| NMV-50M1 | 50 | 1.4 - 16 | 0.5 m | 115.2 x 86.4 | 79.2 x 59.4 | 57.6 x 43.1 | 47.5 x 48 | Ø40.5 P=0.5 |
| NMV-75M1 | 75 | 1.8 - 16 | 1.0 m | 157.9 x 118.4 | 108.6 x 81.4 | 78.9 x 59.2 | 48 x 57 | Ø46 P=0.75 |

2/3" 10 MP C-Mount Fixed Focal Length Lenses

Resolution (Center - Edge) 200 lp/mm - 160 lp/mm

Compatible Pixelink Cameras

PL-D755 & PL-D795

| Part # | Focal Length (mm) | F-Stop | M.O.D. | Object Area (mm) at M.O.D. 2/3" | Object Area (mm) at M.O.D. 1/2" | Object Area (mm) at M.O.D. 1/3" | Lens Dimensions (mm) | Filter Diameter |
|---------|-------------------|----------|--------|---------------------------------|---------------------------------|---------------------------------|----------------------|-----------------|
| 1-19552 | 5 | 1.8 - 16 | 0.1 m | 197.0 x 147.0 | 143.2 x 107.0 | 107.4 x 80.2 | 48 x 59.4 | Ø46 P=0.75 |
| 1-19553 | 8.5 | 1.8 - 22 | 0.1 m | 133.2 x 99.6 | 96.9 x 72.4 | 72.7 x 54.3 | 36 x 56 | Ø34 P=0.5 |
| 1-19554 | 12 | 1.8 - 11 | 0.1 m | 80.7 x 60.2 | 58.7 x 43.8 | 44.0 x 32.8 | 33 x 52.5 | Ø25.5 P=0.5 |
| 1-19555 | 16 | 1.8 - 16 | 0.1 m | 61.1 x 45.7 | 44.4 x 33.2 | 33.2 x 24.9 | 33 x 47.5 | Ø25.5 P=0.5 |
| 1-19556 | 25 | 1.8 - 16 | 0.1 m | 36.7 x 27.5 | 26.7 x 20.0 | 20.0 x 15.0 | 33 x 45.5 | Ø25.5 P=0.5 |
| 1-19557 | 35 | 2.0 - 16 | 0.1 m | 23.4 x 17.6 | 17.0 x 12.8 | 12.8 x 9.6 | 43 x 49 | Ø34 P=0.5 |
| 1-19558 | 50 | 2.8 - 16 | 0.1 m | 19.1 x 14.3 | 13.9 x 10.4 | 10.4 x 7.8 | 38 x 77 | Ø30.5 P=0.5 |

2/3" 5 MP C-Mount Fixed Focal Length Lenses

Resolution (Center - Edge) 160lp/mm - 125 lp/mm

Compatible Pixelink Cameras

PL-D755 & PL-D795

| Part # | Focal Length (mm) | F-Stop | M.O.D. | Object Area (mm) at M.O.D. 2/3" | Object Area (mm) at M.O.D. 1/2" | Object Area (mm) at M.O.D. 1/3" | Lens Dimensions (mm) | Filter Diameter |
|---------|-------------------|----------|--------|---------------------------------|---------------------------------|---------------------------------|----------------------|-----------------|
| 1-24830 | 12.5 | 1.4 - 16 | 0.1 m | 81.4 x 60.9 | 59.2 x 44.3 | 44.4 x 33.2 | 38.5 x 52.0 | Ø30.5 P=0.5 |
| 1-24831 | 16 | 1.4 - 16 | 0.1 m | 64.6 x 48.4 | 47.0 x 35.2 | 35.2 x 26.4 | 38.5 x 52.0 | Ø30.5 P=0.5 |
| 1-24832 | 25 | 1.6 - 16 | 0.1 m | 35.1 x 26.3 | 25.5 x 19.1 | 19.1 x 14.3 | 38.5 x 45.5 | Ø30.5 P=0.5 |
| 1-24833 | 35 | 1.6 - 16 | 0.18 m | 42.1 x 31.6 | 30.6 x 23.0 | 23.0 x 17.2 | 38.5 x 48.0 | Ø30.5 P=0.5 |

2/3" MP C-Mount Fixed Focal Length Lenses

Resolution (Center - Edge) 120lp/mm - 100 lp/mm

Compatible Pixelink Cameras

PL-D753, PL-D755 & PL-D795

| Part # | Focal Length (mm) | F-Stop | M.O.D. | Object Area (mm) at M.O.D. 2/3" | Object Area (mm) at M.O.D. 1/2" | Object Area (mm) at M.O.D. 1/3" | Lens Dimensions (mm) | Filter Diameter |
|------------|-------------------|-------------|--------|---------------------------------|---------------------------------|---------------------------------|----------------------|-----------------|
| NMV-5M23 | 5 | 2.8 - 16 | 0.05 m | 196.8 x 147.6 | 110.0 x 105.0 | 82.0 x 78.0 | 42.0 x 38.7 | Ø40.5 P=0.5 |
| NMV-8M23 | 8 | 1.4 - close | 0.12 m | 117.3 x 88.0 | 84.0 x 63.0 | 63.0 x 47.0 | 34.0 x 41.6 | Ø27 P=0.5 |
| NMV-12M23 | 12 | 1.4 - close | 0.15 m | 110.0 x 82.5 | 79.0 x 59.0 | 59.0 x 44.0 | 34.0 x 37.0 | Ø27 P=0.5 |
| NMV-16M23 | 16 | 1.4 - 16 | 0.2 m | 112.8 x 84.4 | 81.5 x 61.0 | 60.0 x 45.0 | 33.0 x 36.5 | Ø27 P=0.5 |
| NMV-25M23 | 25 | 1.4 - 16 | 0.2 m | 71.1 x 53.3 | 51.0 x 38.0 | 38.0 x 28.0 | 33.0 x 39.5 | Ø27 P=0.5 |
| NMV-35M23 | 35 | 2.0 - 16 | 0.2 m | 47.9 x 35.8 | 33.0 x 26.0 | 25.0 x 19.0 | 34.0 x 36.5 | Ø27 P=0.5 |
| NMV-50M23 | 50 | 2.8 - 22 | 0.2 m | 29.3 x 21.9 | 21.0 x 16.0 | 16.0 x 12.0 | 34.0 x 55.0 | Ø27 P=0.5 |
| NMV-75M23 | 75 | 2.5 - 22 | 1.2 m | 132 x 99 | 96.6 x 72.5 | | 36.0 x 56.4 | Ø34 P=0.5 |
| NMV-100M23 | 100 | 2.8 - close | 2.0 m | 168.8 x 126.6 | 122.7 x 92.0 | | 42.0 x 75.0 | Ø40.5 P=0.5 |

2/3" High Resolution C-Mount Fixed Focal Length Lenses

Resolution (Center - Edge) 100lp/mm - 60 lp/mm

Compatible Pixelink Cameras

PL-D753 & PL-D752

| Part # | Focal Length (mm) | F-Stop | M.O.D. | Object Area (mm) at M.O.D. 2/3" | Object Area (mm) at M.O.D. 1/2" | Object Area (mm) at M.O.D. 1/3" | Lens Dimensions (mm) | Filter Diameter |
|--------|-------------------|----------|--------|---------------------------------|---------------------------------|---------------------------------|----------------------|-----------------|
| NMV-6 | 6 | 1.4 - 16 | 0.1 m | 367 x 251 | 264 x 181 | 198 x 136 | 30 x 32.8 | none |
| NMV-8 | 8 | 1.4 - 16 | 0.1 m | 260 x 184 | 187 x 132 | 140 x 99 | 30 x 30 | Ø27 P=0.5 |
| NMV-12 | 12 | 1.4 - 16 | 0.1 m | 237 x 173 | 170 x 125 | 127 x 93 | 30 x 31.5 | Ø27 P=0.5 |
| NMV-16 | 16 | 1.4 - 16 | 0.2 m | 112 x 83 | 80 x 60 | 60 x 45 | 30 x 28 | Ø27 P=0.5 |
| NMV-25 | 25 | 1.6 - 16 | 0.2 m | 119 x 89 | 86 x 64 | 64 x 48 | 30 x 28.5 | Ø27 P=0.5 |
| NMV-35 | 35 | 1.6 - 16 | 0.35 m | 127 x 95 | 91 x 68 | 68 x 51 | 32 x 36.5 | Ø30.5 P=0.5 |
| NMV-50 | 50 | 2.0 - 22 | 0.5 m | 85 x 64 | 61 x 46 | 46 x 34 | 32 x 39.5 | Ø30.5 P=0.5 |

1/2" High Resolution C-Mount Wide-Angle Fixed Focal Length Lenses

Resolution (Center - Edge) 100 lp/mm - 60 lp/mm

Compatible Pixelink Cameras

PL-D721 & PL-D721P

| Part # | Focal Length (mm) | F-Stop | M.O.D. | Object Area (mm) at M.O.D. 1/2" | Object Area (mm) at M.O.D. 1/3" | Object Area (mm) at M.O.D. 1/4" | Lens Dimensions (mm) | Filter Diameter |
|----------|-------------------|----------|--------|---------------------------------|---------------------------------|---------------------------------|----------------------|-----------------|
| NMV-4WA | 3.5 | 1.4 - 16 | 0.2 m | 396.0 x 247.0 | 297.0 x 185.0 | 198.0 x 123.0 | 31 x 30.5 | none |
| NMV-5WA | 4.5 | 1.4 - 16 | 0.2 m | 260.0 x 180.0 | 195.0 x 135.0 | 130.0 x 90.0 | 31 x 29.5 | none |
| NMV-6WA | 6 | 1.4 - 16 | 0.2 m | 174.0 x 128.0 | 130.0 x 96.0 | 87.0 x 64.0 | 31 x 34 | Ø25.5 P=0.5 |
| NMV-12WA | 12 | 2.8 - 32 | 0.3 m | 167.0 x 123.0 | 125.0 x 92.0 | 83.0 x 61.0 | 31 x 29.5 | Ø30.5 P=0.5 |

Ruggedized Lenses

| 1" C-Mount Fixed Focal Length Lenses | | | | | | | Compatible Pixelink Cameras PL-D759 & PL-D799 | |
|---|-------------------|-----------------|--------|-------------------------------|---------------------------------|----------------------|--|--|
| Resolution (Center - Edge) 120 lp/mm - 80 lp/mm | | | | | | | | |
| Part # | Focal Length (mm) | F-Stop | M.O.D. | Object Area (mm) at M.O.D. 1" | Object Area (mm) at M.O.D. 2/3" | Lens Dimensions (mm) | Filter Diameter | |
| 1-26382 | 8 | F1.4/F2.8/F4/F8 | 0.1 m | 196 x 143 | 130 x 96 | 58 x 58 | Ø55 P=0.75 | |
| 1-26383 | 12.5 | F1.4/F2.8/F4/F8 | 0.3 m | 330.6 x 243.5 | 222.4 x 165.2 | 44 x 51.5 | Ø35.5 P=0.5 | |
| 1-26384 | 16 | F1.4/F2.8/F4/F8 | 0.3 m | 251.5 x 186.2 | 170.3 x 126.8 | 43 x 53 | Ø35.5 P=0.5 | |
| 1-26385 | 25 | F1.4/F2.8/F4/F8 | 0.3 m | 160.7 x 119.2 | 109.1 x 81.4 | 43 x 43 | Ø35.5 P=0.5 | |
| 1-26386 | 35 | F1.4/F2.8/F4/F8 | 0.3 m | 110.1 x 82 | 75.2 x 56.2 | 46 x 44 | Ø35.5 P=0.5 | |
| 1-26387 | 50 | F1.4/F2.8/F4/F8 | 0.5 m | 121.8 x 91.3 | 83.8 x 62.9 | 50 x 48 | Ø40.5 P=0.5 | |

| 2/3" C-Mount Fixed Focal Length Lenses | | | | | | | Compatible Pixelink Cameras PL-D755 & PL-D795 | |
|--|-------------------|----------------|--------|---------------------------------|---------------------------------|----------------------|--|--|
| Resolution (Center - Edge) 120 lp/mm - 100 lp/mm | | | | | | | | |
| Part # | Focal Length (mm) | F-Stop | M.O.D. | Object Area (mm) at M.O.D. 2/3" | Object Area (mm) at M.O.D. 1/2" | Lens Dimensions (mm) | Filter Diameter | |
| 1-25551 | 8 | F1.4/F4/F8/F16 | 0.1 m | 56.5 x 43.9 | 42.6 x 32.5 | 33.0 x 41.6 | Ø27 P=0.5 | |
| 1-25552 | 12 | F1.4/F4/F8/F16 | 0.15 m | 38.3 x 29.1 | 28.3 x 21.4 | 33.0 x 37.0 | Ø27 P=0.5 | |
| 1-25553 | 16 | F1.4/F4/F8/F16 | 0.2 m | 30.0 x 22.7 | 21.8 x 16.4 | 33.0 x 36.5 | Ø27 P=0.5 | |
| 1-25554 | 25 | F1.4/F4/F8/F16 | 0.2 m | 19.6 x 14.8 | 14.0 x 10.5 | 33.0 x 39.5 | Ø27 P=0.5 | |
| 1-25555 | 35 | F1.6/F4/F8/F16 | 0.2 m | 14.4 x 10.8 | 10.5 x 7.9 | 33.0 x 37.8 | Ø27 P=0.5 | |
| 1-25556 | 50 | F1.6/F4/F8/F16 | 0.2 m | 9.6 x 7.2 | 7.0 x 5.2 | 33.0 x 56.2 | Ø27 P=0.5 | |

SWIR Lenses

| SWIR 1" MP C-Mount Fixed Focal Length Lenses 800nm to 1900nm Transmission | | | | | | | | |
|---|-------------------|----------|--------|---------------------------------|---------------------------------|---------------------------------|----------------------|-----------------|
| Resolution (Center - Edge) 100 lp/mm - 60 lp/mm | | | | | | | | |
| Part # | Focal Length (mm) | F-Stop | M.O.D. | Object Area (mm) at M.O.D. 1/2" | Object Area (mm) at M.O.D. 1/3" | Object Area (mm) at M.O.D. 1/4" | Lens Dimensions (mm) | Filter Diameter |
| SWIR-8 | 8 | 1.4 - 16 | 0.1 m | 147.0 x 110.5 | 101.2 x 75.9 | 73.6 x 55.2 | 57 x 58 | Ø55 P=0.75 |
| SWIR-12 | 12.5 | 1.4 - 16 | 0.3 m | 307.5 x 230.5 | 211.2 x 158.4 | 153.6 x 115.2 | 43 x 51.5 | Ø35.5 P=0.5 |
| SWIR-16 | 16 | 1.4 - 16 | 0.3 m | 227.0 x 170.5 | 156.2 x 117.1 | 113.6 x 85.2 | 43 x 52.9 | Ø35.5 P=0.5 |
| SWIR-25 | 25 | 1.4 - 16 | 0.4 m | 192.0 x 144.0 | 132.0 x 99.0 | 96.0 x 72.0 | 43 x 43 | Ø35.5 P=0.5 |
| SWIR-35 | 35 | 1.4 - 16 | 0.4 m | 133.5 x 100.1 | 91.8 x 68.8 | 66.7 x 50.0 | 43 x 43 | Ø35.5 P=0.5 |
| SWIR-50 | 50 | 1.4 - 16 | 0.6 m | 140.8 x 105.6 | 96.8 x 72.6 | 70.4 x 52.8 | 49 x 48 | Ø40.5 P=0.5 |

Large Format 43.3mm Diagonal Sensor Coverage

| F-Mount Fixed Focal Length Lenses | | | | | | |
|---|-------------------|----------|--------|----------------------|--|-----------------|
| Resolution (Center - Edge) 200 lp/mm - 63 lp/mm (M48 x 0.75 Mount – Call for More Info) | | | | | | |
| Part # | Focal Length (mm) | F-Stop | M.O.D. | Lens Dimensions (mm) | | Filter Diameter |
| 1-19711 | 28 | 2.8 - 16 | 0.30 m | 75 x 98 | | Ø72 P=0.75 |
| 1-19712 | 35 | 2.8 - 16 | 0.26 m | 57.5 x 71 | | Ø52 P=0.75 |
| 1-19713 | 50 | 2.8 - 16 | 0.26 m | 57.5 x 77 | | Ø52 P=0.75 |

| F-Mount Fixed Focal Length Lens - NIR Broad Band Coated (400-1200nm) | | | | | | |
|--|-------------------|----------|--------|----------------------|--|-----------------|
| Resolution (Center - Edge) 160 lp/mm - 64 lp/mm (M42 x 1 P-Mount – Call for More Info) | | | | | | |
| Part # | Focal Length (mm) | F-Stop | M.O.D. | Lens Dimensions (mm) | | Filter Diameter |
| 1-19909 | 50 | 1.9 - 16 | 0.5 m | 58.5 x 105.2 | | Ø52 P=0.75 |

Visit navitar.com for additional lens solutions available from Fujinon, Kowa and Zeiss.

