



Non-Telecentric Macro Lenses

ML-N Series

- $\varnothing 16$, COMPACT BODY
- HIGH RESOLUTION AND LOW TV DISTORTION
- REASONABLE PRICES
- Best matching with peripherals



ML-N Series lenses were developed to be compact, high performance models. Based on many years of experience producing MMLs (Machine Micro Lens), Moritex adopted the non-telecentric optical system as the lens design for this series. By limiting the number of lenses in each layer to less than 3, we have succeeded in developing high performance models at reasonable prices.

Magnification and working distances can be tailored to your needs by using an optional Close-Up ring adapter.



Non-Telecentric Macro Lenses

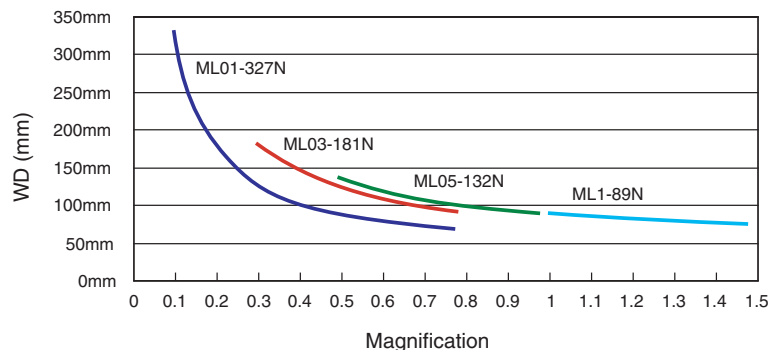
Model	Magnification	WD (mm)	Resolution	Depth of field	Effective Fno	TV distortionL	Largest compatible CCD	Weight	Mount Sold separately	Commodity code
ML01-327N	x 0.1 \pm 5%	327.7 \pm 16.4	33.9 μ m	37.66mm	4.71	0.4%or less	1/2"	10g	C-mount	A-0133
ML03-181N	x 0.3 \pm 5%	181.3 \pm 9.1	14.6 μ m	5.43mm	6.11	0.2%or less	1/2"	15g	C-mount	A-0134
ML05-132N	x 0.5 \pm 5%	132.5	11.7 μ m	1.95mm	6.08	0.08%or less	1/2"	18g	C-mount	A-0131
ML1-89N	x 1 \pm 5%	89.6	7.9 μ m	0.7mm	8.82	0.04%or less	1/2"	15g	C-mount	A-0132

*Depth of field is calculated assuming a horizontal 240 TV resolution using a 1/2" CCD camera. (Permissible circle of confusion on the image-formation side: 40 μ m)

■ The magnification can be changed by using the ML-EXR Series close-up rings.

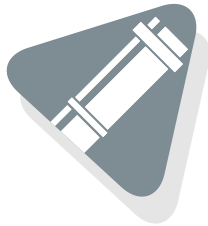
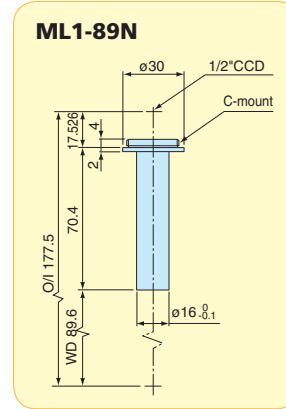
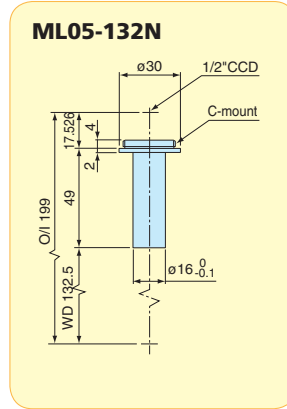
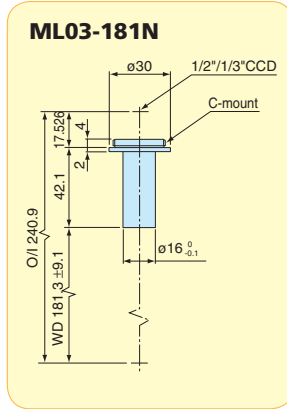
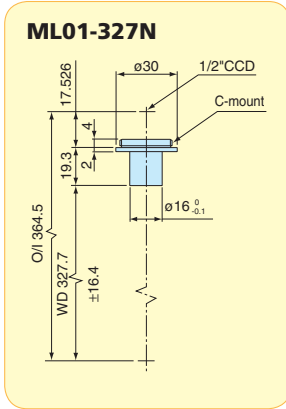


Reference magnification and WD data for close-up ring combinations



Magnification conversion table

Model	Close-up ring thickness	0mm	1mm	2mm	5mm	7mm	10mm	15mm	17mm	20mm
ML01-327N	Magnification	0.1x	0.13x	0.17x	0.27x	0.33x	0.43x	0.6x	0.67x	0.77x
	WD	327.7mm	253mm	204mm	138.8mm	118.6mm	97.5mm	77.7mm	72.5mm	67.2mm
ML03-181N	Magnification	0.3x	0.32x	0.35x	0.42x	0.47x	0.54x	0.65x	0.7x	0.77x
	WD	181.3mm	170mm	162mm	140.7mm	131mm	119mm	104.6mm	100mm	94.6mm
ML05-132N	Magnification	0.5x	0.53x	0.55x	0.62x	0.66x	0.73x	0.85x	0.9x	0.97x
	WD	132.5mm	128.4mm	125mm	116.3mm	111.3mm	105.2mm	97.4mm	94.2mm	91mm
ML1-89N	Magnification	1x	1.02x	1.05x	1.12x	1.16x	1.2x	1.35x	1.4x	1.47x
	WD	89mm	88mm	87mm	85mm	83.5mm	81.5mm	78.5mm	77.3mm	75.9mm

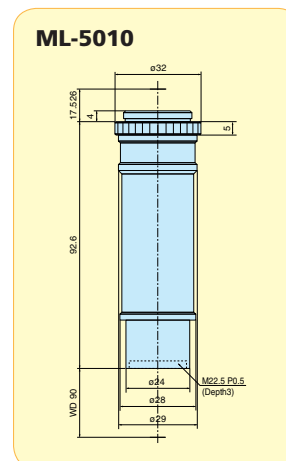
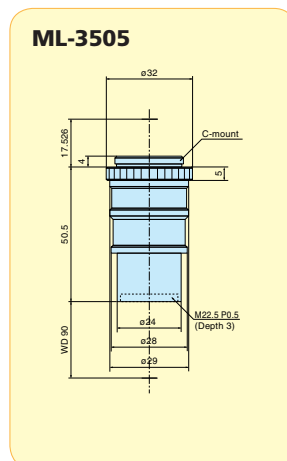
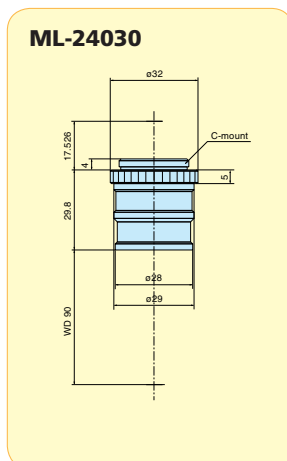
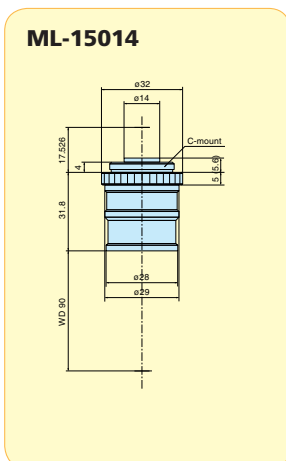


Low Magnification Macro Lenses

Small, high-resolution macro lenses to be mounted directly on a machines. Working distance of all models is 90mm.



Low magnification macro lenses



Model	Magnification	Effective Fno	WD	Depth of field	Resolution	TV distortion	Weight	Largest compatible CCD	Mount	Commodity code
ML-15014	x 0.14	4.6	90mm	18mm	36µm	0.1% or less	28g	2/3"	C-mount	A-0127
ML-24030	x 0.3	7.3	90mm	6.5mm	21µm	0.1% or less	39g	2/3"	C-mount	A-0128
ML-3505	x 0.5	8.4	90mm	2.7mm	13µm	0.1% or less	55g	2/3"	C-mount	A-0129
ML-5010	x 1	8	90mm	0.6mm	6.3µm	0.1% or less	68g	2/3"	C-mount	A-0130

*Depth of field is calculated assuming a horizontal 240 TV resolution using a 1/2" CCD camera. (Permissible circle of confusion on the image-formation side: 40µm).