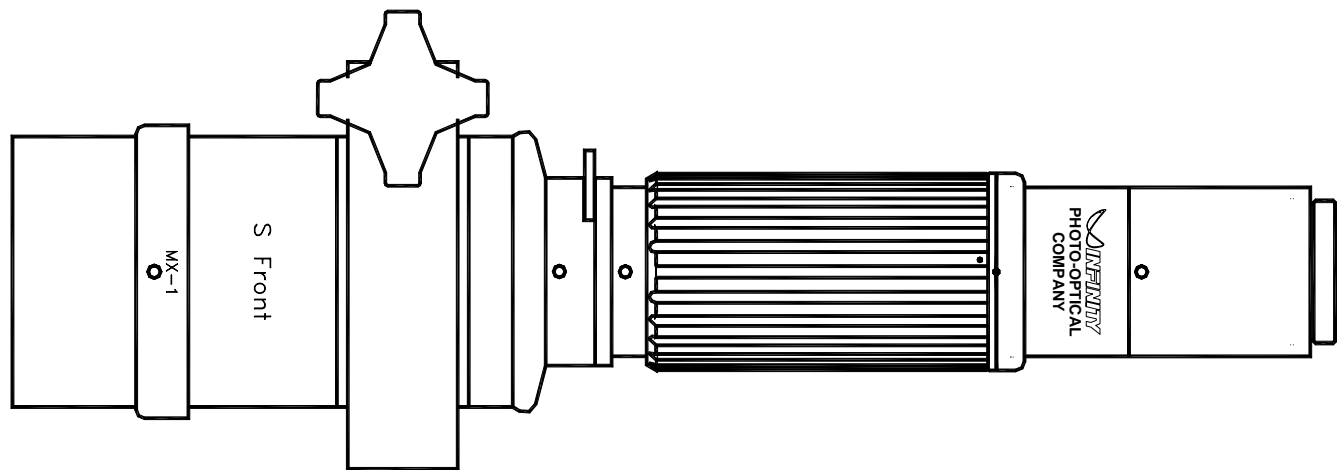


# Long Distance Microscope System

## CentriMax™



 **INFINITY** Photo-Optical Company • *Manufacturers of precision optical instruments.*

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## CentriMax/S Long-Distance Microscope

**General Description.** The CentriMax/S™ is Infinity's premier all-inclusive CentriTel™ system long-distance microscope. Due to its incorporated CentriTel™ system, CentriMax/S can be brought to a selected working distance and field of view. Then, by using the internal focus adjustment, the focal depth can be ranged without essential magnification change—from a fixed position. This allows both precise "montaging" and precise dimensional measurements. The instructions now provided are specifically for the manual focusing version; however, we can supply CentriMax for motorized uses.

CentriMax/S can be used *directly* with all video formats up to 2/3-in. Then, by adding the Large Format Adapter (LFA), it can be used with video sensors of 4/3-in. and larger. When the LFA is used, all operating ranges are maintained, but the image is additionally amplified by 3x.

CentriMax/S provides resolution second only to Infinity's world-standard Model K2/SC Long-Distance Microscope. In fact, it is substantially superior to *any other* long-distance microscope with the *exception* of the K2/SC. This makes the CentriMax/S an outstanding value within its performance envelope.

Six MX-series objectives attach directly to the CentriMax/S Main body to obtain six magnification/working distance range choices. Once a working distance and field of view are chosen, the focus can be ranged (CentriTel function) without essential magnification change—an exclusive feature. Because all focusing is accomplished internally, CentriMax/S maintains constant external dimensions.

CentriMax/S comes equipped with the S Front for use with all MX-series objectives and, by adaptation, for use with any infinity-corrected objectives from Infinity Photo-Optical (Achromid™), Edmund, Mitutoyo, Olympus and Nikon. The magnification factor is then generally 2x the objective's rated power, making CentriMax/S ideal for direct camera coupling without the *absolute* need for any additional optics or amplification of the magnification. However, since the CentriMax can not "anticipate" the characteristics of each and every microscope objective made by other manufacturers, it may or may not maintain the exact CentriTel function during focal translation when these are used. In such cases, the function is very similar to Infinity's InFocus™ system as used on our Model KC/S.

A specific Z Front can be ordered which replaces the S Front. The Z Front provides the proper spherical and color corrections when Zeiss ICS™ objectives are used on CentriMax/S. It is not recommended to use Zeiss ICS objectives with the S Front, since the incompatibility (which is corrected by using the Z Front) will result in imagery which is more or less degraded from the optimal.

**Formats.** CentriMax/S is able to cover up to 2/3-in. sensors directly. When the supplemental LFA is attached, it can be used with sensors up to 4/3-in. and larger. We can advise on how to equip CentriMax/S for even larger formats as needed.

**Mounts.** CentriMax/S comes equipped with a Large Mounting Clamp that can slip over the Main Body at any convenient position and lock in place. It has one central 1/4-20 tap and two "outboard" M4 taps. A 24mm spacer on the Main Body can be exchanged with various stereomicroscope stand mounts (see Price List). Additional Large Mounting Clamps can be used on the MX-series objectives and on the Z-Front to further secure the system.

**Focus Lock.** A #4-40 locking setscrew ("metal-colored") is located at the bottom of the focus ring. Tightening it locks the focus rotation.

**Aperture Control.** The CentriMax/S is equipped with a variable iris diaphragm to control aperture and light intensity. Like all microscopes, the CentriMax/S functions optimally when the iris is activated just enough to cause a noticeable "contrast jump." This point almost always establishes the best overall contrast and *usable* (as opposed to "statistical") resolution. Likewise, this point is almost always at or near 3/4 of the full aperture and is known in reputable microscope texts as the "Nelson Rule." As the CentriMax/S is used progressively closer, the aperture may require the Nelson Rule to be progressively re-established as well. This constitutes the proper use of the iris diaphragm per "classical" microscopical technique—and CentriMax/S is no exception.

**Coaxial Illuminator.** CentriMax/S can be used with the Coaxial Illuminator to illuminate highly-reflective, flat objects with our IF-3, IF-4, Achromat™ and infinity-corrected microscope objectives made by other manufacturers. The Coaxial Illuminator adapts to the S Front when the Microscope Objective Step Down Adapter is interfaced and attaches *directly* when the Z Front is used with Zeiss ICS objectives. Suitable microscope objective adapters mount to its bottom side. A 0.312-in. diameter fiber guide fits into the side collector. For objectives up to 10x magnification, Collector I gives the best overall results. Collector II is designed to illuminate objectives of 10x or greater; however, it can also be used reasonably with objectives of 2x and more.

**Care and Cleaning.** The CentriMax/S should be treated as the fine optical instrument that it is. Care should be taken to keep dust and dirt off the external lens surfaces. The unit can be cleaned (metal parts only) by a cloth *slightly* moistened with alcohol. The external optical surfaces should be cleaned only when necessary by a soft cotton swab moistened by an approved optical glass cleaner. If you have further questions, please contact Infinity Photo-Optical Company or our authorized dealer

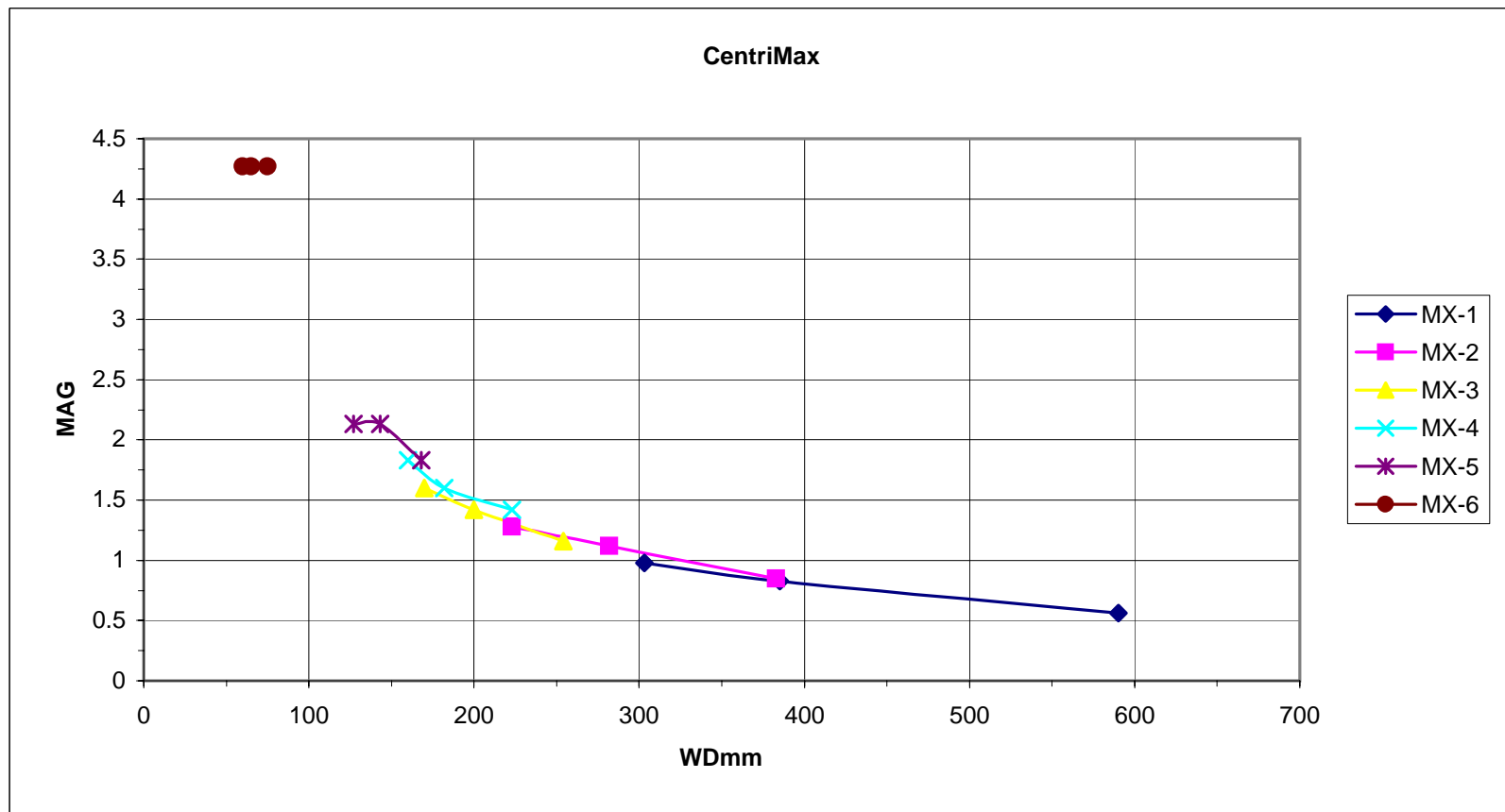
# Video Formats

Format	Factor	Diagram
1/4"	0.5	
1/3"	0.75	
1/2"	1.0	
2/3"	1.375	
1"	2.0	

Unless otherwise noted all data is given for 1/2" camera sensors. For FOV or magnification in other sensor sizes use the factors listed. For example, a FOV of 25mm listed for a 1/3" camera would be  $25 \times 0.75 = 18.75\text{mm}$ .

# CentriMax™ OPTICAL DATA

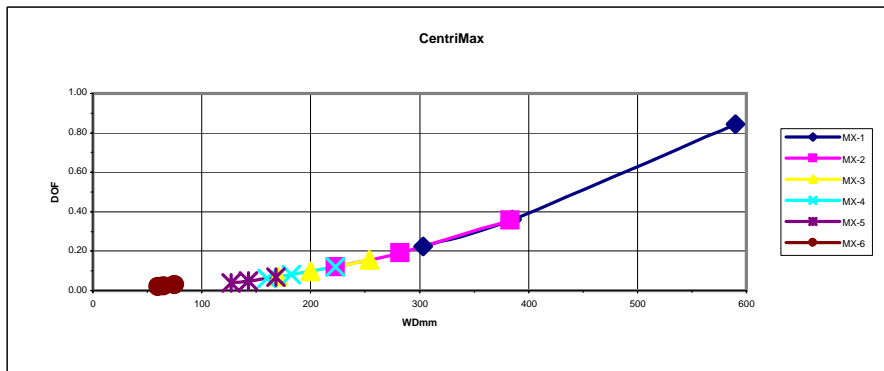
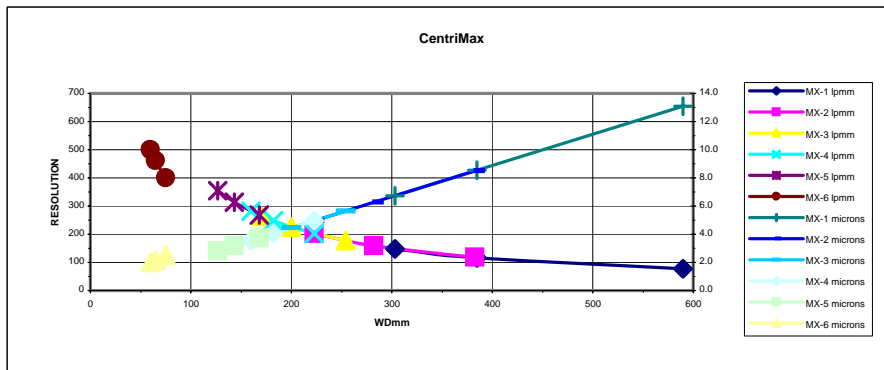
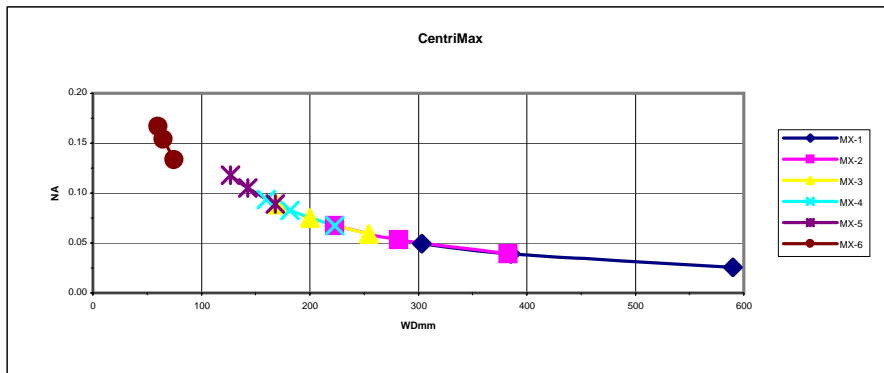
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		Near	Mid	Far	Near	Mid	Far	Near	Mid	Far	Near	Mid	Far	Near	Mid	Far	Near	Mid	Far
	WDmm	303	385	590	223	282	383	170	200	254	160	182	223	127	143	168	60	65	75
	MAG	0.98	0.83	0.56	1.28	1.12	0.85	1.6	1.42	1.16	1.83	1.6	1.42	2.13	2.13	1.83	4.27	4.27	4.27
	FOVmm	6.5	7.7	11.4	5.0	5.7	7.5	4.0	4.5	5.5	3.5	4.0	4.5	3.0	3.0	3.5	1.5	1.5	1.5



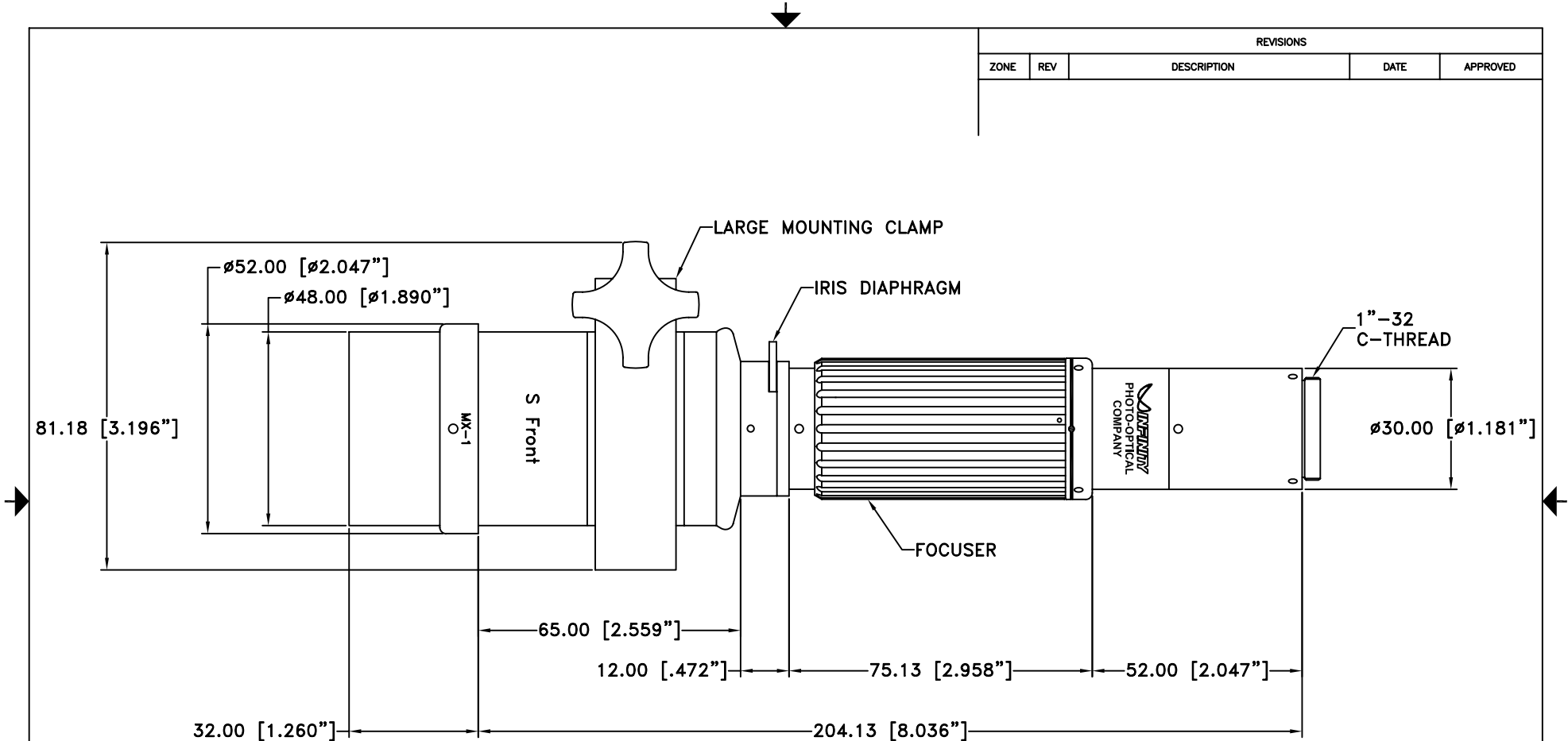
Field of View for 1/2-in. CCD Format camera.

# CentriMax™ OPTICAL RESOLUTION DATA

CentriMax	Objective	MX-1			MX-2			MX-3			MX-4			MX-5			MX-6		
		Near	Mid	Far	Near	Mid	Far	Near	Mid	Far	Near	Mid	Far	Near	Mid	Far	Near	Mid	Far
	WDmm	303	385	590	223	282	383	170	200	254	160	182	223	127	143	168	60	65	75
	MAG	0.98	0.83	0.56	1.28	1.12	0.85	1.6	1.42	1.16	1.83	1.6	1.42	2.13	2.13	1.83	4.27	4.27	4.27
	NA	0.05	0.04	0.03	0.07	0.05	0.04	0.09	0.08	0.06	0.09	0.08	0.07	0.12	0.10	0.09	0.17	0.15	0.13
	Resolution (lpmm)	149	117	76	202	160	117	265	225	177	281	247	202	354	315	268	500	462	400
	Resolution (microns)	6.7	8.6	13.1	5.0	6.3	8.5	3.8	4.4	5.6	3.6	4.0	5.0	2.8	3.2	3.7	2.0	2.2	2.5
	DOFmm	0.22	0.36	0.84	0.12	0.19	0.36	0.07	0.10	0.16	0.06	0.08	0.12	0.039	0.049	0.068	0.019	0.023	0.030



REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED



**NOTE:**

1. CENTRIMAX SHOWN WITH MX-1 OBJECTIVE.

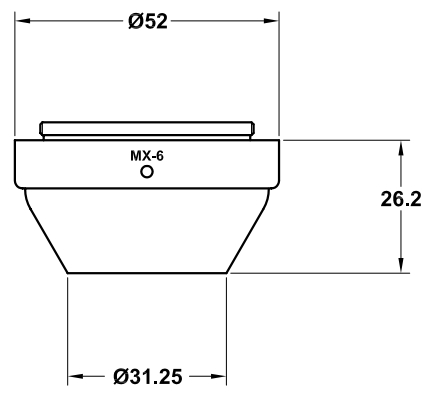
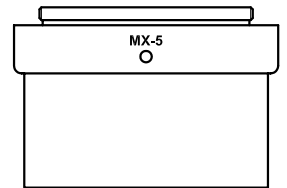
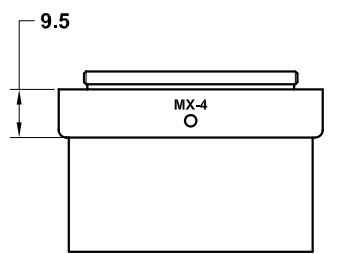
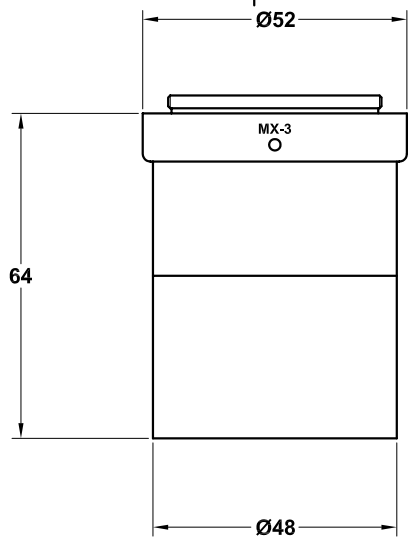
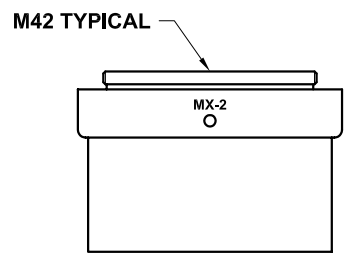
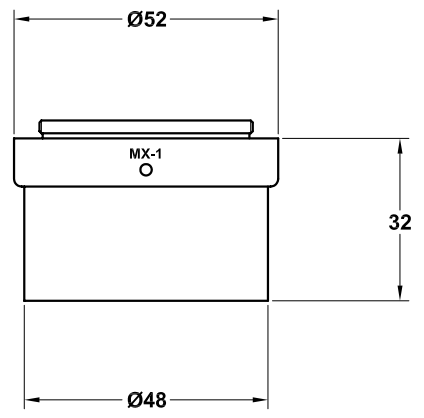
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**CENTRIMAX S**

Date: 07/23/08 MB	SIZE B	FSCM NO.	DWG NO. -	REV -
Modified:	SCALE NONE	-	SHEET 1 OF 1	

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

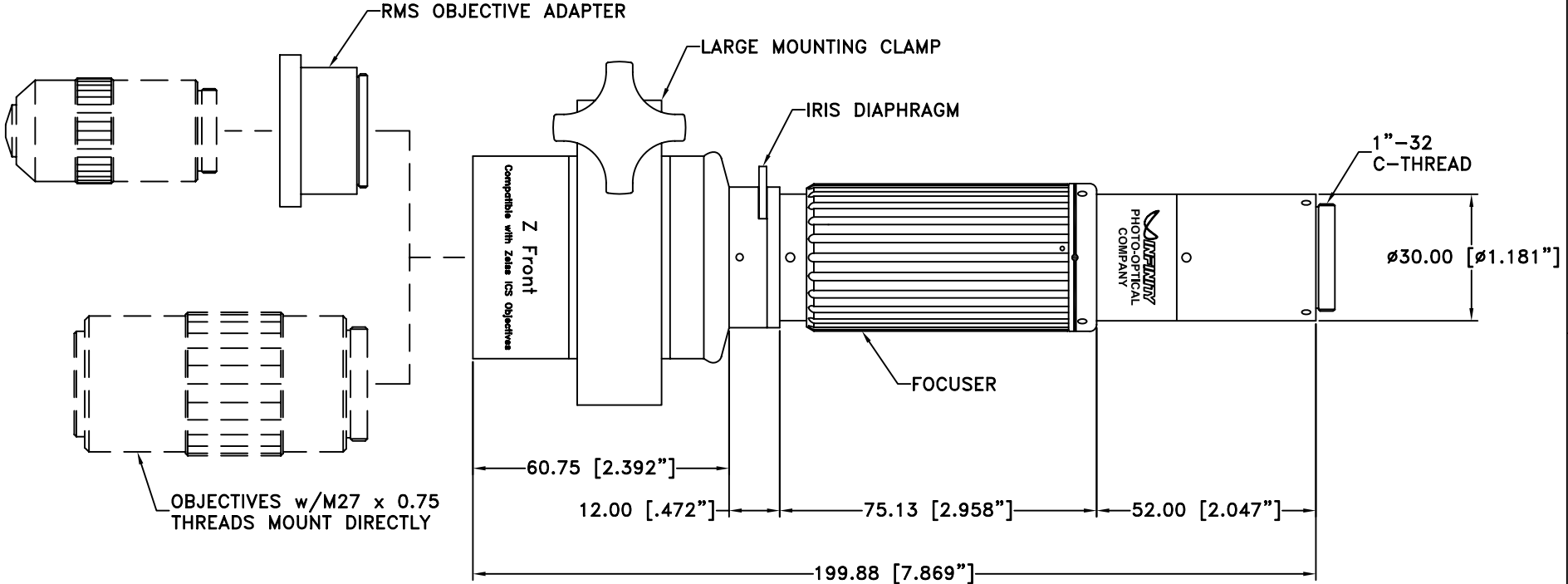


**NOTES:**

1. SURFACE ANODIZED BLACK.
2. DIMS. ARE IN MILLIMETERS.
3. SEE ATTACHED TABLES AND GRAPHS FOR SPECIFICATIONS.

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<b>MX OBJECTIVES</b>					
Date: 03/04/02 MB		SIZE B	FSCM NO.	DWG NO. -	REV A
Modified:		SCALE NONE	-	SHEET 1 OF 1	

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

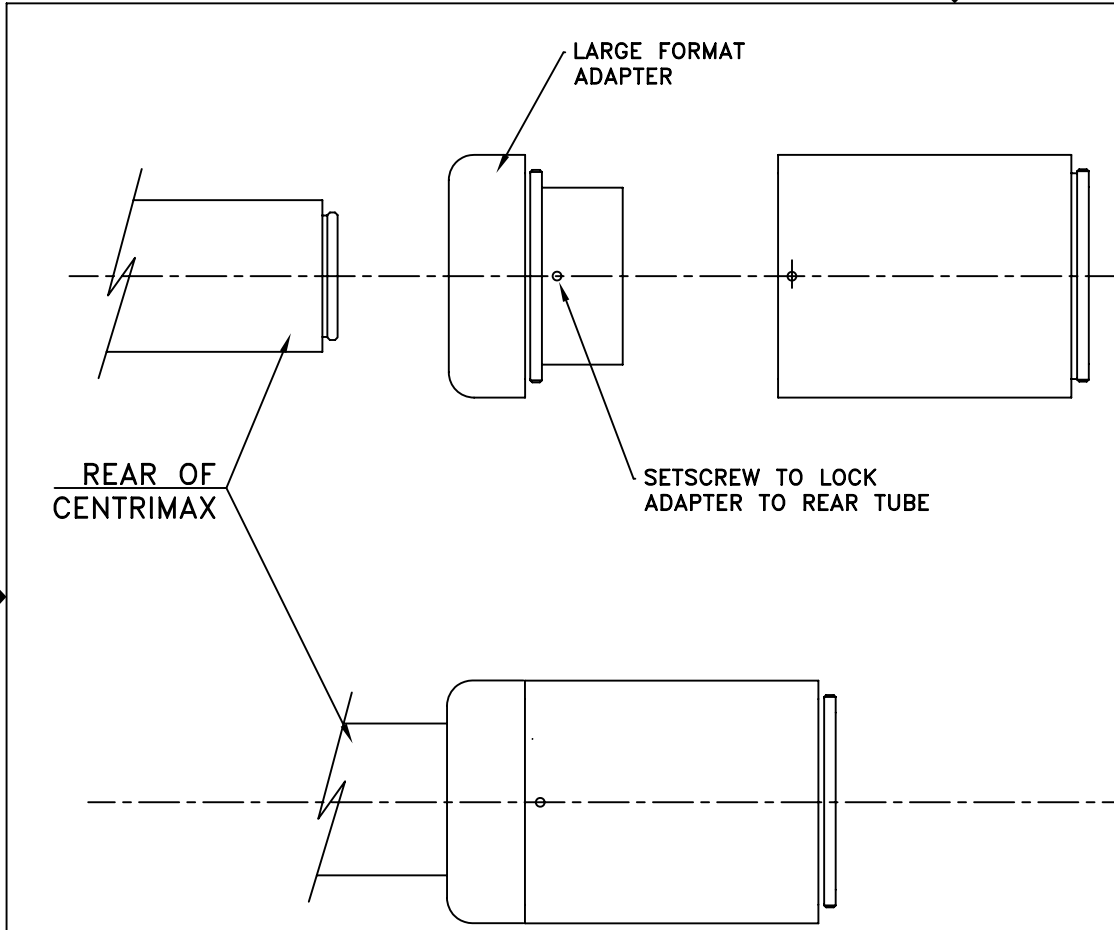


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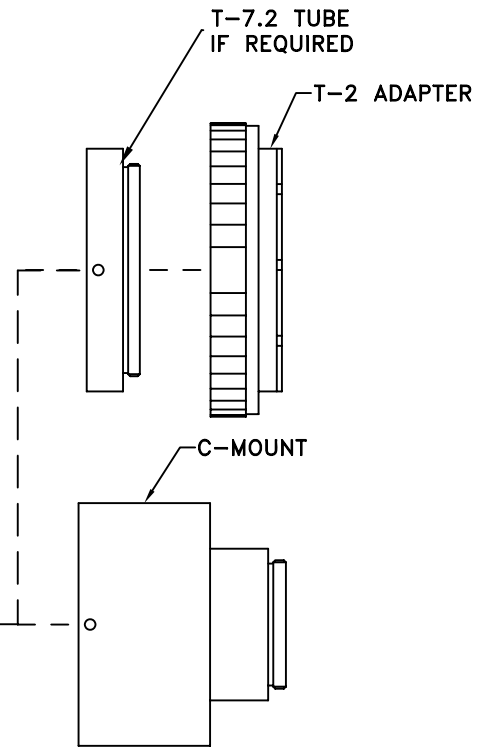
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**CENTRIMAX™ WITH Z FRONT FOR  
ZEISS ICS OBJECTIVE**

Date: 07/23/08 MB	SIZE B	FSCM NO.	DWG NO.	REV
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REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED



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 DIMS. ARE AFTER ANODING  
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 OTHERS:  $\pm 0.102$  ( $\pm 0.004$ " )  
 UNIFIED THREADS ARE CLASS 2  
 METRIC THREADS ARE MEDIUM FIT  
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**CENTRIMAX WITH LARGE FORMAT ADAPTER**

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