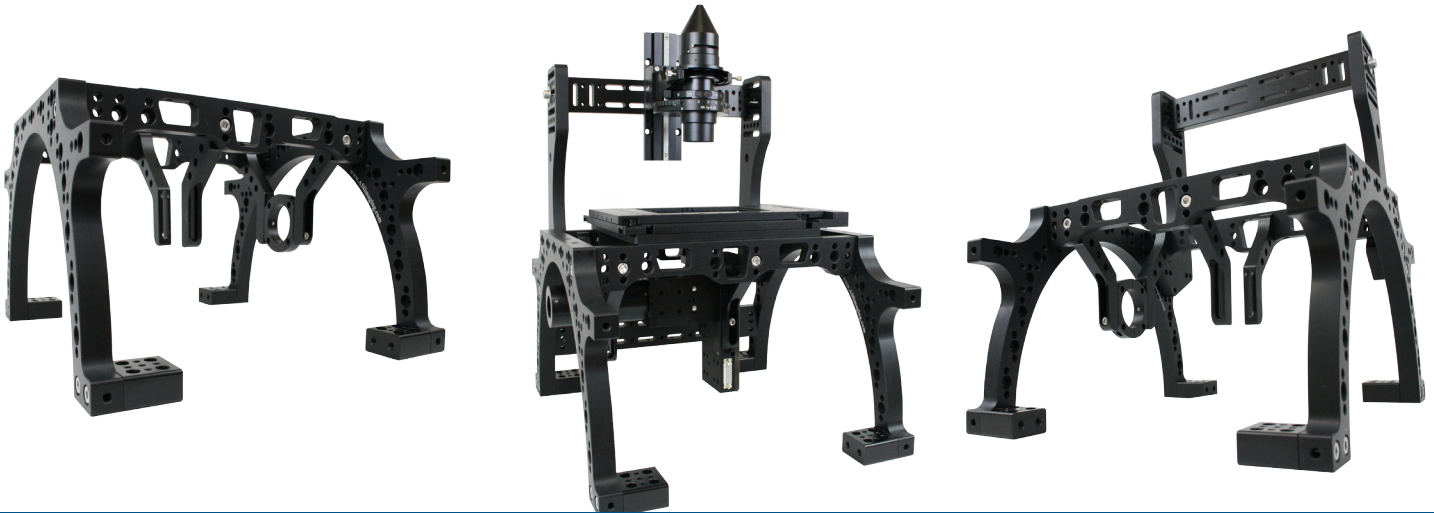


## How to Specify and Quote RAMM/MIM Microscopes



1. Determine the basic microscope backbone configuration:
  - a. Establish the number of illumination and imaging ports required.
  - b. Quote the appropriate MIM microscope kit based on the available choices. These are the MIM1 through MIM4 system kits part numbers:
    - i. Use MIM1 kits for simple "horizontal" path scope.
    - ii. Use MIM3 or MIM4 kits for "vertical" path scopes.
    - iii. The MIM4 kits are required if including a filter cube slider.
    - iv. Use MIM2 kits instead of MIM1 kits for the basic scope if CRISP Autofocus System is required.
    - v. Add the Short\_Port to your quote when the MIM3 and MIM4 kits are essential for the CRISP.
    - vi. For CRISP Choose: MIM2, MIM3-PSL, or MIM4-PSL configuration.
2. Decide on an objective changer or not. Single objective microscopes are shorter; therefore, offer less vignetting if that matters. Many of the MIM kits include an objective turret or an objective slider.
3. Include lens tube assemblies for each of the optical ports. The most common choice is **TN200-MMC** (Nikon 200mm Tube Lens and **C60-5060C-Mount**).
4. Include fluorescent illumination optics. A common choice for a fluorescent illuminator is **LLG3-E100** (Liquid Light Guide Adapter for 3mm Guide and Excitation Condenser with 100mm Condenser Lens).
5. Include internal filter cubes and fold mirrors as necessary for any **C60\_CUBE** that is part of the MIM backbone:
  - a. Commonly right angle mirrors are needed in the lowest CUBE on MIM3 and MIM4 systems. **C60-25mm\_CUBE-RA-MIRROR CM25** (25mm Right Angle Mirror on Dovetail Holder).
  - b. Interior filters cubes are usually required on all but MIM 4 systems. **C60-D\_CUBE CD25** Filter Cube for **C60\_CUBE** (U-MF2 Replacement) Holds up to 2mm dichroic glass.
6. Add transmitted light if that is desired for the system. **OLY-TRANS-ILLUM** Transillumination kit based upon Olympus **IX2-LWUCD** condenser. It includes:
  - a. OLY-IX2-LWUCD.
  - b. C60-OLY-COND-MNT.
  - c. C60-OLYC2LMP.
  - d. Z-Rack.
  - e. MIM-LED-LAMP.
7. Choose the RAMM frame. Use "FULL" versions if including Trans-illumination.
8. Add XY stage automation and controllers as required.
9. Count up the number of automated axes and make sure that there are adequate channels in the controller. Complicated systems with more than four motorized components and those with filter wheels, should use the TG-8 controller.

## VERSATILE TEST STAND

PRODUCTS	SPECIFICATIONS
VTS-2300	Versatile test Stand with adjustable SS post mount and Baseplate with LED illuminator. Includes VTS-2101, VTS-2125, VTS-2126ASM, and LED lamp wiring.
VTS-2101	VTS base plate only. No wiring or LED lamp.
VTS-2125	Post - S.S. 2" diameter, 10" long.
VTS-2125-18	Post - S.S. 2" diameter, 18" long.
VTS-2126ASM	Post Clamp Assembly with extendable mounting plate.
VTS-COND	Olympus Condenser Assembly for VTS-2100.
VTS-COND_RACK	Adjustable condenser mount for VTS stand.
VTS-COND-ASSM	Includes Olympus Abbe Condensor and adjustable focusing rack.

## RAMM TEST STAND

PRODUCTS	SPECIFICATIONS
RAMM-BASIC	Basic Microscope framework with supports for MIM scope. Includes two ARCH, four FOOT, two B1066, one B1013, and two B1016.
RAMM-FULL	Basic framework with a riser for transmitted light mounting. Includes BASIC plus two RISER, and a B1007.
RAMM_UPRIGHT	Includes two RISER and a B1007 cross bar for top-side mounting of condenser, etc.
RAMM-TOPSIDE	System cross arms for supporting a downward-facing microscope above a lower RAMM/MIM and stage. Includes two B1066, four B1030, and two B1016.

## RAMM PARTS

PRODUCTS	SPECIFICATIONS
RAMM-RISER	RAMM system Top Riser B1008. Typically two required.
RAMM-SLIDE	Dovetail slide that allows either the transmitted light condenser or the top side microscope to be positioned over the bottom-side objective.
RAMM-STILTS	Allows RAMM frame to be raised up to 150mm higher - Set of four.
RAMM-ARCH	RAMM system - support arch. 450mm wide x 250mm tall. Typically two required.
RAMM-FOOT	RAMM system Mounting Foot - used to fasten ARCH to a metric breadboard. Typically four required.
RAMM-B1007	RAMM Riser Cross Bar. Use with RAMM-RISERS.
RAMM-B1008EX	Extended upright risers for use with large travel stages. Typically two required.
RAMM-B1013	MIM Tube Clamp pair. 50mm I.D. Used with MIM Vertical Supports.
RAMM-B1016	MIM Vertical Support Pair (use with B1066) Typically two pair required.
RAMM-B1021	Sliding Support Bracket for use with Tube Rings B1013.
RAMM-B1022	Vertical support extension bar.
RAMM-B1030	Top-Side bar Supports for top-side MIM. Typically four required.
RAMM-B1030X	Top-Side bar Supports extended version for top-side MIM. Typically four required.
RAMM-B1056	Wide tube clamp for DiSPIM camera tube mounts.
RAMM-B1066	RAMM System Main Cross Bar used with MIM Vertical Supports 1016. Two typically required.
RAMM-B1068	Long Vertical Support Pair (use with B1066). Typically two pair required.
RAMM-Hole-Plate	Stage-replacement plate with 35mm hole for objective clearance to sample. No XY translation possible.
RAMM-Insert-Plate	Stage-replacement plate with provision of 110 x 160 mm stage insert. No XY translation possible.
RAMM-BRACKET-xy	Bracket for supporting components. Includes Cross Rod (x=A no RISERS, x=B between RISERS) Includes vert. and cross bar mounts and vertical support bar (y=S 7". Y=L 9.5")

## VTS OR RAMM TEST STAND AUXILLARY MANUAL STAGING AND FITTINGS

PRODUCTS	SPECIFICATIONS
CDZ-1000	XY precision centering stage. Commonly used to center devices over Microscope objective. 25mm X travel, 8 mm Y travel; load capacity 25kg; resolution ~ 10 microns.
Z-Rack	Z Rack and pinion positioner for manually focusing condenser.
DV-6010	Dovetail mount pair (VTS-2112 and CDZ-1010) 60 x 62 x 10 mm overall dimensions. Each part mounts with four M6 Flat Head screw on 25 x 25 mm pattern.
DV-6020	Dovetail mount pair (CDZ-1012D and VTS-2112) with LS-50 side-mount brackets (CDZ-1013). Used for Upright VTS MIM systems and alternative MIM mounting methods.
CDZ-1013	Pair of LS-50 Side mounting brackets. Use with CDZ-1012D.
LS-5506-MOUNT	Replacment block used instead of LS50 Actuator for mounting components.

## MODULAR INFINITY MICROSCOPE SYSTEM

PRODUCTS	SPECIFICATIONS
<i>System Kits - Example Part Numbers</i>	
<i>MIM-Basic Single Layer Microscopes</i>	
MIM1-OSxx	MIM basic backbone with automated focus and one horizonatal imaging path. Provides >15mm focus travel range. Contains C60-RA_MIRROR, C60-OBJ_XXX, C60-RING, LS50 stage.
MIM1-OSRMS	Basic MIM1 with RMS (Olympus) objective adapter.
MIM1-OSM25	Basic MIM1 with M25 (Nikon) objective adapter.
MIM1-OSxxx-PI	MIM1 single objective microscope with C60-CUBE-I epi-fluorescent port.
MIM1-OSxxx-PII	MIM1 single objective microscope with C60-CUBE-II epi-fluorescent port.
MIM1-ON6M-PII	MIM1, Nikon Manual Nosepiece & C60-CUBE-II epi-port.
MIM1-OO6A-PIII-CD25	MIM1 Olympus Automated Nosepiece with C60-CUBE-III epi-port & C60-D_Cube filter cube.
MIM1-O2SRMS-PII	MIM1 and Mot. 2 pos. objective slider (RMS threads) with C60-CUBE-II epi-fluorescent port.

## MIM-BASIC DOUBLE LAYER MICROSCOPES

PRODUCTS	SPECIFICATIONS
MIM2-OSxxx	MIM basic backbone with automated focus and two horizontal imaging paths. Provides >15mm focus travel. C60-RA_MIRROR, C60-OBJ_XXX, C60-RING, C60_RA_2nd_PORT, and LS50 stage.
MIM2-OSRMS	Two-port MIM2 with RMS (Olympus) objective adapter.
MIM2-OSM25	Two-port MIM2 with M25 (Nikon) objective adapter.
MIM2-OSxxx-PII	MIM2 single objective microscope with C60-CUBE-II epi-fluorescent port.
MIM2-ON6M-PII	MIM2 microscope with Nikon manual nosepiece, CUBE-II epi port.
MIM2-OO6M-PII	MIM2 microscope with Olympus manual nosepiece, CUBE-II epi port.
MIM2-OO6A-PIII-CD25	MIM2 Olympus Automated Nosepiece with C60-CUBE-III epi-port & C60-D_Cube filter cube.

## MIM-BASIC MICROSCOPES WITHOUT LS50 FOCUS

PRODUCTS	SPECIFICATIONS
MIM2-5506	MIM basic backbone with two horizontal imaging paths. No focus. C60-RA_MIRROR, C60_RA_2nd_PORT, and LS-5506 mount.
MIM3-OSxxx	MIM basic backbone with automated focus for use with C60-CUBE directly w/LS-50 stage. Provides >15mm focus travel. DV6010 dovetail mount, C60-RA_OBJ_FC_MNT, C60-OBJ_XXX.
MIM3-OSxxx-PII	MIM3 single objective microscope with C60-CUBE-II for epi-fluorescent port .
MIM3-OSxxx-2PII-CM25	MIM3 single objective microscope with two C60-CUBE-II's for epi-fluorescent port and port w/ 25mm mirror.
MIM3-OO6M-PIII-CM25	MIM3 microscope with Olympus Nosepiece, C60-CUBE-III for epi-fluorescent port and port w/ 25mm mirror.
MIM3-OO6A-2PII-CM25	MIM3 microscope with two C60-CUBE-II's for epi-fluorescent port and mirror port w/mirror. and Automated Olympus Turret
MIM3-O2SM25-PII-PI	MIM3 w/ automated 2 position objective slide, C60-CUBE-II for epi-fluorescent port and CUBE-I for camera.
MIM3U-OSxxx-PII	MIM3 single objective microscope with C60-CUBE-II for epi-illumination port . Provides >15mm focus travel. DV6010 & DV6020 dovetail mounts, C60-RA_OBJ_FC_MNT, C60-OBJ_XXX.
MIM3U-OO6A-PI	MIM3 w/automated 6 pos. nosepiece with C60-CUBE-I for epi-illumination port . Provides >15mm focus travel. DV6010 & DV6020 dovetail mounts, C60-RA_OBJ_FC_MNT, C60-OBJ_XXX.
MIM3UA-OSxxx-PII	MIM3 single objective microscope with C60-CUBE-II for epi-illumination port Provides >15mm focus travel. DV6010 & DV6020 dovetail mounts, C60-RA_ADJ_OBJ_FC_MNT, C60-OBJ_XXX.

## TUBE LENS AND CAMERA MOUNT ASSEMBLIES

PRODUCTS	SPECIFICATIONS
TN200-MMC	Nikon 200mm Tube lens and C60-5060 C-Mount.
TN200-MMC-CM25	Nikon 200mm Tube lens, C60-5060 C-Mount with interior 25mm RA mirror cube.
TN200-MLC	Nikon 200mm Tube lens and Large Format C-Mount adapter.
TN200-M2C	Nikon 200mm Tube lens and DCMS dual-port C-Mount.
TN200-MMC-CD25	Nikon 200mm Tube lens, C60-5060 C-Mount with interior C60-D-Cube filter cube.
T180D-MMC	Dual Achromat 180mm Tube lens with C60-5060 C-Mount.
T100-MMC	100mm Achromatic Tube lens and C60-5060 C-Mount.
T100D-MMC	100mm Dual Achromatic Tube lens and C60-5060 C-Mount.
T100-MS-C-S3	100mm Achromatic Tube lens and C60-SLDR_C-Mount and three position slide.
TN200-MS-C	Nikon 200mm Tube lens and C60-SLDR_C-Mount, no slide.
T160-MMC-CD25	160mm Achromat Tube lens, C60-5060 C-Mount with interior C60-D-Cube filter cube.
T160-MMC	160mm Achromat Tube lens and C60-5060 C-Mount.
T200-MMC	200mm Achromat Tube lens and C60-5060 C-Mount.
T250-MMC	250mm Achromat Tube lens and C60-5060 C-Mount.
T300-MMC	300mm Achromat Tube lens and C60-5060 C-Mount.
T400-MMC	300mm Achromat Tube lens and C60-5060 C-Mount.

## MIM-CUBE-BASED MICROSCOPE WITH UPPER SHORT-PORT

PRODUCTS	SPECIFICATIONS
MIM3-PSL-OSxxx	MIM basic backbone with automated focus for use with C60-CUBEs directly w/LS-50 stage. Provides >15mm focus travel. DV6010 dovetail mount, C60-RA_OBJ_FC_MNT, C60-OBJ_xxx. Also includes top C60-SHORT_PORT_L, frequently used for CRISP coupling.
MIM3-PSL-OSxxx-2PII	MIM3 single objective microscope with C60_SHORT_PORT_L & two C60-CUBE-IIs for epi-fluorescent port and mirror port w/mirror.

## MIM-CUBE-BASED MICROSCOPES WITHOUT LS50 FOCUS

MIM3-5506-2PIII-CM25	Microscope optics mount without objective focus for use with basket stage-mounted objectives. Includes LS-5506. LS-50 replacement block, two C60-CUBE-III for epi-illumination and port with 25mm mirror.
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## MIM-CUBE\_S LDR MICROSCOPES

MIM4-OSxxx	MIM backbone with automated cube slider, automated focus w/LS-50 stage. Provides >15mm focus travel. Includes C60-RA_OBJ_FC_MNT, and C60-OBJ_xxx.
MIM4U-OSxxx	MIM backbone with automated cube slider, automated focus w/LS-50 stage. Provides >15mm focus travel. Includes C60-RA_OBJ_FC_MNT, and C60-OBJ_xxx with DV-6020 for Upright Mounting.
MIM4-OSxxx-PI-CM25	MIM4 single objective microscope with Cube Slider for epi-fluorescence and C60-CUBE-I mirror port w/mirror.
MIM4M-O2SM25-PI-CM25	MIM backbone with manual cube slider, automated focus w/LS-50 stage. Provides >15mm focus travel automated 2-position objective slide, C60-CUBE-I w/mirror.
MIM4-OO6M-PI-CM25	MIM backbone with automated cube slider, automated focus w/LS-50 stage. Provides >15mm focus travel manual Olympus nosepiece, C60-CUBE-I w/mirror.
MIM4M-OO6M-PI-CM25	MIM backbone with manual cube slider, automated focus w/LS-50 stage. Provides >15mm focus travel manual Olympus nosepiece, C60-CUBE-I w/mirror.
MIM4-OO6A-PI-CM25	MIM4 microscope with Cube Slider for epi-fluorescence and C60-CUBE-I w/mirror, and automated Olympus turret.
MIM4-ON6M-PII-CM25	MIM backbone with automated cube slider, automated focus w/LS-50 stage. Provides >15mm focus travel manual Nikon nosepiece, C60-CUBE-II w/mirror.

## MIM-CUBE\_S LDR MICROSCOPES WITH UPPER SHORT-PORT

MIM4-PSL-OSxxx	MIM backbone with automated cube slider, automated focus w/LS-50 stage. Provides >15mm focus travel. Includes C60-RA_OBJ_FC_MNT, C60-OBJ_xxx, and Short-port Cube (w/lens) above slider.
MIM4-PSL-OSxxx-PI	MIM4 single objective microscope with Cube_S LDR for epi-fluorescence, C60_SHORT_PORT_L, and C60-CUBE-I.
MIM4-PSL-OO6M-PI	MIM backbone with automated cube slider, automated focus w/LS-50 stage. Provides >15mm focus travel. Manual Olympus Objective Turret, and Short-port Cube (w/lens) above slider.
MIM4-PSL-ON6M-PI	MIM backbone with automated cube slider, automated focus w/LS-50 stage. Provides >15mm focus travel. Manual Olympus Objective Turret, and Short-port Cube (w/lens) above slider.
MIM4-PSL-OO6A-PI	MIM backbone with automated cube slider, automated focus w/LS-50 stage. Provides >15mm focus travel. Automated Olympus Objective Turret, and Short-port Cube (w/lens) above slider.
MIM4M-PSL-O2SM25-PI	MIM backbone with manual cube slider, automated focus w/LS-50 stage. Provides >15mm focus travel automated 2-position objective slide, Short_Port for CRISP, C60-CUBE-I.



## FLUORESCENCE ILLUMINATION ASSEMBLIES

PRODUCTS	SPECIFICATIONS
LLG3-E100	Liquid light guide adapter for 3mm guide and excitation condenser with 100mm condenser lens.
LLG3-E160	Liquid light guide adapter for 3mm guide and excitation condenser with 160mm condenser lens.
LLG3-E20N	Liquid light guide adapter for 3mm guide and excitation condenser with 200mm Nikon tube condenser lens.
L460RI-E100	LED Lamp - 460nm LED w/ iris and on-board regulator and Kohler 100mm excitation condenser.
XIRS-E100	Iris (image plane) with Kohler 100mm excitation condenser. For free space laser.
LLG3-E20N	Liquid light guide adapter for 3mm guide and excitation condenser with 200mm Nikon lens.
LLG3-E100-UV	Liquid light guide adapter for 3mm guide and excitation condenser with 100mm condenser lens.
LFP-E100	Single Mode Fiber laser illuminator with Iris (image plane) and Kohler 100mm excitation condenser. Includes C MOUNT_FIBER, C60-3060_C-MOUNT, two C60-TUBE-100, C60-ILLUM-ADPT, and C60-IRIS.

## MIM OPTION-DESIGNATOR

PRODUCTS	ITEM	SPECIFICATIONS
<i>Objective Threads and Objective Changers</i> <i>Oxxx</i>		
C60-OBJ-M25	OSM25	Objective adapter for Nikon M25-0.75 Threads (NIKON CFI 60 Series Objectives).
C60-OBJ-RMS	OSRMS	Objective Adapter for RMS threaded objectives (Olympus).
C60-OBJ-M26	OSM26	Objective Adapter for M26 x 32 TPI Threads (Mitutoyo).
C60-OBJ-M27	OSM27	Objective Adapter for M27 x 1.0 (Zeiss).
C60-OBJ_SLDR_MOT-2	O2Sxxx	Complete two-position motorized objective Slider. Includes C60_DUAL_OBJ_SLDR, LS-50M, and two C60-OBJ-XXX. (specify threads) Requires a controller servo motor channel.
U-R156M5	OO6A	6 Position Automated Objective Changer - Olympus Threads Olympus U-D6REM-1-5; 6 position motorized nose piece. Olympus part modified with encoded motor from ASI for positioning.
U-R156	OO6M	Six-Position Manual Nosepiece - Olympus.
6P-NIK (MEP51315)	ON6M	Six-Position Manual Nosepiece - Nikon.
<i>Microscope CUBEs and PORTS</i> <i>Pxxx</i>		
C60-SHORT_PORTx	PSx	Beamsplitter Cube using C60_DICHROIC_SLIDER. Side port accepts 30mm O.D. fitting. Includes beamsplitter slider to either 1mm (x=1) or 2mm (x=2) thick 25mm x 36mm mirrors.
C60-SHORT_PORT_Lx	PSLx	Beamsplitter Cube using C60_DICHROIC_SLIDER. For 1mm glass, Include 75mm f.l. lens for focus using C60-5060_C-MOUNT. Includes beamsplitter slider to either 1mm (x=1) or 2mm (x=2) thick 25mm x 36mm mirrors.
MIM-CUBE-I-K	PI	Basic beamsplitter coupling kit. Contains C60-CUBE-I, 2 x C60-RING.
MIM-CUBE-II-K	PII	Basic beamsplitter coupling kit. Contains C60-CUBE-II, 2 x C60-RING.
MIM-CUBE-III-K	PIII	Basic beamsplitter coupling kit. Contains C60-CUBE-III, 2 x C60-RING.

## MIM OPTION-DESIGNATOR

PRODUCTS	ITEMS	SPECIFICATIONS
<i>CUBE Interior Components Cxxx</i>		
C60-D_CUBE	CD25	Filter Cube for C60_CUBE (U-MF2 Replacement) Holds up to 2mm dichroic glass.
C60-FCUBE_32x44	CD32	Large format - 32 x 44 mm dichroic mirror holder for C60-CUBE. No provision for EX or EM filters.
C60-25mm_CUBE-HOLDER	CH25	Female Dovetail mount for 25mm RA mirrors or cube beamsplitters for use with C60-CUBE .
C60-25mm_CUBE-RA-MIRROR	CM25	25mm Right Angle Mirror on dovetail holder.
	CM25UV	25mm Right Angle Mirror on dovetail holder. With UV enhanced mirror.
C60-30mm_CUBE-HOLDER	CH30	Female Dovetail mount for 30mm RA mirrors or cube beamsplitters for use with C60-CUBE.
C60-30mm_CUBE-RA-MIRROR	CM30	30mm Right Angle Mirror on dovetail holder.
<i>Tube lenses and lens tubes Txxx</i>		
C60-TUBE_B	TN200	Basic Tube Lens Module - with Nikon 200mm tube lens. Includes C60-RING.
C60-TUBE_Z13	TZ164	Basic Tube lens Module - with 164.5mm Zeiss Tube lens for 130mm infinity length.
C60-TUBE_70D	T70D	Multi-Element Tube Lens Assembly, 70mm f.l. - Used as Scan lens for Micro-mirror scanners.
C60-TUBE_100	T100	Basic Tube Lens Module - with 100mm Achromat Tube lens. Male RING mount is part of tube so C60-RING not required.
C60-TUBE_100FS	T100S	Basic Tube Lens Module - with 100mm f.l. PCX Fused Silica Lens.
C60-TUBE_100D	T100D	Multi-Element Tube Lens Assembly, 100mm f.l., Male RING mount is part of the tube.
C60-TUBE_125D	T125D	Multi-Element Tube Lens Assembly, 125mm f.l., Male RING mount is part of the tube.
C60-TUBE_160	T160	Basic Tube Lens Module - with 160mm Achromat Tube lens. Male RING mount is part of tube so C60-RING not required.
C60-TUBE_180D	T180D	Multi-Element Tube Lens Assembly, 180mm f.l., Male RING mount is part of the tube.
C60-TUBE_180O	T180O	Tube lens module with Olympus TLU-S w/ 23.5mm diameter 180mm f.l. lens
C60-TUBE_200	T200	Basic Tube Lens Module - with 200mm Achromat Tube lens. Male RING mount is part of tube so C60-RING not required.
C60-TUBE_250	T250	Basic Tube Lens Module - with 250mm Achromat Tube lens. Male RING mount is part of tube so C60-RING not required.
C60-TUBE_300	T300	Basic Tube Lens Module - with 300mm Achromat Tube lens. Male RING mount is part of tube so C60-RING not required.
C60-TUBE_400	T400	Basic Tube Lens Module - with 400mm Achromat Tube lens. Male RING mount is part of tube so C60-RING not required.
C60-TUBE_750	T750	Basic Tube Lens Module - with 750mm Achromat Tube lens. Male RING mount is part of tube so C60-RING not required.

## MIM OPTION-DESIGNATOR

PRODUCTS	ITEM	SPECIFICATIONS
<b>Camera Mounts</b> <span style="float: right;"><i>Mxxx</i></span>		
C60-5060-C-MOUNT	MMC	Male C-Mount Camera Adapter for C60-TUBEs. 21mm I.D. 60mm from focus.
C60-SLDR-C-MOUNT	MSC	Male C-Mount Camera Adapter for C60-TUBEs with slot for a filter slider.
DCMS	M2C	Dual C-Mount splitter. No glass. 30mm O.D. mount.
C60-FEMALE_C-MOUNT	MFC	Female C-Mount - use with C60-Tubes to produce collimated beam from microscope camera port.
C60-ENG-MOUNT	ME	Direct Baynotte mount for Hammamtsu D2 camera.
C60-T_MOUNT	MT	T-Mount Adapter for C60-TUBE_B. 30mm I.D. 60mm from focus.
C60-F_MOUNT	MF	Nikon F-Mount adapter for C60-TUBE_B. 30mm I.D. 60mm from focus. Includes C60-T_MOUNT.
C60-LF_C-MOUNT	MLC	Large Format C-Mount adapter for C60-TUBE_B. 30mm I.D. 60mm from focus. Includes C60-T_MOUNT.
C60-5060_CMR	MRCM	Rotatable Camera C-Mount adapter - manual adjust. Allows precise rotational alignment of the camera.
C60-5060_CMR_MO	MRCA	Rotatable Camera C-Mount adapter - motorized - Requires controller servo channel. Rotational encoder resolution is < 0.01 degree. Max rotational speed 8 degrees/sec.
<b>Illuminators</b> <span style="float: right;"><i>Lxxxx</i></span>		
<b>Liquid Light Guide Illuminators</b>		
LLLG_3mm	LLG3	Liquid Light Guide Illuminator coupling for 5mm o.d., 3mm liquid light guide.
LLLG_5mm	LLG5	Liquid Light Guide Illuminator coupling for 7mm o.d., 5mm liquid light guide.
LLLG_SMA	LSMA	Liquid Light Guide Illuminator coupling for SMA fitted fiber light guides.
<b>Single-Mode Fiber Illuminator</b>		
LFSM_PC	LFP	Single Mode Fiber Expander / Illuminator. Includes CMOUNT_FIBER, C60-5060_C-MOUNT, C60-TUBE-100, and C60-IRIS .
LED Lamps		LED colors available: 365nm, 460nm, 523nm, 560nm, 590nm, 623nm, 740nm, 850nm, 940nm and white.
LLEDxxx-RI	LxxxRI	High brightness LED LAMP Illuminator - xxx specifies LED color. With 25mm iris and on board regulator.
LLEDxxx-RN	LxxxRN	High brightness LED LAMP Illuminator - xxx specifies LED color. With onboard regulator - no iris.
LLEDxxx-AI	LxxxAI	High brightness LED LAMP Illuminator - xxx specifies LED color. No regulator, with iris.
LLEDxxx-AN	LxxxAN	High brightness LED LAMP Illuminator - xxx specifies LED color. No regulator, No iris.
LEDxxx-BRD		LED light and circuit board assembly for MIM_LED_LAMP - for additional colors.
2LED_ILLUM		Dual High Power LED lamp system. Includes two LLEDxxx-AN, a C60-SHORT_PORT1, and a dichroic mirror, C60-IRIS. Does not include excitation filters, which can be added to each LED or multiband in main microscope if needed.
3LED_ILLUM		Three LED High Power lamp system. Includes three LLEDxxx-AN, two C60-SHORT_PORT1, two dichroic mirrors, and a C60-IRIS. Does not include excitation filters, which can be added to each LED or multiband in main microscope if needed.
4LED_ILLUM		Four LED High Power lamp system. Includes four LLEDxxx-AN, three C60-SHORT_PORT1, three dichroic mirrors, and a C60-IRIS. Does not include excitation filters, which can be added to each LED or multiband in main microscope if needed.
TGLED		Use TGLED card to control up to four LED illuminators with the TIGER controller.
BP_LEDxxx		Optional Band Pass LED clean-up filters can be provided 25mm diam. Specify wavelength.



## MIM OPTION-DESIGNATOR

PROUDTS	ITEM	SPECIFICATIONS
<i>Excitation Condensers</i> <i>Exxx</i>		
MIM-EXCITE-COND100-K	E100	Excitation condenser kit - Conatins C60-ILLUM-ADPT and C60-TUBE-100.
MIM-EXCITE-COND160-K	E160	Excitation condenser kit - Conatins C60-ILLUM-ADPT and C60-TUBE-160.
MIM-EXCITE-COND20N-K	E20N	Excitation condenser kit - Conatins C60-ILLUM-ADPT and C60-TUBE.
FIBER_LASER_COND	EFC	Laser on FC/PC fiber connector - Condenser for Epi-Illumination. Includes two C60-TUBE-100ASSEMBLY, a C60-IRIS, a C60-5060_C-Mount, and a C-Mount Fiber.
<i>Individual MIM parts not covered as standard options listed above, or components to standard kits listed above.</i>		
<i>Collimated Space components</i>		
<i>Cubes and Cube Sliders</i>		
C60-CUBE-I		Beamsplttter Cube w/ fixed internal dovetail mount - includes C60-DOVE-I - internal cube not included.
C60-CUBE-II		Beamsplttter Cube with adjustable quick-change cube - includes C60-DOVE-II - internal cube not included.
C60-CUBE-III		Beamsplitter Cube with externally adjustable internal cube - Not quick-change but more stable than CUBE-II.
C60-DOVE-I		Beamsplitter Cube holder section - Extra is handy for faster cube swaps.
C60-DOVE-II		CUBE-II Cube holder section with adjusting screws and magnets.
C60-DOVE-III		CUBE-III Cube holder section with adjusting screws and spring-loaded shoulder bolts.
C60-RA_2nd_PORT		Right angle 2 <sup>nd</sup> Level Port Assembly for use with LS-50. Includes C60-MIRROR_SLDR_2mm and coupling tube.
C60-3WMS-Mx	P3M	Three-Way manual port switch. Includes C60-MIRROR_SLDR_xmm. Order mirror or dichroic separately.
C60-MIRROR_SLDR_2mm	2	Slider to hold 36mm x 25.5mm x 2mm mirrors for RA_2nd_PORT or SHORT_PORT cubes.
C60-MIRROR_SLDR_1mm	1	Slider to hold 36mm x 25.5mm x 1mm mirrors for RA_2nd_PORT or SHORT_PORT cubes
C60-CUBE_SLDR		Automated 4-position filter cube slider. Provides automated switching of dichroic, emitter and exciter filters. Can be used stand-alone, or mounted to LS-50 focus assembly with C60-RA_OBJ_FC_MNT. Typical switch time between adjacent filters is < 250ms.
C60-CUBE_SLDR-MN		Manual 4-position filter cube slider. Provides manual switching of dichroic, emitter and exciter filters. Can be used stand-alone, or mounted to LS-50 focus assembly with C60-RA_OBJ_FC_MNT.
C60-PORT_SWITCH-S	PSS	Includes C60-CUBE body with motorized mirror to switch light transmission between two ports. S-version has ~400ms switching time and +/- 10 arc-seconds resolution. Requires one servo motor control channel.
C60-PORT_SWITCH-F	PSF	Includes C60-CUBE body with motorized mirror to switch light transmission between two ports. F-version has faster switching time. TBD requires one servo motor control channel.

## EXTENSION TUBES

PRODUCTS	ITEM	SPECIFICATIONS
C60-EXT-7.5	X7.5	Extension tube 7.5mm long w/ male to female C60-RING mounts.
C60-EXT-15	X15	Extension tube 15mm long w/ female to female C60-RING mounts.
C60-EXT-25	X25	Extension tube 25mm long w/ male to female C60-RING mounts.
C60-EXT-37.5	X37.5	Extension tube 37.5mm long w/ male to female C60-RING mounts.
C60-EXT-50	X50	Extension tube 50mm long w/ male to female C60-RING mounts.
C60-EXT-75	X75	Extension tube 75mm long w/ male to female C60-RING mounts.
C60-EXT-K		Kit of 7.5mm, 15mm, and 25mm extension tubes and a C60-RING
C60-IRIS	XIRS	Adjustable Iris 1.5mm Min to 25mm Max. diameter, in 19.8mm extension tube, female ring fittings.
C60-SLDR_TUBE	XSLD	20mm Long extension tube with slot for filter slide (e.g. C60-SLIDE_2+I).
<i>Coupling rings and ring adapters</i>		
C60-RING		Universal Coupling Ring for attachments to C60-CUBE. 30mm clear aperture.
C60-RING_25F (was RING_D)		Universal Coupling Ring for attachments to C60-CUBE with provision for 25mm filter (set-screw).
C60-RING_32F		Universal Coupling Ring for attachments to C60-CUBE with provision for 32mm filter (glue-in).
C60-RING-ADJ		Universal Coupling Ring with +/- 2mm adjustment possible. 25mm clear aperture.
C60-RING-ADAPTER		Used to adapt from RING mount to other formats. Scope adapters, 30mm Cage system, etc.
C60_RING_30mm		30 mm Male to 38mm Male RING mount adapter.
C60_RING_C-Mount		38mm Male RING mount to Male C-mount. Tube length +1mm. Stainless steel.
C60-COVER		Blank Port Cover.
C60-30CRM-10LM		Male 38mm RING to 30mm Cage with provision for 10mm glue-in lens mount. 56mm O.D.
C60-30CRM-30LM		Male 38mm RING to 30mm Cage with provision for 30mm glue-in lens mount. 56mm O.D.
C60-30CRM-30LM-xxx		Male 38mm RING to 30mm Cage with provision for 30mm glue-in lens mount. 56mm O.D. include lens with f.l. xxx.
C60-30C-25LM		30mm Cage Lens mount for 25mm optics.
C60-CAGE-80		Kit of two C60-30CRM-30LM and four 80mm cage rods, allows about 65mm optical adjustment.
C60-CAGE-60		Kit of two C60-30CRM-30LM and four 60mm cage rods, allows about 45mm optical adjustment.
C60-CAGE-PINHOLE		Pinhole with XY adjuster on 30mm Cage with 60mm rods. Includes 30mm f.l. lenses. Specify pinhole size when ordering, choices are 5, 10, 15, 20, 25, 30, 40, 50, 75, 100, 150, 200, 300, 400, ..., 1000 um. Spare pinholes or different sizes available, \$100 each. Field-replacable in ~5 min.
<i>Focus-side components</i>		
C60-C-MOUNT-PD		Silicon Photodiode w/ BNC connector, 100mm area, w/ Female C-Mount.
C-MOUNT_FIBER		Adapter has FC/PC fiber connector on a female C-Mount thread that places fiber tip at image plane.
C60-FIBER_LAUNCH		Assembly places FC fiber optic connector tip at the image plane of a C60-TUBE_XXX lens. Fiber connector may be translated using a micrometer head adjuster. Used for TIRF systems to set the TIRF angle.
C60-FOCUS_TUBE-FL		Collimated-space tube with provision to move a 25mm dia. lens element with 25mm travel. Used for TIRF systems to focus the laser to objective BFP. Specify F.L. of 25mm Achromat lens.
C60-FOCUS_TUBE		Collimated-space tube with provision to move a 25mm dia. lens element with 25mm travel. Without Lens.

## EXTENSION TUBES

PRODUCTS	ITEM	SPECIFICATIONS
<i>Filterwheel adapters</i>		
C60-FW		MIM to FW1000 Adapter - (Useful female RING adapter for custom applications).
C60-FW-SET		FW1000 collimated space mounting kit. Contains two C60-FW and a C60-RING.
FW-C-MNT-SET		FW-3010 Male C-mount and FW-3011 30mm port adapter set.
<i>Objective Focusing Components and Objective Mounts</i>		
C60-RA_MIRROR		Right angle Front surface Mirror for use with LS-50 stage.
C60-RA_OBJ_MNT		Objective holder used with C60-RA_MIRROR & LS-50 stage .
C60-RA_ADJ_OBJ_MNT		Objective holder with ~2mm XY lateral centering adjustment provided.
C60-RA_OBJ-DOVE		Used with C60-RA_PRISM and LS-50 stage - Mounts Motorized Olympus Turret.
C60-RA_OBJ_FC_MNT		Objective holder used with direct DV6010 mount of C60-CUBE on LS-50.
C60-RA_ADJ_OBJ_FC_MNT		Objective holder with ~2mm XY lateral centering adjustment provided.
C60-OBJ_MNT		Objective Mount direct on Ring mount - Includes C-60_RING.
C60-OBJ-DOVE		For Motorized Olympus Turret on Upright versions - direct to the cube.
C60-RMS_M25_ADPT		Objective adapter, 15mm long, allows use of RMS objectives with Nikon M25-.75 microscope fitting.
C60-DUAL_OBJ_SLDR		Use with LS-50 actuator for Two-Position Objective Changer. Requires two C60-OBJ-XXX.
<i>Illumination Adapters</i>		
C60-LAMP_ADPT		Universal Lamp adapter for C60-TUBE_x for Excitation light source condenser; w/ field stop iris; requires specific lamp adapter flange, e.g. C60-FW for MIM-LED_LAMP or MIM_LLG_ILLUM.
C60-LAMP_ADPT3		Kohler coupler between LLG_ADPT and C60-TUBE-XXX. No iris. Uses LLG_ADPT iris as field stop.
C60-ILLUM_ADPT_I		Adapter between C60_LLG_ADPT and C60-TUBE-XXX. Includes illuminator Iris as Field Stop for Epi Kohler.
C60-SLDR_TUBE		20mm Long extension tube with slot for filter slide (e.g. C60-SLIDE_2+I).
C60-SLIDE_2+I	S3	Three position slider for 25mm filters with IRIS on one end. For C60 manual slider components.
C60-SLIDE_4	S4	Four Position slide - holds four 25mm diameter filters up to 5.5mm thick.
C60-POL-SLDR	SP	Slider Option for the C60-SLDR_C_MOUNT with rotatable polarizer on end position. Includes polarizer with clear aperture of 19mm.

## RAMM/MIM COMMON AUTOMATION COMPONENTS

PRODUCTS	SPECIFICATIONS
MS3	MS-2000 Three Axis DC Servo Motor XYZ Stage Controller.
MS4	MS-2000 Four Axis DC Servo Motor XYZ Stage and 4th axis.
TG8_BASIC	Includes TG8, TGCOM, two TGDCM2, SA-JOY+ZF. Controls four DC servo motors, Com card w/USB, Power supply, and Joystick w/ two knobs; 5 more free slots.
TGDCM2	Dual Axis motion control card - one slot.
TGLEDD	Four - channel high power LED driver.
TGFW	Dual FW1000 Filterwheel control card- two slots.
S31121010FT	Closed loop XY Flat Top stage with rotary encoders for IX71 & RAMM systems Precision lead screws and ground cross roller bearings are used to provide a high degree of accuracy and repeatability.
I-3091	Universal stage insert, holds slides and dishes using a pair of adjustable arms.
FW-0002-8	FW-1000 Eight-position (25mm) Filterwheel - order controller separately.

## EXTENSION TUBES

PRODUCTS	SPECIFICATIONS
<i>MIM Transmitted Light Parts</i>	
OLY_IX2-LWUCD	Olympus IX2-LWUCD long working distance condenser. NA 0.55 WD 27mm.
C60-OLY-COND-MNT	Centerable Condensor mount for Olympus Condensor.
C60-OLYC2LMP	Adapter for MIM_LED-LAMP to Olympus Condenser.
OLY-TRANS-ILLUM	Transillumination kit based upon Olympus IX2-LWUCD condenser. Includes OLY-IX2-LWUCD, C60-OLY-COND-MNT, C60-OLYC2LMP, Z-Rack, MIM-LED-LAMP.
OLY-DIC-OPTION	Includes Olympus Prism and polarizer components - requires OLY-TRANS-ILLUM above. IX-LWPO; U-DICTS; IX2-DIC20; IX2-DIC40; CM-FIX-POL.
U-DICTS	U-P106 Olympus DIC slider.
U-DICTHC	High contrast version of above.
U-DICTHR	High resolution version of above.
IX-LWPO	Olympus DIC Polarizer for IX2-LWUCD condenser.
IX2-DIC20	DIC prism for 20X objectives - goes in IX2-LWUCD.
IX2-DIC40	DIC prism for 20X objectives - goes in IX2-LWUCD.
IX2-DIC60	DIC prism for 60X objectives - goes in IX2-LWUCD.
IX2-DIC100	DIC prism for 20X objectives - goes in IX2-LWUCD.
CM-FIX-POL	Fixed Polarizer for DIC. Installs in C60-RA_OBJ_MNT.
DKFLD	Set of annular masks that fit the IX2-LWUCD 37.5mm filter holders - 5 annular sizes and 1 blank-off.

## FIBER COUPLER AND SCANNER ASSEMBLIES

PRODUCTS	SPECIFICATIONS
PIII-FCLK-2FCOV-CD25	Adjustable free space single mode fiber splitting cube - does not include the three required collimators.
SCN2.4-FCLK-T70D-X25	Cube scanner assembly with 2.4mm scan mirror, collimator adjuster, and 70mm scan lens. Requires fiber coupler and TGMM4 controller.

## SCANNERS AND FIBER COLLIMATORS

PRODUCTS	ITEM	SPECIFICATIONS
MM-SCAN_1.2	SLS1.2	Micro-mirror scanner head. Two-axis unit with image plane XY scanner mirror, one FC SM laser input. Scanner provides focused scan-plane at female C-Mount. Use TGMM4 controller. Aperture Iris control. 15mm dia. Scan field at C-Mount. >600Hz X and Y bandwidth. Specify FC/PC or FC/APC connector and collimator focal length (7.5, 12.5, or 20mm) when ordering.
MIM-CYL_1.2	SCS1.2	Cylindrical lens light sheet generator equipped with XY scan mirror and coupled to the light source with one FC/PC or FC/APC fiber optic cable. 1.2mm diameter scanner mirror.
MIM-CYL_2.4	SCS2.4	Cylindrical lens light sheet generator equipped with XY scan mirror and coupled to the light source with one FC/PC or FC/APC fiber optic cable. 2.4mm diameter scanner mirror.
C60-MMSC-2.4	SCN2.4	Micro-Mirror scanner cube assembly with 2.4mm mirror. Use TGMM4 controller. Includes integrated two-axis micromirror scanner and CUBE-III assembly. Suggested scan lens: C60-TUBE_70D.
C60-FCOLK	FCLK	Kinematic Tip/Tilt adjuster for fiber collimators used with C60 cube and tube components. M11 threads to 38mm port.
C60-M11-COV	FCOV	Blank port cover with M11 threads to mount fiber collimators.
FCOL-APC7.5	FA7	Fiber collimator with acromatic 7.5mm f.l. lens with adjustable focus - FC/APC fiber connector. M11 Threads.
FCOL-PC7.5	FP7	Fiber collimator with acromatic 7.5mm f.l. lens with adjustable focus - FC/PC fiber connector. M11 Threads.
FCOL-APC12.5	FA12	Fiber collimator with acromatic 12.5mm f.l. lens with adjustable focus - FC/APC fiber connector. M11 Threads.
FCOL-PC12.5	FP12	Fiber collimator with acromatic 12.5mm f.l. lens with adjustable focus - FC/PC fiber connector. M11 Threads.
FCOL-APC20	FA20	Fiber collimator with acromatic 20mm f.l. lens with adjustable focus - FC/APC fiber connector. M11 Threads.
FCOL-PC20	FP20	Fiber collimator with acromatic 20mm f.l. lens with adjustable focus - FC/PC fiber connector. M11 Threads.
FCOL-APC30	FA30	Fiber collimator with acromatic 30mm f.l. lens with adjustable focus - FC/APC fiber connector. M11 Threads.
FCOL-PC30	FP30	Fiber collimator with acromatic 30mm f.l. lens with adjustable focus - FC/PC fiber connector. M11 Threads.

## SPIM PARTS AND ASSEMBLIES

*Complete SPIM or DiSPIM system includes either the SPIM or DiSPIM kits below, a SPIM-RAMM or SPIM-MOUNT and MICRO\_ADPT for a microscope, CDZ-1000, Objective Piezos APZOBJ-xxx, and scanners MM-SCAN\_xM.*

PRODUTCS	SPECIFICATIONS
SPIM-DUAL-ASI-K	Right-angle objective pair mounting with provision for ASI piezo objective positioners on each side. Includes microscope optics for each-side emission and excitation paths and motorized vertical stage. Includes the following components: four C60-CUBE-III, four MIM-Tube-K 200 and 160, two C60-EXT-7.5, two C60_D_Cube; two C60-RAO, RAO-0046, LS50-M, two RA_MIRROR. two C60-EXT-50, two RAO-0027, OBLPA, DLPS-02, and PZMAG-RAO-M25 1003D.
SPIM-K	Contains main mechanical and optical components for SPIM. Includes two C60-CUBE-III, two MIM-Tube-K 200 and 160; C60-EXT-7.5, C60_D_Cube, two C60-RAO, RAO-0046 LS-50M, C60-RA_MIRROR, C60-EXT-37.5, two RAO-0027, OBLPA, DLPS-02, and PZMAG-RAO-M25 1003D.
SPIM-MOUNT	Includes two B1032, two B1034, B1033, and two B1056 .
SPIM_RAMM	Support framework and mounting components for the microscope system. Includes two ARCH, four FOOT, two B1017, B1013, and two B1016. SPIM mount includes two B1032, two B1034, B1033, and four B1013 pair.
DoSPIM-MOUNT	Components to mount the DoSPIM mircoscopes to the RAMM frame. Includes two ABTS-1042, two ABTS-1043, two ABTS-1044, two ABTS-1045, ABTS-1021, four ABTS-1013, two ABTS-1047, LS-50M, and LS-50-SLD.
OSPIM-MOUNT	Components to Mount oSPIM microscope to RAMM frame. Includes two ABTS-1042, two ABTS-1043, two ABTS-1047, ABTS-1021, ABTS-1013, LS-50M, and LS50-SLD.
MIM3-OSxxx-2PIII-X15	Bottom Microscope backbone - Top and Bottom scopes required. Includes two CUBE-III adjustable cubes, single objective mount, two DV-6010 dovetails, and 15mm extension between cubes.
MIM3-OBLPA-PIII	oSPIM Top Microscope backbone - Includes single CUBE-III mirror cube and OBLPA transverse objective positioning stage. Does not include tube lens.
MIM3-OBLPA-2PIII-X15	DoSPIM Top Microscope backbone - Includes two CUBE-III mirror cubes and OBLPA transverse objective positioning stage. Does not include tube lens.
MIM3-OSPIM_CNVRT	oSPIM Top Microscope backbone - Includes LS-50, DV-6010 cube mount, and C60-RA_OBJ_FC_LP_MNT. Does not include the C60-CUBE-III or OBLPA.
MICRO-ADPT-xxxx	Adapter to mount RAMM Riser assembly on to inverted microscope (xxxx designates microscope model, i.e. MICRO-ADPT-DMI6 would be for a Leica DMI6000).
CDZR	Fixed SPIM mounting block (instead of CDZ-1000) and shim set for positioning SPIM over bottom objective.
CDZ-1000	XY precision centering stage. Commonly used to center devices over Microscope objective. 25mm X travel, 8 mm Y travel; load capacity 25kg; resolution ~ 10 microns. Camera Support Kit -- Allows direct support of camera and tube lens from bread-board table.
CAM_SUP-K1	K1 version supports the camera with the attached tube lens.
CAM_SUP-K2	K2 version supports the camera with an attached FW1000 filterwheel. Each kit supports one camera.
CAM_SUP_B	Camera Support Kit without any camera attachment.
APZOBJ-150	Piezo-Z Objective Mover. Range of travel is 150 microns. Closed loop control with integrated sensors.
APZOBJ-200	Piezo-Z Objective Mover. Range of travel is 200 microns. Closed loop control with integrated sensors.
APZOBJ-300	Piezo-Z Objective Mover. Range of travel is 300 microns. Closed loop control with integrated sensors.



## SPIM PARTS AND ASSEMBLIES

PRODUTCS	SPECIFICATIONS
RAO-0046	Main objective pair 90 degree bracket with dovetail fittings.
OBLPA	Transverse objective linear positioner assembly.
C60-RA_OBJ_FC_LP_MNT	Right angle braket for LS-50 OBLPA mounting for oSPIM scopes.
DVOBJ	Dovetail fitting for use with fixed spacers.
DLPS-02	Piezo replacement spacer.
DLPS-03	Piezo replacement adapter for PI piezos and dovetail piezo mount.
RAO-0027	Objective bushing for M25 60mm objectives.
MS2K-SPIM	MS2000 Inverted Flat-top stage for microscope with 0.159 mm pitch leadscrews. X-axis motor does not have anti-backlash gear head to allow for smoother stage scanning.

### **RAMM-Incubator for diSPIM on RAMM:**

Complete black plastic incubator to enclose RAMM/diSPIM system. Dual camera ports come out of the rear of the unit for the iSPIM imaging and a single camera port is on the left hand side of the unit for the inverted imaging camera. These ports allow all of the cameras to be mounted outside of the incubation chamber. The unit also has a large door in the front of the unit for accessing the sample area, and an access port on the right hand side. Unit is made from opaque / black plastic on all sides except the front which is clear. Blackout pannel is mounted with magnets on the front to provide a light seal when imaging. Internal LED illumination is provided around the top of the unit. Ports are provided for external air control so fans and other vibration generating devices can be mounted off the optical bench.