

**Images Shown Inside Target**

Taken using CCD 1/2" chip camera using M2 APO Camera Adapter 0.5X

**Centre Image**

Respiring Escherichia coli on a metal surface. (Mag x 1000 @ Objective)

**Top Right Quarter**

Bacteria rapidly attaching to silicone. (Mag x 1000 @ Objective)

**Bottom Right Quarter**

Escherichia coli on a metal surface. (Mag x 1000 @ Objective)

**Top Left Quarter**

Bacteria on a metal surface forming biofilms. (Mag x 500 @ Objective)

**Bottom left Quarter**

Bacteria on a metal surface forming biofilms. (Mag x 400 @ Objective)



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# How to select you camera coupler

In order to select the correct camera coupler to go with your system, you need to gather the following four pieces of information

- 1. The SLR (Single Lens Reflex) or CCD (Charged Coupled Device) Camera Mount**
- 2. The Camera Chip Size**
- 3. The Desired Magnification and or FOV (Field Of View)**
- 4. Microscope Brand and Model**

Once you have these you are ready to use the coupler selectors. Each of these four aspects are divided up into columns, listed in order, to make the selection process as easy as possible. Each section has been looked at in more detail below to help before starting.

## 1. Camera Mount

Collectively known as T Mounts - This adapter will connect the coupler to the front of your digital camera body. Manufacturers have renamed them to suit their own brand, as below.

(Compact and fixed lens cameras see page 18 for the Omni and Clamp on adapters)

- C-CS Mount – Industry standard variety of makes and models & most CCD cameras
- EOS Mount – Canon
- F-Mount – Nikon
- Macro 4/3 Mount – Older Olympus & Panasonic
- Micro 4/3 Mount – Newer Olympus & Panasonic
- K Mount – Pentax
- E-Mount - For Sony and Minolta
- ENG (Electronic News Gathering) - For various cameras

## 2. Camera Chip Size and Magnification

Camera chip sizes (normally shown as diagonal measurements in mm) will have a corresponding magnification (below) that will enable you to maximise the FOV. Sensor Specific optimisations as below will make best use of what your camera can see.

Camera Chip Size	Width mm	Length mm	Diagonal mm	Recommended mag
1/3"	3.6	4.8	6	0.38X
1/2"	4.8	6.4	8	0.50X
2/3"	6.6	8.8	11	0.67X
1"	9.6	12.8	16	1.0X

## 3. Desired Magnification

Best Scientific Couplers always recommend that you match the magnification to suit the camera's chip size as per table shown above. However there are other ways to use the couplers – please see page 3 for discussion points on Chip size v Magnification

## 4. Microscope Brand and Model

This brochure features the big four only (Leica, Nikon, Olympus and Zeiss) however there is some information about other manufacturers. (see page 20) *If you can't see your microscope please contact us with information about your Camera Mount, Chip Size, Required Magnification & Microscope, and we can recommend a product for you.* Unfortunately there are just too many makes and models of microscopes to feature them all.

*Note that the couplers in our model makers are designed to work with the microscopes photoport or phototube. Check your scope has a Trinocular head (Trino) or third port or a side port to take your coupler. For microscopes without photoports please see page 18 or contact us for help.*

# How to use the model makers

Keep the info you gathered as mentioned on page 1 to hand, and go through the step by step model makers to make up your coupler system as example below.

For example if we wanted to put a C-Mounted CCD camera with a 1/2" chip onto a Leica DMR Series microscope using a Standard coupler (page 10) it would work like this. Make a note of all of the bold letters or numbers to make up the desired model of couplers. *Please note magnification limitations shown in blue boxes.*

Camera Mount Type Column #1	Magnification Factor Column #2	Microscope Manufacturer Column #3	Microscope Model Column #4	<b>SC - Standard Coupler Model Maker</b>
	<b>38</b> (0.38X) 1/3" chip 6mm Diag		<b>A</b> <b>Leica Compound</b> DML Series - DMR Series - DM RD (Does not fit into photoTV Module) FSA Tube Adapter - TV Tube Adapter - Vanotube (All Insert into 37mm Phototube, Delta Optics)	
	<b>50</b> (0.50X) 1/2" chip 8mm Diag	<b>L</b>	<b>B</b> <b>Leica Stereo</b> MS5 - MZ6 - MZ8 - MZ10 - MZ12 - MZAP0 (All 37mm Photoport) GZ6 (W phototube #13410309) LED Models 2000, 2500, 3000, 5000 - M125 - M165C - M165 FC - M205 A - M205 FA - S6D - S8 APO - TL3000ST	
<b>SC</b> C MOUNT	<b>67</b> (0.67X) 2/3" chip 11mm Diag	Leica Leitz, Wild, Bausch & Lomb	<b>Leica Inverted</b> DMIL (inserts into 38mm ISO photoport)	
	<b>10</b> (1.0X) 1" chip 16mm Diag		<b>Leica Stereo</b> MS5 - MZ6 - MZ8 - MZ12 - (All insert into 38 ISO photoport) GZ6 (With Phototube #13410302)	
	<b>16</b> (1.6X)		<b>Leitz Upright</b> Aristomet - Aristoplan - Dialux - Diaplan - Ergolux - Laborlux - Mettalex - Metalloplan - Ortholux - Orthoplan (All insert into 38mm ISO photoport)	
			<b>Leitz Inverted</b> Diavert - Fluovert - Labovert - Metallovert (All insert into 38mm ISO photoport)	
			<b>Wild Stereo</b> M3 - M5 - M7 - M8 - M10 (All insert into 38mm Iso Photoport)	
			<b>Wild Macroscope</b> M420 - (Insert into 38mm Iso Photoport)	
			<b>J</b> <b>Wild Upright</b> Old Wild M11 - M20 - M40 - M50 (All with 25mm Photoport)	
			<b>V</b> <b>Leica Compound</b> DM L Series - DMR Series - DMIR Series - DM IL Series (All HC Optics) V-Clamp should work with any red flash leica HC optics Photoport or trino head	

## Example system to integrate coupler to

1. C-Mount CCD Camera
2. 1/2" chip size
3. 0.5X Mag (To match 1/2" Chip camera as table P1)
4. Leica DMR microscope

## Applied to model maker

- SC** – As it is a **Standard Coupler** which is for a **C**-Mounted camera  
**50** – As it is a 1/2" chip camera, matched to the 0.50x magnification  
**L** – As in L for Leica  
**V** – Encompasses the Leica DMR series of microscope.

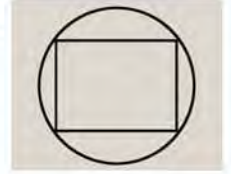
This give you your model number **SC50LV** which will suit your application contact us for a quote !

If you cannot see your microscope or it does **NOT** have a photoport contact us !

# Chip Size VS Magnification

Best Scientific Couplers always recommend that you choose the correct magnification to go with your camera chip size. See the sensor specific table on page 1

Your microscope displays a circular image. Being sensor specific means that you have the maximum amount of image from the microscope inside the rectangle that the camera captures. The ideal scenario is to the right, and we recommend getting as close to this as possible.



However being sensor specific is not always possible - for example a user may wish to use a variety of different cameras, but only has the budget for one adapter. Maybe a user wishes to increase the magnification of their image (increase the pixel size). The information below shows how different magnifications vs different chip sizes, will effect the field of view.

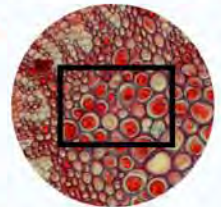
## The Golden Rule of coupler selection

If the camera's chip size is larger than the microscopes field of view (FOV) - you will have vignetting (Black Corners as example shows)



If the camera's chip size is much smaller than the microscopes field of view you will have unseen parts of your image. (As example shows)

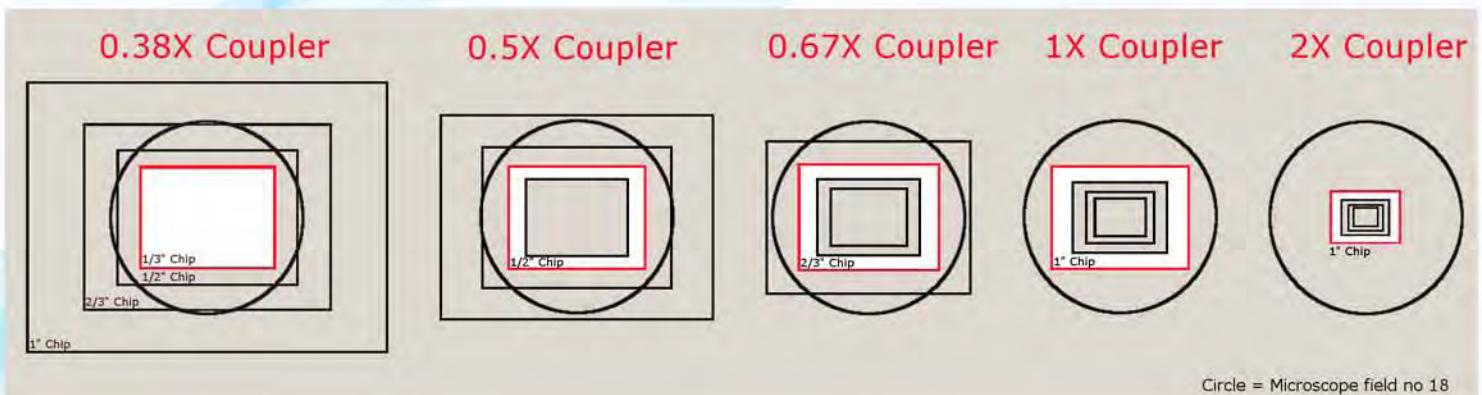
This will mean you are not using the system efficiently. The microscope is displaying much more than the camera can see.



This is also what will happen if you choose to increase the magnification of your image using a coupler - you will see a closer section of the sample but less of it.

The table below shows how camera formats fit into a microscopes image projection. The below is based upon having a microscope with a field number of 18. I.E. the circle projected by the scope is 18mm diameter. For microscopes with larger field numbers please see the large format adapters on page 8 & 9.

You can see that mis-matching the chip size and magnification will affect the image, and efficiency of the system. The optimised chip size for the magnification is shown highlighted red. The others are shown for reference.



# The Coupler Product Range

Best Scientific Couplers offer the full range of Qioptiq camera couplers. Our couplers are an excellent means of maximising your research productivity and effectiveness. The range is ever expanding, encompassing a variety of mounts, models, & magnifications to ensure that optimal image quality is achieved for your application. Whether you are capturing microscopic imaging for comparison, analysis or other, we will have a coupler to suit.

## Direct Couplers (DC)

Direct camera couplers offer economic integration to your microscope. The short overall length presents a more compact and lower profile camera imaging system. Most models with focusing for easy parfocality. See page 5.



## Large-Format Direct Couplers

Large format couplers deliver the magnifications necessary to provide cover for larger chips (up to 43.3mm Diagonal) Ideal for full frame Digital SLR cameras. (36mm x 24mm chip sizes) Along with higher end CCD cameras. See page 7.



## Standard Couplers (SC)

Our standard couplers are the most versatile in the programme. The two piece design of the standard coupler offers users maximum flexibility in camera to microscope brand and model compatibility. Standard couplers combine a wide range of magnification options, and reticule / graticule projection. An ideal solution to those using and swapping out a variety of different cameras with different microscopes. Focusable for parfocality. See page 9.



## Multi-Port Camera Couplers

Multi-port couplers allow the user to simultaneously integrate two cameras onto one microscope. They offer similar compatibility and image quality as the standard coupler series, and offer a more affordable alternative to purchasing multiple-photoport microscope heads. See page 13.



## M2APO Camera Couplers

Specifically designed to deliver high quality images from your microscope to your high end research grade camera. Apocromatic lens with Telecentricity, 3 colour corrected optics ensure efficiency, and high contrast. Built in aperture diaphragm and focusing in a low profile adapter. See page 15.



## C to C-Mount Couplers

This coupler provides versatile connectivity for any C-Mount or Bayonet mount camera to any microscope featuring a Male C-Mount. Available in a number of magnifications from 0.38X to 2.0X the C to C mount adapters are particularly ideal for obscure branded and older microscopes, plus fixed mag photoports. See page 17.



## Compact Digital Camera Couplers

Now you can connect most digital cameras with fixed lenses, to any compound or stereo microscope, via the eyepieces. This adapter is ideal for fast, accessible and affordable microscope imaging. See page 18.



## Mitutoyo Microscopes

There is a range of camera couplers available for Mitutoyo microscopes. Everything from Focusing DC & SC couplers to large format adapters, also with the new addition of the Mitutoyo Multi-Port for multiple cameras. See page 19.



## Polyvar Met + Bio Camera Adapters

Now available, a specially designed adapter to work with the Polyvar microscopes, suitable for CCD and DSLR cameras. Available with focusing and a variety of magnifications to suit your camera. See page 20.



## Custom Made Couplers

Do you have a special requirement or a problem using an off the shelf product? Do you have limited space or specialist microscope equipment? If so Contact Best Scientific Couplers who would be able to help. Case study included on page 22.



# DC - Direct Camera Couplers

The Direct video coupler is the economical solution to general purpose microscopy image capture.

These models provide direct image projection to your camera sensor.

Features ...

- Compact low profiled design
- A shorter more stable optical system – Limits vibration
- More aesthetically pleasing
- Practical operation – No tall tube to peer over

The big advantage of the direct camera coupler is that they are internally focusable – meaning that parfocality is easily achieved.



Model shown DC500U - "U" bottom assembly, holding 0.50X DC Adapter, C-Mounted for 1/2" chip USB mini camera

## **Internally Focusable Image Quality**

Precision engineered with internal focus for quick and easy parfocality

Precision optics produce crisp, flat-field images with all microscope objectives, including achromatics, apochromats and plan fluorites.

## **Economical**

Priced significantly lower than major manufacturers own camera couplers, which are not focusable.

**Parfocal or Parfocality when applied to Couplers = Eyepiece and Camera monitor display the same image.**



## **Low Profile Design**

Results in shorter overall system length and greater optical stability. Ideal for high vibration, or high magnification applications.

## **Versatility**

Available in C-Mount, Bayonet, and F-Mount configurations to fit a wide variety of cameras.

## **Variety of Magnifications**

0.38X, 0.50X, 0.67X and 1.0X are available to achieve desired fields of view and optimise the cameras performance.

# DC - Direct Coupler Model Maker

## Camera Mount Type

Column #1

## Magnification Factor

Column #2

## Microscope Manufacturer

Column #3

## Microscope Model

Column #4

## DC C MOUNT

**38**

(0.38X)

1/3" chip 6mm Diag

**50**

(0.50X)

1/2" chip 8mm Diag

**67**

(0.67X)

2/3" chip 11mm Diag

**10**

(1.0X)

1" chip 16mm Diag

## DS SONY

1/2" Bayonet

For Olympus "U" & Zeiss "Z" Models only

**10**

(1.0X)

1" chip 16mm Diag

## DH 1/2" Bayonet

For Olympus "U" & Zeiss "Z" Models only

**10**

(1.0X)

1" chip 16mm Diag

## DB 2/3" Bayonet (ENG)

For Olympus "U" & Zeiss "Z" Models only

**10**

(1.0X)

1" chip 16mm Diag

## DE EOS Bayonet Canon

For Olympus "U" & Zeiss "Z" Models only

**10**

(1.0X)

1" chip 16mm Diag

## DF F-Mount Nikon

For Olympus "U" & Zeiss "Z" Models only

**10**

(1.0X)

1" chip 16mm Diag

Note 0.38X non compatible with Leica N range microscopes contact us for info

## L Leica

Leitz, Wild, Bausch & Lomb

## N

**Leica Inverted** DMIL (*inserts into 38mm ISO photoport*)

**Leica Stereo** MS5 - MZ6 - MZ8 - MZ12 - MZAPO *All insert into 38mm ISO photoport* GZ6 (*With Phototube #13410302*)

**Leitz Upright** Aristomet - Aristoplan - Dialux - Diaplan - Ergolux - Laborlux - Mettalux - Metalloplan - Ortholux - Orthoplan (*All insert into 38mm ISO photoport*)

**Leitz Inverted** Diavert - Fluovert - Labovert - Metallovert (*All insert into 38mm ISO photoport*)

**Wild Stereo** M3 - M5 - M7 - M8 - M10 (*All insert into 38mm ISO Photoport*)

**Wild Macroscope** M420 - (*Insert into 38mm ISO Photoport*)

## P

**Leica Compound** DML Series - DMR Series - DM RD (*Not into photoTV Module*) FSA Tube Adapter - TV Tube Adapter - Variotube (*All into 37mm Phototube*) DM MFK 2

**Leica Sterero** MS5 - MZ6 - MZ8 - MZ12 - MZAPO (*All 37mm Photoport*) GZ6 (W phototube #13410309) - LED Series (*Needs Leica 1x tv tube # 10445930*) M125 - M165 C & FC - M205 - MZ10 - S6D - S8 APO - Z16 APO - Z6 APO (*All need Leica 1x tv tube # 10445930*)

## R

**Leica B&L Upright** Balplan - Microzoom

**Leica B&L Stereo** SZ6 - StereoZoom 6

## S

**Leica B&L Stereo** SZ7 - StereoZoom 7 (*With slip in port*)

## Y

**Leica Compound** DM Series - DM L Series - DM R Series - DM IR Series - DM IL Series - (*All HC Optics*) - INM100

**Confocal** TCS Models - LSI - SP8CARS - SP8 X - SPA MP - SPE- SPQ SMD (*All with Trino head*)

Note Leica HC optics (Harmonic contrast) systems indicated by RED flash marking on your microscope  
Note Leica Delta optics systems indicated by BLACK flash marking on your microscope  
This may help with identifying your microscope type. Note for indication only - trino heads can be interchanged.

## N Nikon

## N

**Upright** Alphaphot 2 - Eclipse series (*Requires YT Tube 92306*) - Labophot 2 - Microphot & Microphot models FX, FXL, POL, SA - Optiphot 2 - Optiphot 100S, 150, 200, 300 (*All insert into 38mm ISO photoport*)

**Inverted** Diaphot 200/300 - TS100F - TE2000 (*All insert into 38mm ISO port - non compatible with 0.38X and 0.5X couplers*)

**Metallurgical** Epiphot 300/200 (*All insert into 38mm ISO photoport*)

**Stereo** SMZ10A (*0.67X and 1.0X only*) - SMZU - SMZ800 - SMZ1000 - SMZ1500 (*All insert into 38mm ISO photoport*) - SMZ18 - SMZ25 (*With LV-TV tube*)

**Measuring** MM40 - MM60 (*Both insert into 38mm ISO photoport*)

**Stereo Zoom** AZ100 - AZ100M

## O Olympus

## U

**Upright** AX Provis Series - BX Series - BX2 Series - CX Series - CX2 Series - MX Series (*All w/ U-SPT phototube removed*) BX UDPT Double Port (*Back port only*)

**Stereo** SZX Series (*All with USPT phototube removed*) - MVX10

**Inverted** CKX41 (*With Trino tube U-TR30-2*)

## W

**Inverted** IX Series (*Sideport or trinocular head {U-TR30H}*)

## Z Zeiss

## Z

**Upright** Axiophot - Axioplan - Axioskop - Axiotron Axiotron 2 - Axioskop 20 & 50

**Inverted** Axiovert 10 - Axiovert 35 - Axiovert 35M - Axiovert 405M

**Upright** Axio Examiner - Axio Imager & Imager Vario - Axio Lab & Lab A1 - Axio Observer - Axio Scope A1 - Axio Scope Vario - Axiophot 2 - Axioplan 2 - Axioskop 2, FS, & 40 - Axiostar/Starplus - Axiotech & Vario - Axiotron 2 CSM - STD 25 ICS - KF2 ICS - New Standard Trinocular Tube (*Zeiss # 452902*) - Primostar (*Needs our "Z" Btm Ass ISO 1X and 0.5X only*)

**Inverted** Axiovert Models A1, 100, 135, 135M, 200 (*All non-compatible with 0.38X mag*) - IM Series (*With new standard trino tube Zeiss # 452902*)

**Stereo** Axio Zoom V16 - Discovery models V8, V12, V20 - Semi Models, DRC (w/ 455005 phototube) 2000C - 2000CS - SV6 - SV11 - Lumar V12

Note 0.38X Mag requires 22mm clearance depth in trino tube.

## O

**Upright** Axiomat - Photomicroscope II & III - UEM - Ultraphot IIIB Universal (*Replaces phototube in all models*)

### Note Zeiss Conversions

M Model Above = Use for Zeiss Interface 44 (44mm Inner Diameter)

Z Model Above = Use for Zeiss Interface 60 and 60N (30mm Inner Diameter)

# Large-Format Camera Couplers



Model shown DE130U, "U" bottom assembly for Olympus microscope, Holding 1.3X adapter, connected to EOS mount, to take Canon DSLR camera

The Large format camera coupler has been developed to deliver the necessary magnification to cover the larger chip sizes of today's high end CCD and DSLR cameras.

Like the DC model, the large format provides a direct image projection to your camera sensor. This system benefits from the low profile design and versatility of the DC range and are available in 1.3X and 1.9X magnifications to cover full frame chip sizes up to 43.3mm diagonal. (36mm x 24mm)

In contrast to other manufacturers, our large format adapters are fully efficient. The 1.9X adapter achieves a 43.3mm diagonal image projection. Other models cover less surface area, from a higher magnification.

*(Note some minor compatibility restrictions with the 1.3X model - as shown on the model maker, right)*



1.9X (left) and 1.3X (right) Large format adapters

## Variety of Magnifications

Available in 1.3X (camera chip diagonals of up to 28mm) and 1.9X diagonal (for camera chip diagonals up to 43.3mm) to provide high magnification to cover today's large-format CCD cameras and high end digital SLR's.

## Versatility

Available in C-Mount, a variety of Bayonet mounts, and F-Mount configurations to fit a wide variety of large chip size cameras. Other camera mounts are available please contact Best Scientific Couplers.

## Image Quality

Precision optics produce crisp, flat-field images with all microscope objectives, including achromatics, apochromats and plan fluorites.



Large format adapter in "U" bottom assembly with F-mount for Nikon DSLR camera



# Large Format Coupler Model Maker

## Camera Mount Type

Column #1

## Magnification Factor

Column #2

## Microscope Manufacturer

Column #3

## Microscope Model

Column #4

**DC**  
C MOUNT

**13**  
(1.3X)  
Covers 28mm chip Diagonal

**19**  
(1.9X)  
Covers 43.3mm chip Diagonal

**DS**  
SONY  
1/2" Bayonet

**13**  
(1.3X)  
Covers 28mm chip Diagonal

**19**  
(1.9X)  
Covers 43.3mm chip Diagonal

**DH**  
1/2" Bayonet

**13**  
(1.3X)  
Covers 28mm chip Diagonal

**19**  
(1.9X)  
Covers 43.3mm chip Diagonal

**DB**  
2/3" Bayonet  
(ENG)

**13**  
(1.3X)  
Covers 28mm chip Diagonal

**19**  
(1.9X)  
Covers 43.3mm chip Diagonal

**DE**  
EOS Bayonet  
Canon

**13**  
(1.3X)  
Covers 28mm chip Diagonal

**19**  
(1.9X)  
Covers 43.3mm chip Diagonal

**DF**  
F-Mount  
Nikon

**13**  
(1.3X)  
Covers 28mm chip Diagonal

**19**  
(1.9X)  
Covers 43.3mm chip Diagonal

<b>L</b> <b>Leica</b> Leitz, Wild, Bausch & Lomb	<b>N</b>	<b>Leica Inverted</b> DMIL ( <i>Inserts into 38mm ISO photoport</i> )
		<b>Leica Stereo</b> MS5 - MZ6 - MZ8 - MZ12 - MZAPO <i>All insert into 38mm ISO photoport (Delta optics) GZ6 (W Phototube #13410302)</i>
		<b>Leitz Upright</b> Aristomet - Aristoplan - Dialux - Diaplan - Ergolux - Laborlux - Mettalux - Metalloplan - Ortholux - Orthoplan ( <i>All insert into 38mm ISO photoport</i> )
		<b>Leitz Inverted</b> Diavert - Fluovert - Labovert - Metallovert ( <i>All insert into 38mm ISO photoport</i> )
		<b>Wild Stereo</b> M3 - M5 - M7 - M8 - M10 ( <i>All insert into 38mm ISO Photoport</i> )
		<b>Wild Macroscope</b> M420 - ( <i>Insert into 38mm ISO Photoport</i> )
<b>P</b>	<b>Leica Compound</b> DML Series - DMR Series - DM RD ( <i>Not into photoTV Module</i> ) FSA Tube Adapter - TV Tube Adapter - Variotube ( <i>All Insert into 37mm Phototube</i> ) DM MFK 2	
	<b>Leica Sterero</b> MS5 - MZ6 - MZ8 - MZ12 - MZAPO ( <i>All 37mm Photoport</i> ) LED Series ( <i>Needs Leica 1X tv tube # 10445930</i> ) M125 - M165 C & FC - M205 - MZ10 - S6D - S8 APO - Z16 APO - Z6 APO ( <i>All need Leica 1x tv tube # 10445930</i> )	
	<b>Leica B&amp;L Upright</b> Balplan - Microzoom	
	<b>Leica B&amp;L Stereo</b> SZ6 - StereoZoom 6	
	<b>Leica B&amp;L Stereo</b> SZ7 - StereoZoom 7	
<b>S</b>	<b>Leica Compound</b> DM Series - DM L Series - DM R Series - DM IR Series - DM IL Series - ( <i>All HC Optics</i> ) - INM100	
	<b>Confocal</b> TCS Models - LSI - SP8 cars - SP8 X - SPA MP - SPE - SPQ SMD ( <i>All with Trino head</i> ) <i>Please contact Best Scientific Couplers</i>	

Note "R" "S" & "Y" model microscopes are not compatible with 1.3X adapters

Note Leica HC optics (Harmonic contrast) systems indicated by RED flash marking on your microscope  
 Note Leica Delta optics systems indicated by BLACK flash marking on your microscope  
 This may help with identifying your microscope type. Note for indication only - trino heads can be interchanged.

<b>N</b> <b>Nikon</b>	<b>Upright</b> Alphaphot 2 - Eclipse series (requires YT Tube 92306) - Labophot 2 - Microphot & Microphot models FX, FXL, POL, SA - Optiphot 2 - Optiphot 100S, 150, 200, 300 ( <i>All insert into 38mm photoport</i> )
	<b>Inverted</b> Diaphot 200/300 - TS100F - TE2000 ( <i>All insert into 38mm ISO part</i> )
	<b>Metallurgical</b> Epiphot 300/200 ( <i>All insert into 38mm ISO photoport</i> )
	<b>Stereo</b> SMZ10A ( <i>0.67X and 1.0X only</i> ) - SMZU - SMZ800 - SMZ1000 - SMZ1500 ( <i>All insert into 38mm ISO photoport</i> ) SMZ18 - SMZ25 (With LV-TV tube)
	<b>Measuring</b> MM40 - MM60 ( <i>Both insert into 38mm ISO photoport</i> )
	<b>Stereo Zoom</b> AZ100 - AZ100M

<b>O</b> <b>Olympus</b>	<b>U</b>	<b>Upright</b> AX Provis Series - BX Series - BX2 Series - CX Series - CX2 Series - MX Series (All w/ U-SPT phototube removed) BX UDPT Double Port ( <i>Back port only</i> )
		<b>Stereo</b> SZX Series ( <i>All with USPT phototube removed</i> ) - MVX10
		<b>Inverted</b> CKX41 ( <i>With Trino tube U-TR30-2</i> )
	<b>W</b>	<b>Inverted</b> IX Series ( <i>Sideport or trinocular head {U-TR30H}</i> )

<b>Z</b> <b>Zeiss</b>	<b>M</b>	<b>Upright</b> Axiophot - Axioplan - Axioskop - Axiotron Axiotron 2 - Axioskop 20 & 50
		<b>Inverted</b> Axiovert 10 - Axiovert 35 - Axiovert 35M - Axiovert 405M
	<b>Z</b>	<b>Upright</b> Axio Examiner - Axio Imager & Imager Vario - Axio Lab & Lab A1 - Axio Observer - Axio Scope A1 - Axio Scope Vario - Axiophot 2 - Axioplan 2 - Axioskop 2, FS, & 40 - Axiostar/ Starplus - Axiotech & Vario - Axiotron 2 CSM - STD 25 ICS - KF2 ICS - New Standard Trinocular Tube (Zeiss # 452902) Primo Star ( <i>Needs our "Z" Btm Ass ISO</i> )
		<b>Inverted</b> Axiovert Models A1, 100, 135, 135M, 200 IM Series ( <i>with new standard trinoc tube Zeiss # 452902</i> )
		<b>Stereo</b> Axio Zoom V16 - Discovery models V8, V12, V20 Semi Models, DRC ( <i>with 455005 phototube</i> ) 2000C - 2000CS - SV6 - SV11 - Lumar V12
	<b>O</b>	<b>Upright</b> Axiomat - Photomicroscope II & III - UEM - Ultraphot IIIB Universal ( <i>Replaces phototube in all models</i> )

### Note Zeiss Conversions

M Model Above = Use for Zeiss Interface 44 (44mm Inner Diameter)

Z Model Above = Use for Zeiss Interface 60 and 60N (30mm Inner Diameter)

# SC - Standard Camera Couplers



Model shown SC500U, "G" bottom clamp for Olympus, Holding 0.50X standard coupler, C-Mounted for 1/2" chip USB mini camera.

The Standard camera coupler sets the benchmark for system versatility and image clarity.

These models provide a reprojected image to your camera sensor.

The standard coupler (SC) has a two piece design consisting of an optical coupler and a bottom clamp. The bottom clamp fits into your microscope photoport or phototube to provide a secure mounting interface for the optical coupler.

As all the optical couplers fit all of the bottom clamps, and the two parts are available separately, a single optical coupler can be used in many different microscopes with many different bottom clamps.

## Internally Focusable

Quick and easy adjustment set screws achieves parfocality. Allen key style set screws eliminate focus movement after parfocality has been achieved.

## Image Quality

Precision optics produce crisp, flat-field images with all microscope objectives, including Achromatics, Apochromats and Plan Fluorites.

## Interchangeable

Use one SC adapter in different brands of microscopes utilising different bottom clamps, multipurpose and economical.



Various mag SC adapters

## Variety of Magnifications

0.38X, 0.50X, 0.67X, 1.0X, and 2X, are available to achieve desired fields of view and optimise the camera's performance.

## Reticule / Graticule Projection

All standard couplers accept 21mm diameter reticules / graticules, for clear projection, onto the TV image plane



SC adapter with "L" bottom clamp

## Versatility

Available in C-Mount, Bayonet, and F-Mount configurations to fit a wide variety of cameras.



Various SC Bottom Clamps

# SC - Standard Coupler Model Maker

Camera Mount Type	Magnification Factor	Microscope Manufacturer	Microscope Model
Column #1	Column #2	Column #3	Column #4

<b>SC</b> C MOUNT	<b>38</b> (0.38X) 1/3" chip 6mm Diag
	<b>50</b> (0.50X) 1/2" chip 8mm Diag
	<b>67</b> (0.67x) 2/3" chip 11mm Diag
	<b>10</b> (1.0x) 1" chip 16mm Diag
	<b>16</b> (1.6x) 30mm Diagonal
	<b>20</b> (2.0x)

<b>SS</b> SONY 1/2" Bayonet	<b>50</b> (0.50x) 1/2" chip 8mm Diag
	<b>67</b> (0.67x) 2/3" chip 11mm Diag
	<b>16</b> (1.6x) 30mm Diagonal

<b>SH</b> 1/2" Bayonet All But Sony	<b>50</b> (0.50x) 1/2" chip 8mm Diag
	<b>67</b> (0.67x) 2/3" chip 11mm Diag
	<b>16</b> (1.6x) 30mm Diagonal

<b>SB</b> 2/3" Bayonet (ENG)	<b>67</b> (0.67x) 2/3" chip 11mm Diag
	<b>16</b> (1.6x) 30mm Diagonal

<b>SE</b> EOS Bayonet Canon	<b>16</b> (1.6x) 30mm Diagonal
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<b>SF</b> F-Mount Nikon	<b>67</b> (0.67x) 2/3" chip 11mm Diag
	<b>16</b> (1.6x) 30mm Diagonal

<b>L</b> Leica Leitz, Wild, Bausch & Lomb	<b>A</b> <b>Leica Compound</b> DML Series - DMR Series - DM RD ( <i>Does not fit into photoTV Module</i> ) FSA Tube Adapter - TV Tube Adapter - Variotube ( <i>All Insert into 37mm Phototube, Delta Optics</i> )
	<b>Leica Stereo</b> MS5 - MZ6 - MZ8 - MZ10 - MZ12 - MZAPO ( <i>All 37mm Photoport</i> ) GZ6 (W phototube #13410309) LED Models 2000, 2500, 3000, 5000 - M125 - M165C - M165 FC - M205 A - M205 FA - S6D - S8 APO - TL3000ST
	<b>B</b> <b>Leica Inverted</b> DMIL ( <i>inserts into 38mm ISO photoport</i> )
	<b>Leica Stereo</b> MS5 - MZ6 - MZ8 - MZ12 - ( <i>All insert into 38 ISO photoport</i> ) GZ6 ( <i>With Phototube #13410302</i> )
	<b>Leitz Upright</b> Aristomet - Aristoplan - Dialux - Diaplan - Ergolux - Laborlux - Metallux - Metalloplan - Ortholux - Orthoplan ( <i>All insert into 38mm ISO photoport</i> )
	<b>Leitz Inverted</b> Diavert - Fluovert - Labovert - Metallovert ( <i>All insert into 38mm ISO photoport</i> )
	<b>Wild Stereo</b> M3 - M5 - M7 - M8 - M10 ( <i>All insert into 38mm Iso Photoport</i> )
	<b>Wild Macroscope</b> M420 - ( <i>Insert into 38mm Iso Photoport</i> )
	<b>J</b> <b>Wild Upright</b> Old Wild M11 - M20 - M40 - M50 ( <i>All with 25mm Photoport</i> )
	<b>V</b> <b>Leica Compound</b> DM L Series - DMR Series - DMIR Series - DM IL Series ( <i>All HC Optics</i> ) V-Clamp should work with any red flash leica HC optics Photoport or trino head

<b>N</b> Nikon	<b>F</b> <b>Upright</b> Apophot - Alphaphot 2 - Fluophot - Labophot & Labophot 2 - Measurescope UM-2 & UM-3 - Optiphot Models 2, 66, 88, - ( <i>All with phototube</i> ) - Multi image module - Microphot ( <i>With Nikon Tube #79429</i> )
	<b>Inverted</b> Diaphot 200/300 (With side port phototube) - Diaphot TMD - Epiphot TME - TMS-F
	<b>Stereo</b> SMZU ( <i>With Phototube</i> ) - SMZ 10 & SMZ-10A ( <i>With Phototube</i> ) - SMZ-2T
	<b>Measuring</b> MM11C - MM11U - MM22- MM22U - MM40- MM60 ( <i>All with Phototube</i> )
<b>B</b>	<b>Upright</b> Alphaphot 2 - Eclipse series ( <i>requires YT Tube 92306</i> ) - Labophot 2 - ME600L - Microphot Models, FX, FXL, POL, SA & FX POL ( <i>All Microphot need Nikon ENG photoadapter</i> ) Optiphot 2 - Optiphot Models, UD, 100S, 150, 200, 300 ( <i>All insert into 38mm ISO photoport</i> )
	<b>Inverted</b> Diaphot 200/300 - Eclipse Models MA100, MA100L, MA200, TE200 TE2000 TE2000 PFS, TE3000, TI, TS100, TS100 F, TE2000, <i>All insert into 38mm ISO port</i>
	<b>Metallurgical</b> Epiphot 200/300 ( <i>All insert into 38mm ISO photoport</i> )
	<b>Stereo</b> SMZ10A - SMZ U - SMZ Models, 800, 1000, 1500 ( <i>All insert into 38mm ISO photoport</i> ) - SMZ18 - SMZ25
	<b>Measuring</b> MM40 - MM60 ( <i>Both insert into 38mm ISO photoport</i> )
	<b>Zoom</b> AZ100 - AZ100M ( <i>Both insert into 38mm ISO photoport</i> )

<b>D</b>	<b>Upright</b> Eclipse Series ( <i>With Phototube #92021 for 30mm photo eyepiece</i> )
	<b>Stereo</b> SMZ800 ( <i>With Phototube #92021 for 30mm photo eyepiece</i> )

<b>H</b>	<b>Upright</b> AX Series - BX Series - BX2 Series - CX Series - CX2 Series - MX Series ( <i>All with U-SPT tube</i> ) - BH2 Series (BHS, BHT, BHTU, BHM) - Vanox ( <i>With AH2-ADF for new Vanox</i> ) - CHK - CHL ( <i>Models With Trino Heads</i> )
	<b>Inverted</b> IMT2 (With side port trino head) - IX Series (W IX-SPT phototube for side port trino head) - IMT-2 - PMG3 ( <i>Both need IMT2 Phototube</i> )
	<b>Stereo</b> SZ Series ( <i>fits SZ-TRU phototube</i> ) - SZH Series - SZX Series ( <i>both with U-SPT phototube</i> )

<b>O</b> Olympus	<b>J</b> <b>Upright</b> BH Series - CH Series - CX Series ( <i>Both 25mm Phototube</i> )
	<b>Inverted</b> CK Series ( <i>with 25mm phototube</i> )
	<b>Stereo</b> SZIIITR Series - XTR Series ( <i>Both 25mm phototube</i> )

<b>G</b>	<b>Upright</b> AX Provis Series - BX Series - BX2 Series - CX Series - CX2 Series - MX Series ( <i>All w/ U-SPT phototube removed</i> ) - BX U DPT Double Port ( <i>Back port only front port uses H clamp</i> )
	<b>Inverted</b> CXK 41 ( <i>With Trino tube TR30-2 Only</i> )
	<b>Stereo</b> SZX Series ( <i>all with USPT phototube removed</i> ) - MVX10

<b>J</b>	<b>Upright</b> Old Standard Trino (With 35mm O.D phototube / Zeiss #s 473026, 473028, 473029) New standard Trino (Zeiss # 452903)
	<b>Inverted</b> IM Series ( <i>with 25mm o.d or 23.2mm i.d phototube</i> )

<b>K</b>	<b>Upright</b> Axio Examiner - Axio Imager - Axio Imager Vario - Axiolab - Axio Lab A1 - Axio Observer - Axio Scope A1 - Axio Scope Vario - Axiophot 2 - Axioplan 2 - Axioskop 2 - Axioscop 40 - Axiostar / Starplus - Axiotech - Axiotech Vario - Axiotron 2 CSM - KF2 ICS - Primo Star - STD 25 ICS - New Standard Trinocular Tube (Zeiss # 452902)
	<b>Inverted</b> Axiovert Models A1, 100, 135, 135M, 200- ( <i>All non-compatible with 0.38x mag</i> ) - Primo Vert - IM Series (with new standard trinoc tube Zeiss # 452902)
	<b>Stereo</b> Axio Zoom V16 - Discovery Models V8, V12, V20 - Stereo Lumar V12 - Stemi Models 2000C, 2000CS, SV11, SV6 - Stemi DRC ( <i>needs 455005 phototube</i> )

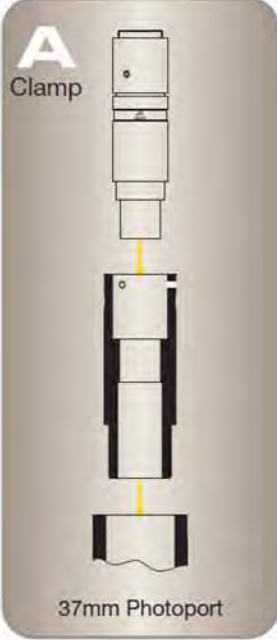
<b>L</b>	<b>Upright</b> Axiophot - Axioplan - Axioskop - Axioskop 20, & 50, - Axiotron - Axiotron 2 - Mikroskop UEM - Photomikroskop 2 & 3 - Standard models, 14, 16, 18, 25 POL, Junior, Junior 2, Lab 06, WL
	<b>Inverted</b> Axiovert 10 - Axiovert 35 - Axiovert 35M - Axiovert 405M

# Standard Coupler Series Microscope to bottom clamp quick reference chart


Standard Coupler Bottom Clamps	Leica (Leitz - Wild)	Nikon	Olympus	Zeiss
	Microscope Models	Microscope Models	Microscope Models	Microscope Models
A	Aristomet - Aristoplan Dialux - Diaplan - Diavert DM IL Series DML & DMR Series (HC Optics) DM IR Series (HC Optics) DM L Series (Delta Optics Series) DM IL Series (HC Optics Series) DM R Series (Delta Optics Series) DMRD Series (Delta Optics Series) Ergolux - Fluovort FSA Tube Adapter GZ6 Laborlux - Labovort LED Models 2000, 2500, 3000, 5000 M3 - M5 - M7 - M10 M125 - M165C - M165FC - M205A - M205FA MZ6 - MZ8 - MZ12 - MS5 Wild M11 - M20 - M40 - M50 M420 MZAPO Metallovert - Metallux Ortholux - Orthoplan S6D TV Tube Adapter & Variotube	Apophot Alphaphot-2 AZ100 & AZ100M Diaphot 200/300 Diaphot TMD Eclipse Series Epiphot TME Fluophot - Labophot-2 Meascope UM-2 & UM-3 Multi-image module Microphot MM-11C - MM-11U - MM-22 - MM-22U MM-40 - MIM-60 Optiphot models 66 & 88 Optiphot-2 Optiphot 100S - 150 - 200 - 300 SMZ-2T SMZ-800 - SMZ-1000 - SMZ-1500 SMZ10 - SMZ-2T SMZ-10A SMZ18 - SMZ25 SMZ-U TMS-F TS100-F - TE2000	AX Series AX Provis Series BH Series - BX 2 Series BH-2 Series (BHS, BHT, BHTU, BHM) BX Series - BX 2 Series BX U-DPT Double Port CHK & CHL (With trino heads) CH Series - CK Series CKX-41 CX Series, CX 2 Series IMT-2 and IX Series MVX-10 MX Series SZ Series - SZH Series SZX Series SZIII-TR Series SZX9 - SZX12 & Vanox XTR Series	AXio Examiner - Axio Imager - Imager Vario AxioLab - AxioLab A1 - Axio Observer Axio Scope A1 & Axioscope Vario AxioPhot - AxioPlan AxioPhot-2 - AxioPlan-2 Axioskop & Axioskope 20 & 50 Axioskop-2 & FS & 40 AxioStar - AxioTech - Axio Tech Vario Axiotron - Axiotron 2 Axiovert A1 - 100 - 135 - 135M Axiovert 10 - 35 - 35M - 405M Axiozoom V16 IM Series KF2 ICS New Std. Trinoc #452902 - #452903 Old Std. Trinoc #473026 - #473028 - #473029 Primo star & Primo Vart STD 25 ICS Stereo Discovery V8 & V20 - Stereo Lumar V12 SV6, SV11 Stemi 2000C - Stemi 2000-CS - Stemi DRC
B				
D				
F				
G				
H				
J				
K				
L				
V				

Bottom clamp to Microscope port Schematics (all shown with SC50 - suitable for a 1/2" chip camera)

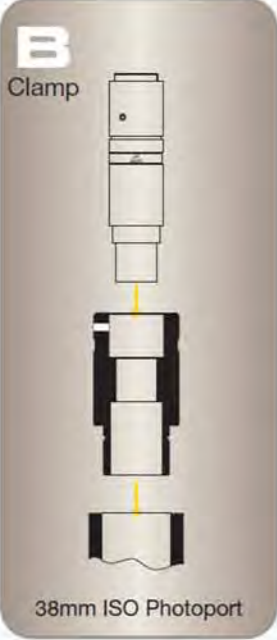
Note that all SC couplers drop into all Bottom clamps




**A** Clamp  
37mm Photoport



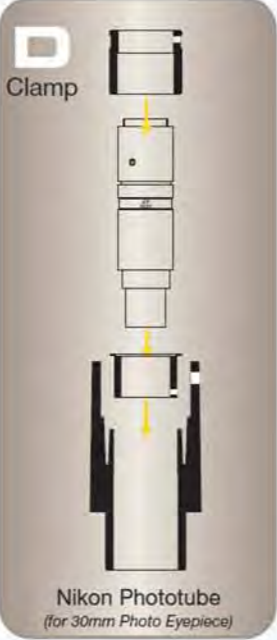
A-Clamp = 37mm Diameter (MALE)




**B** Clamp  
38mm ISO Photoport



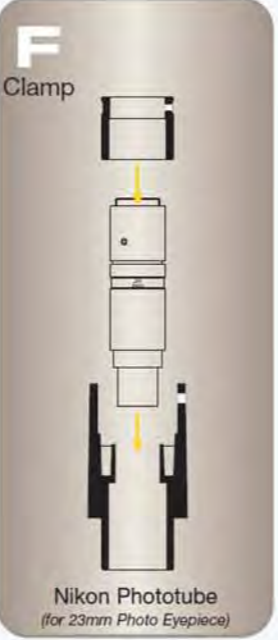
B-Clamp 38mm Diameter (MALE)




**D** Clamp  
Nikon Phototube  
(for 30mm Photo Eyepiece)




D-Clamp = 42mm Outer Diameter - 32.5 Inner Diameter (FEMALE)




**F** Clamp  
Nikon Phototube  
(for 23mm Photo Eyepiece)



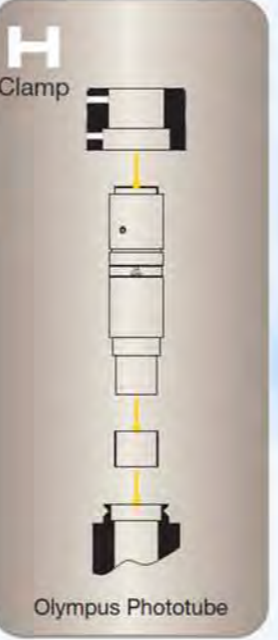
F-Clamp = 42mm Outer Diameter - 32.5 Inner Diameter (FEMALE)




**G** Clamp  
Olympus Photoport  
(U-SPT Phototube Removed)



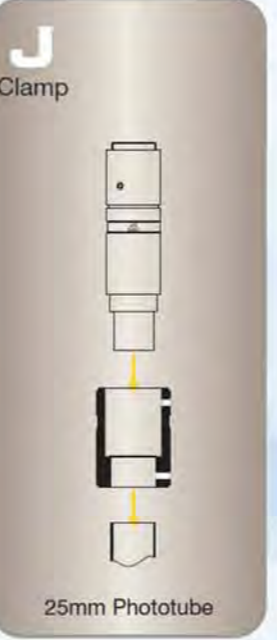
G-Clamp = 42mm Diameter Dovetail (MALE)




**H** Clamp  
Olympus Phototube



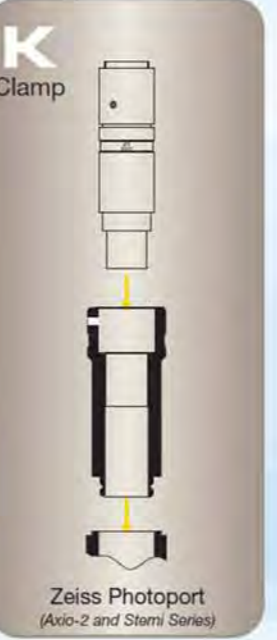
H-Clamp - 38mm Inner Diameter (FEMALE)




**J** Clamp  
25mm Phototube



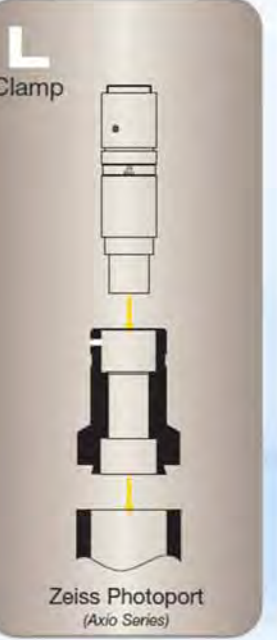
J-Clamp - Will go over 25mm phototube (FEMALE)




**K** Clamp  
Zeiss Photoport  
(Axio-2 and Stemi Series)




K-Clamp = 30mm Diameter (MALE)




**L** Clamp  
Zeiss Photoport  
(Axio Series)



L-Clamp = 44mm Diameter Dovetail (MALE)



**V** Clamp  
Leica Phototube  
(for HC Series)



V-Clamp = 34.5mm Diameter (MALE)

# Multi-Port Camera Couplers

The Multi-Port coupler is the perfect solution when your application requires more than one camera.

They have been specifically designed to increase your imaging productivity. Two cameras can be fitted simultaneously, so users no longer need to swap out different cameras for different operations. It is also a more cost effective solution than buying an expensive microscope head (e.g. Quad Head or Dual Port)

There are three types of Multi-Port to choose from all with a different orientation - chose which best suits your environment.

- MH - 100% Horizontal
  - MV - 100% Horizontal - 100% Vertical
  - MJ - 50% Horizontal - 50% vertical
- (See diagrams right for more info)



MV - 100% Vert / 100% Horz Multiport with 2x C-Mounted cameras

## **Important Technical Notes**

*All horizontal ports use mirrored images (can be corrected with digital camera software etc) Results using Multi-Port couplers may vary depending upon the position of the exit pupil for a given microscope. If the exit pupil does not match up with the relay optic, vignetting could occur.*



Multiport with C-to-C-Mount

## **Magnifications**

0.50X and 1X magnification factors are available to provide field of view and resolution flexibility. However when combined with a C to C mount coupler (left) other magnifications are possible (0.38X, 0.67X, 1.6X, & 2X) See page 17 for C-to-C mount couplers.

## **Camera Compatibility**

Available in C-Mount configuration as standard for CCD cameras. Bayonet, and F-Mount conversions also available as custom made to order products.

## **High Resolution Imaging**

Innovative engineering and precision optics combine to provide high-contrast, flat-field images.

## **Light Distribution Flexibility**

Light Distributions of 50/50 and 100/100 to best suit the light-intensity requirements of your application.



MV Multiport for Olympus

**Camera Mount Type**

Column #1

**Magnification Factor**

Column #2

**Microscope Manufacturer**

Column #3

**Microscope Model**

Column #4

# Multi-Port Coupler Model Maker

**MH**  
100% Horiz  
Both C-Mount

**50**  
(0.50X)  
1/2" chip 8mm Diag  
**10**  
(1.0X)  
1" chip 16mm Diag



**MV**  
100% Horiz  
100% Vert  
Both C-Mount

**50**  
(0.50X)  
1/2" chip 8mm Diag  
**10**  
(1.0X)  
1" chip 16mm Diag



**MJ**  
50% Horiz  
50% Vert  
Both C-Mount

**50**  
(0.50X)  
1/2" chip 8mm Diag  
**10**  
(1.0X)  
1" chip 16mm Diag



## L Leica

Leitz,  
Wild,  
Bausch &  
Lomb

<b>1</b>	<b>Leica Compound</b>	DML Series - DMR Series - DM RD (Not into photoTV Module) FSA Tube Adapter - TV Tube Adapter - Variotube (All Insert into 37mm Phototube) DM MFK 2
	<b>Leica Sterero</b>	MS5 - MZ6 - MZ8 - MZ12 - MZAPO (All 37mm Photoport) GZ6 (W phototube #13410309) - LED Series (Needs Leica 1x tv tube # 10445930) M125 - M165 C & FC - M205 - MZ10 - S6D - S8 APO - Z16 APO - Z6 APO (All need Leica 1X tv tube # 10445930)
<b>2</b>	<b>Leica Compound</b>	DM Series - DM L Series - DM R Series - DM IR Series - DM IL Series - (All HC Optics) INM100
	<b>Leica Inverted</b>	DMIL (Inserts into 38mm ISO photoport)
<b>3</b>	<b>Leica Stereo</b>	MS5 - MZ6 - MZ8 - MZ12 - MZAPO (All insert into 38mm ISO photoport) GZ6 (With Phototube #13410302)
	<b>Leitz Upright</b>	Aristomet - Aristoplan - Dialux - Diaplan - Ergolux - Laborlux - Mettalux - Ortholux - Orthoplan (All insert into 38mm ISO photoport)
	<b>Leitz Inverted</b>	Diavert - Fluovert - Labovert - Metallovert (All insert into 38mm ISO photoport)
	<b>Wild Stereo</b>	M3 - M5 - M7 - M8 - M10 (All insert into 38mm ISO Photoport)
	<b>Wild Macroscope</b>	M420 - (Insert into 38mm ISO Photoport)

**Note Leica HC optics (Harmonic contrast) systems indicated by RED flash marking on your microscope**  
**Note Leica Delta optics systems indicated by BLACK flash marking on your microscope**  
This may help with identifying your microscope type. Note for indication only - trino heads can be interchanged.

## N Nikon

<b>3</b>	<b>Upright</b>	Alphaphot 2 - Eclipse series (Requires YT Tube #92306) - Labophot 2 - Microphot & Microphot models FX, FXL, POL, SA - Optiphot 2 - Optiphot 100S, 150, 200, 300 (All insert into 38mm ISO photoport)
	<b>Inverted</b>	Diaphot 200/300 - TS100F - TE2000 (All insert into 38mm ISO photoport)
	<b>Metallurgical</b>	Epiphot 300/200 (All insert into 38mm ISO photoport)
	<b>Stereo</b>	SMZ10A - SMZU - SMZ800 - SMZ1000 - SMZ1500 (All insert into 38mm ISO photoport) SMZ18 - SMZ25 (With LV-TV tube)
	<b>Measuring</b>	MM40 - MM60 (Both insert into 38mm ISO photoport)
	<b>Zoom</b>	AZ100 - AZ100M
<b>4</b>	<b>Upright</b>	Alphaphot 2 - Eclipse series (Requires Tube #92021) - Labophot 2 - Microphot & Microphot models FX, FXL, POL, SA (With phototube # 79429) Multi Image Module - Optiphot 2
	<b>Inverted</b>	Diaphot 200/300 (With sideport phototube) - Diaphot TMD - Epiphot TME - TMS-F
	<b>Stereo</b>	SMZ10A - SNZ2T - SMZU - SMZ800 - SMZ1000 - SMZ1500 (All insert into #92021 phototube) SMZ18 - SMZ25 (With LV-TV tube)
	<b>Measuring</b>	MM-11C - MM-11U - MM-22 - MM-22U - MM-40 - MM-60 (All with phototube)

## O Olympus

<b>5</b>	<b>Upright</b>	AX Series - BX Series - BX2 Series - CX Series - CX2 Series - MX Series (All w/ U-SPT phototube) - BH2 Series (BHS, BHT, BHTU, BHM) Vanox (With AH2- ADF for new Vanox) - BX UDPT Double Port (Back port only)
	<b>Inverted</b>	Imt2 (With sideport or trino head) - IX Series (With IX-SPT phototube for sideport or trino head) - MVX10
	<b>Stereo</b>	SZ Series (Fits SZ-TRU phototube) - SZH series - SZX Series (Both with U-spt phototube)

## Z Zeiss

<b>6</b>	<b>Upright</b>	Axiophot - Axioplan - Axioskop - Axiotron Axiotron 2 - Axioskop 20 & 50 -
	<b>Inverted</b>	Axiovert Models 10, 35, 35M, 405M
<b>7</b>	<b>Upright</b>	Axio Examiner - Axio Imager & Imager Vario - Axio Lab & Lab A1 - Axio Observer - Axio Scope A1 - Axio Scope Vario - Axiophot 2 - Axioplan 2 - Axioskop 2, FS, & 40 - Axiostar/ Starplus - Axiotech & Vario - Axiotron 2 CSM - Primo Star - STD 25 ICS - KF2 ICS - New Standard Trinocular Tube (Zeiss # 452902)
	<b>Inverted</b>	Axiovert Models A1, 100, 135, 135M, 200 IM Series (With new standard trino tube Zeiss # 452902) PrimoStar
	<b>Stereo</b>	Axio Zoom V16 - Discovery models V8, V12, V20 - Semi Models, DRC (With 455005 phototube) 2000C - 2000CS - SV6 - SV11 - Lumar V12

**Note Zeiss Conversions**  
**6 Model Above = Use for Zeiss Interface 44 (44mm Inner Diameter)**  
**7 Model Above = Use for Zeiss Interface 60 and 60N (30mm Inner Diameter)**

Mitutoyo Multi-Ports also available - see page 19 and contact us for details

# M2 APO Camera Couplers

The M2 APO couplers are specifically designed to deliver high-quality images from your microscope to your high-end research grade cameras.

The M2 APO's telecentric optics ensures high camera efficiency, minimum colour spread, and uniform illumination across the entire field of view. In addition, broadband anti-reflection coatings allow maximum photon transmission for optimal fluorescence imaging.

Available with 0.5X, 0.7X and 1.1X magnifications to optimise the FOV coverage of today's Mega-pixel research digital camera chips.



"U" bottom assembly holding M2 APO - with C-mount adapter to camera

## **Centerable C-Mount**

Allows for precise image alignment.

## **APO Image Quality**

Apochromatic over visible spectrum for high resolution images.

## **Built-In Aperture**

Adjustable aperture to improve contrast (0.5X and 0.7X models only)

## **Versatile Connectivity**

Connects easily to a variety of cameras, including C-Mount, F-Mount, ENG and EOS.



0.5X M2 APO - without camera mount

## **Precise Lockable Focus**

Maintains camera parfocality.

## **Low Profile**

Low-profile design ensures greater image stability.



0.5X M2 APO with Canon EOS mount

# M2 APO Camera Coupler Model Maker

Camera Mount Type

Column #1

Magnification Factor

Column #2

Microscope Manufacturer

Column #3

Microscope Model

Column #4

**MAC**  
C-Mount

**50**

(0.50X)  
1/2" or 2/3" chip  
8mm Diagonal

**70**

(0.7X)  
15mm Diagonal

**11**

(1.1X)  
11-22mm Diagonal

**L**  
Leica

Leitz,  
Wild,  
Bausch &  
Lomb

**Leica Inverted** DMIL (*Inserts into 38mm ISO photoport*)

**Leica Stereo** MS5 - MZ6 - MZ8 - MZ12 - MZAPO (*All insert into 38mm ISO photoport*)  
GZ6 (*With Phototube #13410302*)

**Leitz Upright** Aristomet - Aristoplan - Dialux - Diaplan - Ergolux - Laborlux - Mettalux - Ortholux - Orthoplan  
(*All insert into 38mm ISO photoport*)

**Leitz Inverted** Diavert - Fluovert - Labovert - Metallovert (*All insert into 38mm ISO photoport*)

**Wild Stereo** M3 - M5 - M7 - M8 - M10 (*All insert into 38mm ISO Photoport*)

**Wild Macroscope** M420 - (*Insert into 38mm ISO Photoport*)

**Y**

**Leica Compound** DM Series - DM L Series - DM R Series - DM IR Series - DM IL Series - (*All HC Optics*)  
DM1000 to 6000 - DMI3000 to 6000

**MAF**  
F-Mount  
Nikon

**50**

(0.50X)  
1/2" or 2/3" chip  
8mm Diagonal

**70**

(0.7X)  
15mm Diagonal

**11**

(1.1X)  
11-22mm Diagonal

**N**  
Nikon

**Upright** Alphaphot 2 - Eclipse series (*Requires YT Tube 92306*) - E400, E600, E800, E80i, E90i (*DIH illuminator front port only*) Labophot 2 - Microphot & Microphot models FX, FXL, POL, SA - Optiphot 2 - Optiphot 100S, 150, 200, 300 (*All insert into 38mm ISO photoport*)

**Metallurgical** Epiphot 300/200 (*All insert into 38mm ISO photoport*)

**Stereo** SMZ10A - SMZU - SMZ800 - SMZ1000 - SMZ1500 (*All insert into 38mm ISO photoport*) - SMZ18 - SMZ25 (*With LV-TV tube*)

**Measuring** MM40 - MM60 (*Both insert into 38mm ISO photoport*)

**Zoom** AZ100 - AZ100M

**T**

**Inverted** TE2000 (*Nikon 38mm ISO removed*)

**MAB**  
(ENG)  
2/3 Bayonet

**50**

(0.50X)  
1/2" or 2/3" chip  
8mm Diagonal

**70**

(0.7X)  
15mm Diagonal

**11**

(1.1X)  
11-22mm Diagonal

**O**  
Olympus

**Upright** AX Series - BX Series - BX2 Series - CX Series - CX2 Series - MX Series (*All with U-SPT phototube removed*)  
BX UDPT Double Port (*Back port only*)

**Stereo** SZX Series (*Both with U-spt phototube removed*)

**W**

**Inverted** IX Series (*Sideport Trinocular head{U-TR30H}*)

**MAE**  
EOS  
Bayonet  
Canon

**50**

(0.50X)  
1/2" or 2/3" chip  
8mm Diagonal

**70**

(0.7X)  
15mm Diagonal

**11**

(1.1X)  
11-22mm Diagonal

**MAS**  
Sony 1/2"  
Bayonet

**50**

(0.50X)  
1/2" or 2/3" chip  
8mm Diagonal

**70**

(0.7X)  
15mm Diagonal

**11**

(1.1X)  
11-22mm Diagonal



M2 APO With C-Mount



M2 APO With F-Mount for Nikon



# C to C Mount Adapters

With equivalent image quality to the standard series couplers, this series eliminate the brand specific bottom clamp for connectivity to older or more obscure-brand microscopes. C-to-C mount couplers offer virtually universal connectivity from male C-mount microscope, to female C-Mount cameras.



*The C-Mount adapter (shown on right) would interface to your microscope - this would then supply a base for a bottom clamp, to which the optical camera adapter would then drop into, making it stable - much like the example to the left.*



C-to-Bayonet couplers offer the same imaging quality, value, and universal connectivity as C-to-C couplers but fit microscopes with male c-mount to bayonet-mount cameras. Available in magnifications ranging from 0.38X up to 2.0X for imaging flexibility. Simply match a magnification to your camera format as Best Scientific recommend for all our couplers. These, just like the SC range, have a built in 21mm diameter reticule holder, to add imaging precision, and utility.

#### C-to-C Mount Catalogue Numbers

25-70-54-56	0.38X C-to-C (1/3" Chip camera Format)
25-70-49-56	0.50X C-to-C (1/2" Chip camera Format)
25-70-50-56	0.67X C-to-C (2/3" Chip camera format)
25-70-17-56	1.0X C-to-C (1" Chip Camera format)
25-70-37-56	2.0X C-to-C

#### C-to-Bayonet Catalogue Numbers

25-77-22-56	0.50X C-to-1/2" SONY Bayonet
25-77-21-56	0.67X C-to-1/2" SONY Bayonet
25-77-33-55	0.50X C-to-1/2" Bayonet all but sony
25-77-23-56	0.67X C-to-1/2" Bayonet all but sony
25-77-25-56	0.67X C-F Mount Bayonet
25-77-24-56	0.677X C-to-2/3" ENG Bayonet

## Nikon and Olympus & other Fixed Mag Ports



Some microscopes have a fixed optical output system for their photoports, instead of a regular photoport. Nikon and Olympus have systems such as this. If you run in to this problem Best scientific Couplers have a solution.

### Nikon

Nikon have the DSC port fixed at 0.7X output magnification. The problem being this magnification is not suitable or compatible for standard sized chip cameras. Best scientific can supply you the above C-to-C mount adapter to solve this problem. Installing the relevant lens into the optical path you step up the magnification as required, to make the FOV suitable for the size of the camera chip you are using. See the Table below.



### Olympus

Olympus has a similar fixed magnification system known as the SZ61TR. This system is 0.5X fixed. This is a bit more flexible as a lot of camera chips are 1/2" which would make good use of the field the 0.5X magnification is displaying. However if you have any other sized camera chip you need the relevant lens to fill the FOV. While on the flip side you can over magnify, meaning you would lose part of your image outside of what the camera can see, specifically on 1/3" cameras.



#### Nikon 0.7X DSC Adapter - converter

1/3" Chip Camera	Use 0.5X Adapter
1/2 Chip Camera	Use 0.67X Adapter
2/3" Chip Camera	No Adapter
1" Chip Camera	Use 1.6X Adapter

#### Olympus 0.5X SZ61 Adapter - converter

1/3" Chip Camera	Use 0.67X Adapter
1/2 Chip Camera	No Adapter
2/3" Chip Camera	Use 1.6X Adapter
1" Chip Camera	Use 2X Adapter

## No photoport No problem !

All of the couplers featured in the catalogue are aimed to fit your microscope via photoport or phototube. However this is not the only way.....

### Omni Camera Coupler



The Omni camera coupler is designed for use with cameras which have an incorporated built in lens. (Camera body and lens as a single unit - lens not removable - typical of compact cameras and some DSLR's)

This adapter has a 43mm interfacing thread which enables them to be mounted on most major brand digital cameras, with the use of various step down rings.

This system has a built in focusing capability, for optimised image capture.

The omni coupler has a dual interface for versatile connectivity to either a 30mm eyepiece aperture, or a 1x microscope male C-mount connection. This is useful for when no standard photoport is available.

If you have a camera with built in lens you want to use to take photos from your microscope, please contact us we can suggest an Omni coupler to suit.

### Eyepiece adapters



Best Scientific Couplers have a range of interchangeable parts and adapters available in order to connect your digital camera so it can capture an image from a microscope's eyepiece. Contact us with your requirements and we can build a solution to fit round the equipment that you currently have. If you are on a tight budget this is an ideal solution for you, as you will not need to buy a new camera or microscope. If you are using lesser known branded microscopes or older model, this may be the solution we suggest. Our emphasis is always to get you the best image quality for the best price possible.

*The Mitutoyo toolmakers microscope (right) is a great example where this product could be used - no photo port and no eyepieces available to take a typical adapter. Best scientific Couplers would still be able to provide a solution. Contact us for more info or see more Mitutoyo items on page 19*



### Clamp on Compact Camera Adapter



*Best Scientific Couplers also stock the Universal camera adapter. This will work with the microscope's eyepiece 28-45mm diameter, and clamps on around it. Any compact camera with a Whitworth thread can be secured into position on the table. The table can then be adjusted in the X Y and Z planes, so the user can optimise the positioning to obtain their image. This adapter is the most economical way of obtaining an image through a microscope but the only recommended applications would be for hobbyists, schools, and very light laboratory use.*



# Mitutoyo Microscopes

Best Scientific Couplers stock a range of different coupler products for most Mitutoyo microscopes, such as Finescope 60, 70, & 110.



E-Clamp for Mitutoyo (SC couplers)

## Standard Couplers

Best Scientific Couplers stock the full range of Standard camera couplers. Magnifications including 0.38X, 0.50X, 0.67X, 1X, 1.6X, and 2X to go with your Mitutoyo microscope. Using our E and C clamps (42mm Dovetail), we can interface to the microscopes photoport. We can also supply the full range of camera T-Mounts, C-Mount, EOS, ENG, F-Mount, etc.

## Direct Couplers



Similar to the SC couplers Best Scientific Couplers can supply the range of direct C-Mount adapters 0.38X, 0.50X, 0.67X, and 1X. Other camera mount adapters are available as per list but in 1X magnifications only. Contact for info.

## Multi-Port Couplers

Best Scientific Couplers are able to interface two cameras simultaneously onto most Mitutoyo microscopes. Available in all the model types shown on the main Multi-port page (page14) including  
 MH (100% Horizontal)  
 MV (100% Horizontal 100% Vert)  
 MJ (50% Horizontal 100% Vertical)



## Alternative long working distance Objectives for Mitutoyo direct replacement

Best Scientific are able to offer Optem's long working distance objective lenses, which are ideal replacements for Mitutoyo standard objectives, and are also available in a high resolution version. With generous parfocal distance from 95mm these long working distance objectives are the perfect machine vision and industrial imaging solution, when maximum working space is required around your sample. Select from a wide range of magnifications when flat field precision, colour accuracy, and even illumination are critical. The high resolution version comes with an added 50% boost in numerical aperture. Use to achieve fine detail and maximise your high magnification potential.



*Mitutoyo 378 series replacement*

*Ideal for Metrology !*



### Long Working Distance Objectives

Magnification	Numerical Aperture	Working Distance
LWD 2X	0.055	34mm
LWD 5X	0.14	34mm
LWD 10X	0.3	34mm
LWD 20X	0.42	20mm
LWD 50X	0.55	13mm

### High Resolution Long Working Distance Objectives

Magnification	Numerical Aperture	Working Distance
High Res 5X	0.225	34mm
High Res 10X	0.45	19mm
High Res 20X	0.6	13mm

# Old, Rare, & Miscellaneous Microscopes

Best Scientific Couplers can provide adapters for most scopes...

If you have an older or lesser known brand of microscope, Best Scientific Couplers will still have a solution for you. Please contact us with information about your microscope and the camera you want to use and we can provide an adapter. Let us know if you are using models such, Meiji, Euromex CETI, Union, Carl Zeiss Jena, Kyowa, Hund, Reichert polyvar bio and met, and other brands of microscope for a recommended solution.

We can also supply adapters for Motic microscopes. Contact us for details.



Hund



Meiji



Carl Zeiss Jena



Euromex

## Polyvar BIO & MET Adapters

Best Scientific Couplers have a camera coupler for the the Reichert-Jung Polyvar widefield Photomicroscope. This adapter incorporates our DC couplers so has all the advantages with regards to Image focusing, low profile design, and is available over different magnifications depending on your camera format. Our system replaces the older lower quality and bulky image systems that the polyvar originally came with.

- Lower profile than standard image capture
- Update to new digital technology (DSLR's)
- Range of magnifications 0.38X - 0.67X - 0.50X - 1X
- Internally focusable
- High image quality



Polyvar with DC Coupler, C-Mounted



*Now also compatible with Digital SLR cameras. (Left)*



Polyvar Adapter

# Other Useful parts and Accessories

## Zooming Coupler



Best Scientific Couplers are now able to offer a new zooming camera coupler.

This new system links with Qioptiq's new infinity corrected Fusion Zoom system (Left). We are also able to offer this coupler with existing zoom systems from Qioptiq such as the Zoom 70, Zoom 125, and FMOS (fixed magnification optical system). Giving you more flexibility and magnification than previous.

*An Example Based on a Zoom 70...*

*1/2" camera chip with a mini TV tube 0.67X mag will give you a zoom range of 0.45X to 3.1X*

This new horizontal zoom system has reduced vibration for increased image quality, along with greater ease of use from the way it is positioned. It will enable the user to increase the magnification beyond what the microscope objectives can normally supply. This system is also able take a variety of camera mounts to suit your needs. Shown above with a standard C-Mount, but can also connect with any standard camera T-Mount.

Contact us for microscope compatibility.

## 23mm to C-Mount



Our 23mm to C-Mount adapter allows a user to interface directly with their microscope eyepieces. By simply removing the eyepiece and inserting this small part a user can attach a small C-Mounted camera to capture images. This will suit most microscope manufacturers, especially the more economically priced models. 23mm eyepiece holes is a microscope standard. (Please double check as anomalies do occur) This will give a 1X magnification to your camera chip. Other microscope models have a 30mm diameter eyepiece aperture - no problem, drop 26-90-02 adapter into the eyepiece followed by the 23-IPC for the same result.



## 1.6X SC Coupler for CCD & DSLR



The 1.6X SC coupler is our most versatile adapter. It is especially suited to interfacing with Digital SLR cameras, as it projects a 30mm diagonal image on to the chip. It has a 42mm Dia thread which converts to take most DSLR camera T-mounts plus a standard C-mount adapter for CCD cameras. Thus giving you the option to use any camera. It fits all of the bottom SC clamps (Page 9) so it can be interchangeable with multiple microscopes. The 1.6X can also be used via microscope eyepiece ports, as it is 23mm diameter it will fit standard eyepiece holes. Also when used with the above 30mm adapter 26-90-02 it will go straight into the larger eyepiece standard size.

This is also available in the C-Mount form for increasing pixel sizes if required. One camera coupler - lots of uses.

