

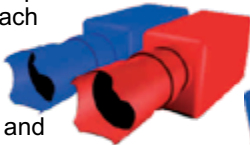
The 3D Camera Rig

A few different ideas have been devised for shooting 3D material over the years, including some interesting cameras using arrangements of lenses and prisms to make a more portable, easy to use, single bodied camera. However, to date, the most effective way of shooting 3D material in a professional environment is the dual camera 3D rig. There are several configurations of 3D camera rig, each with advantages and disadvantages.

Rig configurations

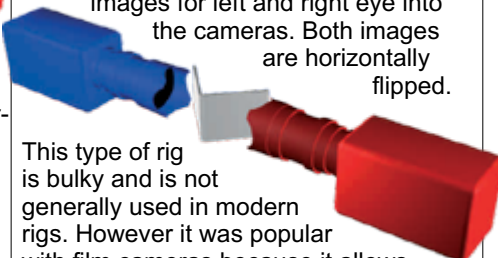
The parallel rig

The most compact dual camera 3D rig is the parallel rig. This places the two cameras next to each other. Parallel rigs generally work better with more compact cameras and lens designs. Otherwise it becomes difficult to achieve a good inter-axial distance between the cameras. It looks likely that this type of 3D rig will become the most popular because it is compact, and does not rely on mirrors which have an impact of image quality. New compact camera and lens designs will make this type of rig more appealing.



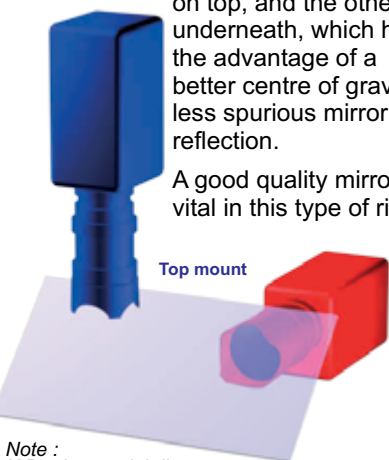
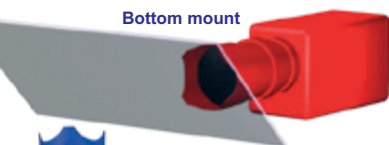
The opposing rig

The opposing rig places the cameras in a position where they are both pointing towards each other. A pair of mirrors placed between the camera reflects the images for left and right eye into the cameras. Both images are horizontally flipped. This type of rig is bulky and is not generally used in modern rigs. However it was popular with film cameras because it allows accurate camera line-up by removing the film plates and mirrors.



The mirror rig

The mirror rig places one of the cameras vertically. A semi-transparent mirror reflects the scene into the vertical camera while also allowing the horizontal camera to see through the mirror. There are two basic forms of mirror rig. One with the vertical camera on top, and the other underneath, which has the advantage of a better centre of gravity, less spurious mirror reflection. A good quality mirror is vital in this type of rig.



Rig type Features	Parallel	Opposing	Mirror Top mount	Mirror Bottom mount
Style	Side by side cameras.	Opposing cameras with two 45° mirrors.	One horizontal, one vertical camera set above. Semi-trans. mirror.	One horizontal, one vertical camera set below. Semi-trans. mirror.
Image flip	None.	Both, horizontal.	One, vertical.	One, horizontal.
Advantages	Compact & light design. No mirrors	Easy lineup with film cameras. IAD set by mirror spacing.	Can achieve very small IAD even with large cameras.	Similar to top mount rigs, but less prone to dirt, rain & light interference on the mirror.
Disadvantages	Difficult to achieve small IAD with large cameras or lenses	Bulky design.	Requires very high quality mirror. Prone to dust, rain & light interference on the mirror. Heavy design.	Heavy design. May have a problem pointing down. Requires very high quality mirror.
Usage	Compact and hand-held rigs. Also good for boom or crane rigs.	Used in the past with film cameras. Not in general modern use.	Popular in film and drama sets using large cameras, especially with bulky digital cinematography cameras.	

Note :
IAD = Inter-axial distance