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Choosing the perfect balance

It doesn't matter how professional a camera operator is, or how technologically advanced the camera is, if a high quality, appropriate camera support system has not been selected to suit the camera, location and shoot, the quality of work can be compromised. A camera operator must have complete confidence in his or her equipment to ensure that they can perfectly frame any action, follow it smoothly, stop when the action stops, and easily start again with a smooth acceleration.

Where to start in selecting a tripod

Tripods or camera support systems are designed to complement the performance of the camera and as cameras have evolved through innovation, so too have camera support systems. The ultimate camera support is one that gives the operator the perception that the camera is weightless, suspended in air. It frees the operator to focus on moving the camera and lens assembly as needed.

Deciding which support is best for you can be challenging. It is wise to begin with answering basic questions, such as what is the size and weight of the camera and what will it be used for?

In terms of size and weight, a heavy camera on a lightweight tripod / head is not a good idea as it will not provide the performance and rigidity needed. Light cameras on a heavy duty supports are also going to offer less than optimal performance.

Choosing a camera appropriate to the shoot, where this will take place is also an important consideration. Versatility is perhaps the characteristic that operators most often look for so selecting a tripod that provides stability regardless of the surface or terrain is key. For example, the more sections make up the legs, the easier it is to adapt the support to accommodate different shooting heights, even when the legs are extended to different lengths. When the legs are locked, even if fully extended, they should be completely rigid. When moving the camera support from one place to another it is crucial that the head (and therefore camera) is able to be quickly levelled.

Another aspect of versatility is whether the tripod is light enough to carry and can easily be packed away and put back together again. This is important in the studio, and particularly on the go – shooting news, sporting events and documentaries.

The range of camera supports from Vinten is manufactured from aluminium or carbon fibre and (excluding the range of heavy duty tripods) are designed to be highly portable. Aluminium tubes are cost-effective, robust and stiff and are able to cope with a degree of damage as they can be bent back into shape if deformed. Carbon fibre, on the other hand, is lighter and stiffer and warm to the touch (which makes it the perfect companion in colder shooting environments) but will not survive being run over by a truck in the same way an aluminium leg might.

More complex questions

In an ideal world the camera operator needs to stop the camera perfectly when the action stops or when the desired framing has been achieved. The torsional stiffness or rigidity of the camera support system needs to be sufficient to ensure that there is no spring back as the support relaxes.

When placing loads onto the support system by moving the pan bar it is crucial that the tripod is stiff enough not act like a coiled spring. For example, if it did, the camera would pan from left to right, but would jump back to a totally different position as soon as the pan bar was released. Without a suitably rigid tripod, framing can be difficult to maintain and its quality affected.

One of the main characteristics of the ideal camera support system is that the camera should remain stationary no matter which height or angle it is set at. When a camera is tilted, the centre of gravity moves away from being directly in line with the support structure, this leads to instability and the tendency of the camera to fall away. The balance mechanism in the pan and tilt head must exactly counter the force of gravity to prevent this. If fall away occurs with a fairly lightweight camera, the tilt drag can be used to mask the imperfect balancing to some degree. However, the heavier the cameras get, the more obvious these balance imperfections become.

Manufacturers of camera supports have been striving to achieve a “weightless” feel through unconditional stability. Companies have developed a variety of mechanical systems to counteract the forces generated by the cameras weight. These include spring counterbalance systems such as those inside the Vinten Vision heads, or pantographic mechanisms such as the industry standard Vector 750 head. All Vinten heads have Perfect Balance mechanisms. Vinten Perfect Balance heads ensure that the camera is always balanced, regardless of where it is pointing, with just a few seconds to adjust the alignment. Complementing the balance mechanisms, Vinten heads also include fluid drags to provide a controllable, smooth amount of resistance to inputs from the operator further enhancing control.

The challenge

As camera technology, and in turn camera support technology, has evolved, the market has also changed. In times of budget cuts and ruthless cost-efficiency, selecting the right camera support system has become a balancing act between cost-efficiency, performance and weight.

Vinten has dedicated years of research and development to developing a range that meets modern needs. A recent example is the Vision blue range of head and tripod systems that has been designed to address the need for a broadcast-quality tripod system capable of balancing the smaller, lightly accessorised cameras.

The future

With Vinten’s dedication to research and development and developing innovative camera support products, the future of camera support systems will definitely advance at the same pace as camera technology. The key element in designing these systems is keeping in mind that they need to perfectly complement camera operations and in this way, offer operators the ultimate level of seamless control.