



Vinten Thin Film (TF) Drag Technology

*Freeing you to capture
great Television - effortlessly* →

Vinten **TF drag** delivers complete control of any movement, freeing you to concentrate on capturing the best possible shot. TF drag instantly adjusts to your demands. Whether the moves need slow finesse or rapid whip pan, TF drag delivers the right control for every situation.

- **Continuous, infinite drag adjustment control** allows you to deliver smooth movement in any situation
- **Extensive range of drag** from exceptionally light to exceptionally heavy loads, allowing the camera to work in tune with you
- **A wide operating temperature range** from -40°C to +60°C means you can use the pan and tilt heads in a wide range of environments with uncompromising performance guaranteed
- **Outstanding** whip pan control freeing you to focus on capturing rapid moves

“If you ran your pan head with very little friction, you’re going to have trouble stopping the camera because there’s so much weight in that whip pan.

With the Vector head you’re still able to take those handles and jack the camera left or right, up and down, to get to that shot. That’s what I find amazing.”

Tom Guilmette, DoP;
using Vector to capture sports shots.

Vinten Products with TF drag:

Vision Range:
Vision 250
Vision 100

Vector range:
950/950i
750/750i
430/430s/430i



Vinten Thin Film (TF) Drag Technology

Vinten's TF (thin film drag) is a true fluid drag in the purest terms. Utilising the unique properties of a proprietary fluid TF drag provides smooth predictable resistance over a wide variety of levels and temperatures.

TF drags are constructed of multiple rotating plates alternating with static plates surrounded in the fluid which is vacuum filled to eliminate all air from the drag. The plates do not contact each other but are separated only by a thin film of the special fluid. When the head is moved the rotating plates move relative to the static plates creating a velocity profile shearing the fluid leading to drag (fig 1.0).

Drag level is infinitely adjustable by varying the area of overlap between the static and rotating plates.

At low to moderate speeds the fluid is in laminar flow and the separation of the plates (h) is constant yielding an evenly increasing level of drag with fluid velocity (u). As the pan (or tilt) motion speed crosses into the "whip pan" region the flow of fluid between the static and moving plates becomes sufficiently fast for the Bernoulli Effect to reduce the fluid pressure between the plates drawing them together. The coefficient of lubricated friction of the plates is equal to the fluid drag at this speed but does not increase as motion speed increases. This results in a smooth transition to almost constant drag force regardless of velocity (above the threshold) and the perfect whip pan.

As soon as the motion speed is reduced below the level required for the plates to be deflected the fluid returns to the void between the plates and normal fluid drag is restored.

Fig 1.0

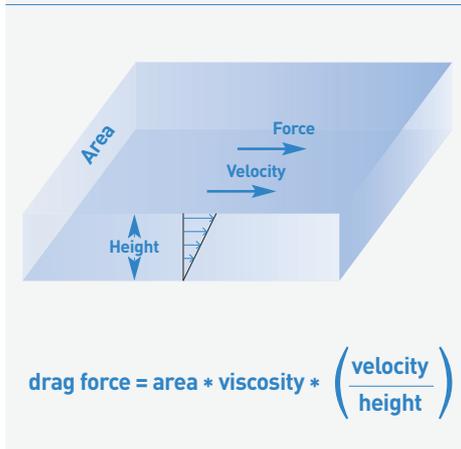
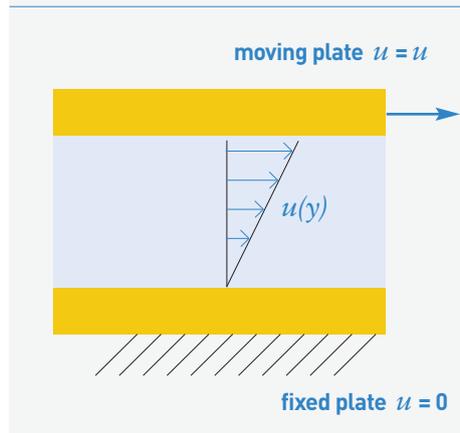
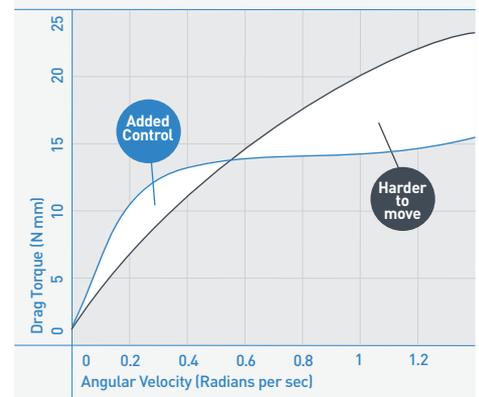


Fig 1.1



TF Drag: the camera moves in tune with you



Find out more:



Changes in Product Specification
 Vinten reserve the right to alter specifications or change materials where absolutely necessary.
 All sizes shown throughout this brochure are approximate.