FILM AND DIGITAL TIMES

Art, Technique and Technology

Film and Digital Times is the guide to technique and technology, tools and how-tos for Cinematographers, Photographers, Directors, Producers, Studio Executives, Camera Assistants, Camera Operators, Grips, Gaffers, Crews, Rental Houses, and Manufacturers.

It's written, edited, and published by Jon Fauer, ASC, an award-winning Cinematographer and Director. He is the author of 14 bestselling books—over 120,000 in print—famous for their user-friendly way of explaining things. With inside-the-industry "secrets-of-the-pros" information, Film and Digital Times is delivered to you by subscription or invitation, online or on paper. We don't take ads and are supported by readers and sponsors.

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Contents: April 2024 Issue 125

Cover: At the Super Bowl 2024 Halftime Show with Usher, the Funicular Goats tech team supports the talented Operators, like Sean Flannery, seen here on an ARRI Trinity stabilizer with Sony VENICE 2, tugged by Steadi Utility Drory Yellin.
Photo by Brianna Resuta.

Simon Beaufils on *Anatomy of a Fall*

At right: director Justine Triet. Center: DP Simon Beaufils. BTS photos by Carole Bethuel.

Anatomy of a Fall (Anatomie d'une chute) is a courtroom drama about a writer, played by Sandra Hüller, convicted of killing her husband—or did he just fall from their chalet's third-floor window? Directed by Justine Triet, the film won the Palme d'or at Cannes 2023. It was subsequently nominated in five categories for the 96th Academy Awards: Best Picture, Director, Actress, Editing and Original Screenplay. Justine Trier and her partner, filmmaker Arthur Harari, won the Oscar for Best Original Screenplay. Simon Beaufils was the cinematographer.

Jon Fauer: How did *Anatomy of a Fall* begin for you?

Simon Beaufils: This was the third film I made with Justine. But it was not as simple as that—because each time, for each new movie, Justine wanted to change everything from the previous one.

That's a nice way to work. She knows what she liked or didn't like on the last movie. She loves doing new things—especially exploring concepts that might be unfamiliar. For example, on the previous movie, *Sibyl*, Justine was afraid of shooting outside. The idea that the weather could change constantly was a nightmare for her. But she wanted to face it. So we shot the film on the island of Stromboli, where the weather was always changing because of the volcano and the sea. Justine felt uncomfortable with this during prep and the first days of shooting. Then, it was okay and she learned to love it.

For *Anatomy of a Fall*, she called me and said, "Simon, I don't know if you are the right good person to shoot this film because I want to change everything." I said, "Okay, let's talk about it." I read the script and we starting to work together. She wanted a different perspective from the previous films which were more classical in style. For *Anatomy of a Fall*, she wanted to be freer to move around and to have the entire set available for the actors, with no lighting fixtures inside. She wanted to be able to move the camera all around without stopping the actors.

I said "Okay, let's see. Let's find the right locations to do this because it could be a bit complicated not to have any lights on set." When we scouted, it was clear that the chalet had to be tall—at least three stories high, obviously for the story, but it could not be too big because the characters are not supposed to be rich people. These types of chalets generally face south, with the sun moving all day long.

We finally found the chalet. It was nice and had a beautiful view of the mountains. Justine asked, "Is it good for you, Simon?" I said, "Good? I don't know. But I agree that it is the right chalet for the film, so let's try to go with this."

Were the setups on *Anatomy of a Fall* planned or improvised?

It was a mix. During six weeks of prep, we prepared all the shot

Simon Beaufils on *Anatomy of a Fall*

lists in advance. It was a precise plan of what we wanted to do, but after that Justine wanted a "mess." The "mess" arrived on each shoot day and we had to refine, to discover a good way to tame it. I like to work this way because you have the assurance or insurance of your shot list. You know that at any moment, if you cannot find a better way, you can fall back on the shot list. It gives you the freedom to explore some alternatives.

Tell us about cameras and lenses.

We shot with ALEXA Mini LF cameras.

Lenses were Hawk V-Lite anamorphics and Angénieux 24-290 zooms with anamorphic 2x squeeze rear adapters.

You had Large Format cameras with Super 35 lenses?

Yes, I cropped the Mini LF sensor. I did a lot of tests. Justine originally wanted to shoot in 35mm film. I said, "With pleasure." So we shot tests in 35mm 2-perf because I felt that would look good. I've done a lot of films like that and I like it very much.

We also tested the ALEXA Mini LF. Production finally decided that it would not be possible in 35mm because of the extra cost. Justine shoots a lot of takes, like a minimum of 15 takes for each scene. And the budget was around €6.2 Million.)

We were fortunate to try to bring the digital look close to analog 35mm film with the help of Magali Leonard, the color grader. For me, the most problematic things in digital are the skin tones.

There is something magical in 35mm that is often difficult to find with digital cameras.

If you were cropping to Super35, why did you choose the ALEXA Mini LF and not just use the original ALEXA Mini?

I shot many tests with various crop factors to compare the image of the ALEXA Mini LF versus a Super35 classic ALEXA or ALEXA Mini. I noticed that there is a real difference in the highlights and in the skin tones, not only in the definition. In France, most people talked about the ALEXA Mini LF just having more resolution. But there is a lot more to it and I feel there is a big difference between the two cameras. So that's why I chose the ALEXA Mini LF, even with a Super35 Open Gate crop factor, which was similar to the image sensor area of a Super35 ALEXA Mini.

Jon notes: ARRI confirms this—improvements in picture quality have been made with each generation of ALEXA camera.

You were composing for 1.85:1 release format. Then why did you shoot anamorphic?

I chose anamorphic lenses to break up the precise look of a digital camera a bit. All the anamorphic lens "defects" and aberrations make a kind of mess in the digital outcome.

How did you move the camera, especially in the chalet?

I put the camera on a small crane, like a jib arm, on the dolly. I operated the camera myself, using an OConnor 2575 head.

Simon Beaufils on *Anatomy of a Fall*

In the courthouse, there were two cameras. One was mostly on this jib arm. The scenes are quite long. Justine wanted to be sure that we were at the right place, at the right time, during all the shots. We had our shot list in our head and then, during the shoot, Justine would often want to try something different. She worked with the actors to find new ways to do the scene. Most of the time, it was close to what we planned in advance, but she wanted to be sure that it was not just theoretical, and to give the actors a chance to improvise.

For example, I would find a good place for the camera on the first take. But for the second take, Justine would say, "Let's start a little bit like this or finish over there." We were always moving, and that's a nice way to work because you are never really sure what is going to happen. With each take, things were changing. We had such good and nice actors who were willing to work this way. With Sandra Hüller, it was interesting to change the camera movement on the crane and dolly because each take was incredible and slightly different.

Were you shooting pretty much wide open in the courtroom?

Yes, at T2.8—almost all the time.

Your focus puller must have loved you. Anamorphic, T2.8, improvising, moving.

Well, in France T2.8 is like, "Oh, that's normal." A lot of DPs I know are usually shooting at T1.3 because we have to work quickly, we don't have a lot of lights or available daylight, so let's shoot wide open. But you are right: T2.8, anamorphic and constantly moving the camera—for sure, that was not so easy. But Agathe Dercourt, my First AC, did a super good job!

Did you shoot with 2 cameras?

In the chalet, we used 2 cameras just for a few scenes. But, in the courthouse, we needed 2 cameras because we were only allowed in there for 8 days of shooting. The original script timed out to almost 2 hours of screen time in the courthouse. So 8 days to shoot 2 hours of script meant 2 cameras. The original script timed out 3h 10m. The final release is 2h 32m.

If you were on the jib arm, where was the second camera?

The second camera was on a tripod most of the time with the Angénieux Optimo 24-290 and a rear anamorphic adapter. It was used mostly on the tight end of the zoom range.

We made some tests with different anamorphic rears and I was surprised by the big differences between them. We chose one that matched the Hawk V-Lites that were on my camera.

Where were the locations?

The chalet was in the Alps, about one hour from Grenoble. The courthouse was in Saintes, near La Rochelle.

Simon Beaufils on *Anatomy of a Fall*

Tell us about the lighting.

The chalet was at an altitude of about 2,000 meters (6,560 ft) in the mountains, making it difficult to bring in all the equipment we needed—especially a big cherry picker for the lights. As mentioned, Justine wanted to have full access to the interiors, so we needed to light from outside the windows.

She also wanted to be able to shoot on all three floors of the chalet on the same day. And we needed to be fast. Another side of the chalet had limited access, so I rigged a Trilite truss system with PAR light arrays. We needed a lot of illumination because there was a big difference between light levels inside and outside. The sunlight bouncing off the snow was intense.

We had a cherry picker with an 18K ARRIMAX HMI and a mix of some Ruby 7 Tungsten PAR-64 fixtures. On the truss, we had Tungsten PAR spotlight arrays. We also had ARRI M90 fixtures (6K/9K HMI open face). I like to mix natural daylight, HMI and tungsten—it feels pretty natural. Sometimes we had a pillow light on a boom arm inside the chalet for fill. All this was made possible by our wonderful lighting and grip crew, led by Sophie Lelou, my gaffer for years, and Leo Stritt, my genius key grip.

How did you avoid seeing the lights outside the windows?

I was moving the cherry picker and the lights often. We like flares. Most of the time, I could keep the lights close to the top of frame.

It was also complicated because light bounced off the floor, which was a red color. That had a nice effect. We had a long discussion with the set designer about this. At first, we were worried how the skin tones would handle this red color. But, after shooting some tests, I found that it was quite okay.

How did you light the courthouse?

As with the chalet: from the outside, with big lights on parallels.

How did you get into film?

I was in film school, at La Fémis, where I was fortunate to meet Bruno Nuytten—cinematographer (*Jean de Florett, Manon des Sources*) and director (*Camille Claudel*). He told me, "Simon, always remember that what you are doing as a DP is easy. What is difficult is to be a Director. So do good work for the Director, okay? We Directors don't care about your problems with lights, cameras and lenses. You have to think for the film." That was a very nice point of view and important advice for me at that time.

After film school, I worked as an AC, Camera Operator and then DP. It was good experience learning what is not taught in school: relations between the crew, the actors, and even the stars. That's a nice part of the job because that's when you are really involved in the film. One day, I was working with a Director who told me, "Simon, I think you are my image psychologist." *[laughs]*.

Cherry picker with ARRIMAX 18K outside chalet.

Lighting setup outside courtroom windows.

Frames from *Anatomy of a Fall*

Simon Beaufils explains: "The whole film is about how people look at and judge our intimacy, and how our intimacy is turned upside down by this gaze. These two frames are two different moments in the courthouse. The wide shot is like an impersonal painting, the cold theatrical scene of justice and testimonies, that contrasts with the vision of his mother's child, warmer but uncertain, blurred by these accusing, intrusive people in the foreground."

DJI RS 4 Pro, DJI RS 4 and DJI Focus Pro

DJI PRO has three interesting new products to keep scenes steady and in focus: DJI RS 4 Pro, DJI RS 4, and DJI Focus Pro. They are part of DJI's next generation of tools that are intuitive, work together harmoniously, setup quickly, and provide advanced focus control.

- **DJI RS 4 Pro** is the new, top-of-line RS (Ronin Single-handle) gimbal stabilizer that, among other features, supports heavier payloads and has carbon fiber arms.

- **DJI RS 4** is a more affordable stabilizer for lighter payloads.

- **DJI Focus Pro** has Automated Manual Focus (AMF) control.

Paul Pan, Senior Product Line Manager at DJI, said, "This year is the 10th anniversary of the Ronin Series. The evolving needs of creators are always at the forefront of our product development. With the latest DJI RS 4 and RS 4 Pro stabilizers, we've integrated the feedback we have been gathering from industry professionals over the past decade to drive innovation, ultimately optimizing the design, stabilization, and gimbal control for next generation tools that are unparalleled in efficiency and reliability.

"DJI Focus Pro, with its inaugural Automated Manual Focus lens control system, is a significant leap forward in providing cutting-edge technology that expands creative possibilities."

DJI Focus Pro

Main components of the DJI Focus Pro System, clockwise from top left:

- DJI Focus Pro Grip
- DJI Focus Pro FIZI Hand Unit
- DJI Focus Pro Lens Motor
- DJI Focus Pro LiDAR

DJI RS4 PRO

DJI RS4

DJI RS 4 Pro

The DJI RS 4 Pro stabilizes payloads up to 4.5 kg (10 lb). It has carbon fiber arms, Teflon coatings for smooth adjustment, a 20% increase in motor torque on all three axes and a knob for fine-tuning balance adjustments. An OLED touchscreen displays sharp, bright video and menus, even in full sunlight. Additional features include auto-lock, dual sets of bearings on the roll axis and improved vertical shooting mode.

With the addition of the Car Mount mode *(for example, on a Tilta Hydra Arm Mini, shown above)*, the RS4 Pro applies DJI's fourth-generation stabilization algorithm for even steadier shots on bumpy roads and off-road locations.

The RS 4 Pro is not only for single-hand, or two-hand operation (using accessory dual grips). It's also an extremely capable remote head—to be attached to a tripod, dolly, crane, jib arm, car rig, Steadicam, Tilta Shock-Absorbing Arm, Flowcine Blackarm, cablecam, slider, etc. With Bluetooth Remote Control, Trigger Function Customization, and Gimbal Mode Switching, the RS 4 Pro plays nicely with DJI Master Wheels, DJI Ronin 4D Hand Grips, and DJI High-Bright Remote Monitors.

Add the DJI Focus Pro system with Focus Pro LiDAR for advanced wireless manual and autofocus lens control. There are now 76,800 ranging points (an increase of 77%) for more accuracy and less focus hunting. The LIDAR's working distance has been increased to 20 meters (65.6 ft). This is about three times further than the previous generation, which you may have used on a Ronin 4D.

DJI's next-generation ActiveTrack Pro with advanced machine-learning algorithms and LiDAR technology improve subject tracking, even in tough conditions.

Focus Pullers can enable LiDAR Waveform on their DJI High-Bright Remote Monitor for intelligent focus assist when using DJI's 3-Channel FIZ (Focus, Iris, Zoom) Hand Unit or Focus Pro Grip. The DJI Focus Pro System also includes new lens motors for improved wireless control.

The DJI RS BG70 High-Capacity Battery Grip extends the RS 4 Pro's runtime up to 29 hours. It has PD (Power Delivery, USB-C) fast charging that can reach a full charge in 2.5 hours. The USB-C port on the Battery Grip also provides up to 18 watts for acccessories (on-board monitor, lens motors, wireless transmitter).

DJI RS 4 Pro compared with DJI RS 4

DJI RS 4 Pro

DJI RS 4

DJI RS 4

DJI RS 4

The DJI RS 4 stabilizes camera payloads up to 3 kg (6.6 lb). Its tilt arm has been extended 8.5 mm for a greater range of balance for heavier lenses and filters. Its 4th generation stabilization algorithms provide better performance. An accessory high-capacity battery grip adds 2.5 times longer runtime.

Stability for vertical shooting configurations has been improved with a redesigned gimbal plate that enables quick change from horizontal to vertical shooting modes. Automated axis locks help with quick start-up, balancing and storage. All three axis arms have Teflon coatings for smoother balancing. A fine-tuning knob helps with precise adjustments when balancing or changing lenses.

The RS4 has solo camera operators in mind and also works with other DJI PRO products. Wireless Bluetooth control pairs with the new DJI Focus Pro Motor which now has a top speed that's 30% faster. You can quickly toggle between different gimbal modes, including a customizable FPV setting. Additional intelligent features include Motionlapse, Track and Panorama. The new Joystick Mode Switch enables quick changes between zoom or gimbal control.

The DJI RS 4 has RSA/NATO connectors to attach accessories like the DJI RS Tethered Control Handle, Twist Grip Dual Handle *(shown opposite page at top)* and third-party options. The new DJI BG70 High-Capacity Battery Grip extends runtime to 29.5 hours with a 2.5 hour quick charge time. The new RS 4 also works with DJI's Ronin Image Transmitter and the DJI RS BG30 Battery Grip.

DJI RS 4 with camera in vertical configuration.

DJI Focus Pro

Camera on shoulder, with DJI Focus Pro LiDAR, Lens Motor and Focus Pro Grip.

DJI Focus Pro is a modular system that includes a LiDAR Range Finder, Focus Pro Grip, a 3-channel Hand Unit, and lens motors.

The new DJI Focus Pro Grip has a 2.5-hour power supply, intuitive touchscreen, data storage for 15 lenses, auto-calibration, Bluetooth, and remote start/stop. Using its full-color touchscreen, you can adjust LiDAR and lens motor parameters. With 76,800 ranging points and a refresh rate of 30 Hz, the upgraded LiDAR rangefinder's image plane to subject focus distance has been increased to 20 meters (65.6 ft) and widened to a 70° field of view.

The single-channel Focus Pro Grip uses Bluetooth to communicate up to 160 meters (525 ft) for start/stop and wireless control of mirrorless camera functions and menus. There's also a Magnetic Dampening Knob for the Focus Pro Grip that can be set for focus or zoom control, with adjustable damping and rotational ranges.

Enhanced autofocus functions include subject recognition and tracking, adjustable focus speed and selectable focus areas.

Automated Manual Focus (AMF) mode is available for both the Focus Pro Grip and the 3-Channel Hand Unit. It works like this: AMF focus transition, AMF focus lock and AMF focus speed control provide tactile feedback and almost instant switching between manual and autofocus. DJI calls it a "seamless integration of technology and human intuition." Camera Assistants can enjoy interactive and intuitive focus pulling with AMF and LiDAR.

LiDAR Waveform focus assist shows you a bird's-eye view of the scene to help with artistic focus decisions and sharp images. You probably used DJI's FIZ 3-Channel Hand Unit with a Ronin 4D or Inspire 3. The Hand Unit has Magnetic Dampening for stepless real-time drag adjustments and focus marks that can be set electronically. And now, the Hand Unit has been upgraded with AMF.

New DJI Pro lens motors have improved performance, with 30% faster speeds, 10 millisecond low latency response, and three levels of adjustable torque. The motors attach to standard 15 mm rods.

DJI's Focus Pro tools, paired with the new DJI RS 4 Pro, are helpful in many different kinds of setups—from solo operation using intelligent LiDAR autofocus—to large crew productions equipped with the entire DJI PRO system of cameras, lenses, stabilization, monitoring, and focus controls.

FDTimes updates to follow. Photos courtesy of DJI.
For more information, visit the DJI Pro Website: *pro.dji.com*

DJI Focus Pro

DJI Focus Pro FIZ 3-Channel Hand Unit
with DJI High-Bright Monitor.

Handheld with DJI Focus Pro Grip,
Focus Pro LiDAR and Focus Pro Lens Motor.

Cooke Gallery London

"The wand chooses the wizard, remember…I think we must expect great things from you."

Stepping into the Cooke Gallery in Fitzrovia conjures up Ollivander's Wand Shop of J.K. Rowling's *Harry Potter and the Sorcerer's Stone*. The lens chooses the Cinematographer…no doubt about it.

Wizards and filmmakers can step into this magical space on Newman Street in London. Enter into a museum-like gallery with large video displays and photographs. The current exhibition is all about Focus. Pick up a pair of headphones paired with moving images on the wall for examples of deep focus, shallow depth of field, rack focus, and more.

Go downstairs and have a Cooke lens choose the Cinematographer. This is the creative space—a studio with cameras, monitors, lighting fixtures, backdrops, a set, props—and a comprehensive selection of Cooke lenses to try out. You can make an appointment.

Tuesday, February 13. Cooke's Danny Haikin and Olga Hilliar had pre-tasted the food, tried the wine and sent invitations: "To celebrate the ongoing partnership with Film and Digital Times, Cooke cordially invites you to spend time with JF and the Cooke team in the new Cooke Gallery in Fitzrovia."

It's a short walk (if you don't take the wrong turn; I did) from CVP's new Fitzrovia showroom and event space on Great Titchfield Street. Thank you Cooke! The photos are by Richard Blanshard.

Cooke Gallery: 39 Newman Street, London W1T 1QB. cookeoptics.com

Cooke Gallery London

Above, L-R: Tim Pugh, CEO of Cooke Optics. Roger Flynn, Non-Executive Director to Cooke Board. Danny Haikin, Cooke's Chief Marketing Officer.

Cooke SP3 Lens Mounts: M, L, RF and E

Cooke SP3 with mounts, left to right: M, L, RF and E.

March 28, 2024 – Cooke Optics announced that all future orders of SP3 lenses will be eligible for a choice of RF, L or M mount as a free second option with their purchase, in addition to the E-mount that comes with each lens. The offer is global.

Cooke introduced Full Frame SP3 primes in September 2023. Based on the iconic Cooke Speed Panchro, the SP3 is a new design optimized optically and mechanically for mirrorless cameras. It offers excellent resolution yet retains the familiar Cooke Look: fall-off towards the edges of frame, dimensionality and contrast that renders faces with smooth skin tones and character. Cooke SP3 lenses have optical coatings to control excessive flare.

Cooke SP3 lens pricing is $4,500 / £3,250 / €3,900 for a single lens and $21,375 / £15,400 / €18,525 for the set of 5 lenses in a compact Peli-style case. Cooke SP3 mounts (E, RF, L and M) are also available as an accessory, priced at $480 / £345 / €410 per mount.

Yes, you should get all the mounts because swapping them is easy and quick. Remove 4 screws, change the mount and maybe the shim, check infinity and close focus, and that's it.

To receive your free additional mount within 90 days of the invoice date, specify the choice of second mount and contact Cooke: *cookeoptics.com/SP3mount*

Cooke SP3 Lens Mounts: M, L, RF and E

Cooke SP3 with RF Mount on RED KOMODO-X

Cooke SP3 with E-mount on Sony a7R4

Cooke SP3 with L-Mount on Leica SL3. SP3 on SL3.

Cooke SP3 with M mount on Leica M11

Cooke SP3 with L-Mount on Blackmagic Cinema Camera 6K

Cooke SP3 with RF Mount on Canon R5 C

Jonathan Ricquebourg, AFC on *The Taste of Things*

La Passion de Dodin Bouffant (The Taste of Things) stars Juliette Binoche and Benoît Magimel, with cinematography by Jonathan Ricquebourg. Tran Anh Hung won Best Director at the Cannes Film Festival in 2023. It was nominated as France's selection for Best International Film at the Academy Awards. Pierre Gagnaire, the 3 Michelin-star chef, managed the *direction gastronomique*. Foodies frequenting NAB Las Vegas may have dined in his Twist restaurant, unfortunately now closed. The film is based on the 1920 French novel *La vie et la passion de Dodin Bouffant gourmet (The Passionate Epicure)* by Marcel Rouff.

It is about chef Dodin Bouffant and Eugénie, his personal cook and lover—set in France, 1889, six years before the Lumière Brothers shot their first film *Workers Leaving the Factory*. Coincidentally, Cinematographer Jonathan Ricquebourg attended Louis Lumière film school in Paris.

Jonathan Fauer: How did this production start for you?

Jonathan Ricquebourg: I met the Director, Anh Hung Tran, and we had a very nice discussion about the poetry of life, the way we look at things, and the way we take care of things that are around us. He told me about the two or three main concepts that were important for him and that's how it started.

Where were the locations?

Everything was on location, not in studios. We shot in and around the Château de Raguin, among other places, in the Pays de la Loire region. It was in the spring of 2022.

Cameras and lenses?

We shot with a Sony VENICE camera and Leitz Summilux-C lenses. It was very nice to have the sharpness and look of the VENICE. We recorded in X-OCN. Actually, Hung had done a lot of his previous movies with Sony digital cameras and it was logical for him to continue to work that way. The Summilux-C T1.4 lenses were my choice because I knew that he wanted to have long sequences starting from very wide and then moving in very tight. I mainly used the 35mm prime, which lets you do a close-up on the actor, and then, in the next scene, compose a very wide shot. We used this lens for almost the entire movie.

The Summilux-C lenses have a beautiful character. I love the fact that they are very precise without being too sharp—what we call "sharp-less." They are very sharp on the actors' eyes, and yet they have a wonderful roundness and sense of depth for faces, with a very nice blur, or bokeh, in the background. I like those lenses.

For a few dinner scenes and some exterior shots, Hung wanted a long zoom lens, so we used the Angénieux Optimo 12x.

Since the Leitz Summilux-C lenses are for Super35 format, did you use the Super35 imager mode on the VENICE?

No, we tried to cover the largest format we could, so we shot in Full Frame 6K. The Summilux-C lenses almost cover Full Frame, so we cropped in post between Super35 and Full Frame. The image was larger than S35, which was nice because it results in a pleasing, painterly effect. We had precise, custom framelines. The VENICE lets you create them. It there was a small amount of vignetting, we corrected it in post.

I'm glad to hear that you enjoyed Summilux-C lenses. Yet here you are, doing a period piece and not using a vintage lens to show a vintage era, but rather, you're using something quite modern. Some colleagues would have used older, vintage rehoused lenses. And mny would agree with you, by the way.

Actually, I'm not part of the group that uses rehoused lenses. I think nowadays you can do so much more in post if you want to completely recreate all the vintage damage to the image—and you can control it. It's more interesting to me to keep, for example, the sharpness of the face but destroy the blur, or destroy a specific part of the image. I can choose certain areas of the image by tracking in the grading suite. It's so easy and so fast.

Another thing that is very important for me is the consistency between the lenses within a set. If I change from a 35mm to a

Jonathan Ricquebourg, AFC on *The Taste of Things*

50mm and then to a 25mm, I want the same amount of contrast, flare characteristics and color. I know that many of my French cinematographer colleagues love very old lenses. But each one (DP and lens :) can be different. If I were to shoot a film with those vintage lenses, I would probably have to stay with just one focal length for the entire production.

For example, a few years ago, I shot *Tijuana Bible* in Mexico with a set of vintage anamorphic lenses. But, I realized when I started the movie that only the 50mm and the 75mm had good contrast. So I only used those two lens and nothing else from the rest of the set. I was like, "Okay, that's the last time I shoot with vintage lenses."

Do you use filters?

With the good filters available and the effects available in post, you can do almost anything. Sometimes I use Schneider Radiant Soft filters in front of the lens if I want to break up the sharpness a bit. But the rest, I do in post-production.

Sometimes I use color filters, for example, tobacco or coral filters. The tobacco is very orange and the coral is more green-orange,

but I don't use it as much. It's just to give a certain feeling. Of course, it reduces your palette of colors.

VENICE cameras, and most digital cameras now, are amazing— you have so many colors compared to anything we had before. It's enormous. For some scenes, especially a sunset or a dusk scene, if you want a realistic look, you sometimes want to reduce the elements of color. Otherwise, it may look more like a comic book. That can be also an option. But, if you want a more artistic look, if you want it to look more realistic, you have to reduce the palette of colors. When I use a filter, it's like everything can turn orange; when we just grade it in post, we have a smaller and more selective range of colors available for the scene.

How were you rating the camera for the interiors?

Although the VENICE has Dual Base ISO, I tried to be at 500 for the night scenes as well as for the day scenes because I always prefer to preserve the black areas.

I also have the feeling that it's more interesting to have more light intensity on the set because, if you want to change little things, it's very easy, for instance, to change one stop or to cut something

and not have to relight. When you are at a very low light levels, if you just put something white onto a table, and that was not expected, then everything changes.

Were you wide open at T1.4 on the Summilux-C lenses?

No, not all. Hung had told me that everything in each scene was so important to him that he really want to have good depth of field. So, most of the time, I was between T2.8 and T4 to have greater depth and to have not only the faces, but also the food they were preparing, in focus. The current trend or style, what is à la mode now, is often an image with a very narrow depth of field. Despite that fact, we did not want to lose the reality of the situations. Sometimes it's a little easier to make everything disappear, but then the sense of reality disappears as well.

Tell us about all of those gorgeous food close-ups. You also did not want them to go out of focus?

On the closeups, you need to have good sharpness for the food. I also had to be considerate of our Focus Puller. It's part of my job as DP to provide a working environment where it is not impossible for focus. Furthermore, we had some extreme close-up macro shots. I needed to have at least T4 to hold focus. For those shots, I used the Summilux-C 65mm [close-focus of 1'6"] and I added diopters. I like that the Summilux-C lenses are so versatile and fast. They focus very close on the food, and then you can use the same lens for a wide shot, with the lens motors in the same position and with the same calibration.

Your focus puller was using a wireless FIZ control?

Yes, because the camera was moving most of the time—on Steadicam or dolly shots.

How did you shoot the scenes in the kitchen with the close-ups on the food?

There is a lot of Steadicam. For the first 20 minutes of the movie, it's almost all Steadicam. This was not easy for Florian Berthellot, the Camera Operator, because he had a lot of movement starting from the food and then going to the actors. Some of the takes lasted for 7 to 15 minutes. In the final cut of the film, the editor broke up some of these scenes. After that, we lived more on the dolly, although the Steadicam was there almost every day. Ultimately, it was the working space in the room that decided between the Steadicam or the dolly.

Jonathan Ricquebourg, AFC on *The Taste of Things*

Did you have two cameras, one for dolly and one for Steadicam?

No, only one. We had to go fast, but Hung is a patient man. He came from the film industry; he has been a Director for a long time. It's nice to work with experienced people who can make decisions in advance about the setups. And, he gives you enough time to light the scene. That's very good. You get time to work and to understand what he wants.

Please tell us about lighting, especially the beautiful interiors.

We used a lot of lights because Hung always wanted to have sunlight. The sun is very important in the film and the way Eugénie, played by Juliette Binoche, speaks about it. Our interiors faced east and west. We shot in an area of France where it is very rainy. So, I said to the gaffer, "We really need to have a lot of lights, and when the sun actually arrives, then we can adjust." We needed to have enough light so you don't feel the changes.

I love tungsten lights, so we used a lot of 16K Dino Lights [1000W PAR64 x 16] on a cherry picker, with dimmers, coming from outside through the windows. They mixed with the daylight.

I added 9K HMI and SkyPanel 360 fixtures. It was very hot on the set. You felt the heat. But it was nice because it felt like summer.

How did you diffuse the hard light?

I like silk and muslin. To avoid reflections in the kitchen where there were a lot of dishes, we used soft box lights with big egg crates above the actors. *[See photo above.]* These egg crates are much bigger than the usual ones. They have one light for each egg crate section. Controlled from the dimmer board, I could gradually dim from one point to another to create contrast. We had windows on one side and no windows on the other side. I wanted the light to decrease as the distance from the windows increased, while still maintaining the soft and natural feeling. The soft boxes above were there to augment what was coming through the windows and to help with the fill light.

Did you have muslin or poly bounce material?

We didn't use poly because the camera was moving a lot. Instead, we put some LED tubes on the ground near the feet of the actors and bounced the light directly on the floor. Also, I wanted to be sure to take care of Juliette's lighting, so the soft boxes were very soft and then she was surrounded by additional beauty lights.

Baselight 6.0 for DPs, ACs, Directors, Producers...
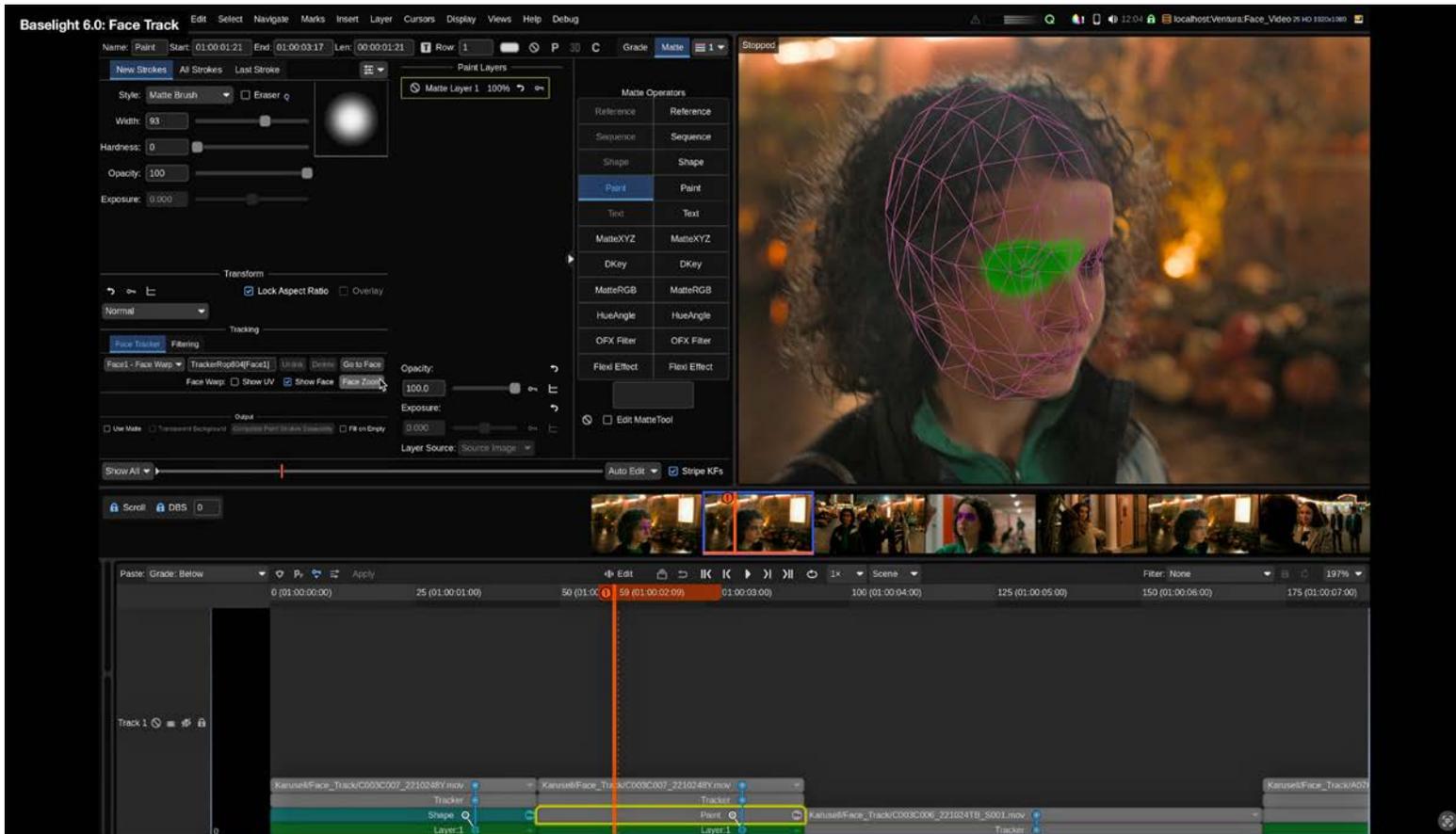
Face Track in Baselight 6.0.

This quick introduction to the latest version of Baselight 6.0 is for anyone who doesn't work in a grading or post-production suite.

It's for a DP who wants to know how far to go with a new look. It's for a focus puller who (gasp) may have buzzed critical focus at T1.3 when the actress leaned forward and her sparkling eyes looked soft during the best performance of a career. It's for the Director wondering whether to call for another take, even after the AD proclaimed it the Martini Shot. And it's for the Producer, watching dailies and agonizing whether to go over budget on a dreaded re-shoot of that dazzling but buzz-focused shot.

Baselight 6.0 has an updated timeline, a new primary grading tool called X Grade, a new look development tool named Chromogen, and the super-interesting, machine-learned and enlightened Face Track. Martin Tlaskal, FilmLight's Head of Development and Daniele Siragusano, FilmLight's Image Engineer who led Chromogen development, are here to explain.

Face Track

Patrice Lacour and the team at FilmLight developed Face Track to find and follow faces in a scene. If you have been shooting with a relatively new and advanced mirrorless camera lately, you probably are familiar with its similar software-instructed technology to follow-focus on people, birds, animals, cars, etc.

A Colorist can identify a face in a scene, and Baselight 6.0 adds a polygon mesh frame that will follow and adjust its shape as the person moves or turns. This lets the Colorist apply grading to just the face—not only lifting shadows or adjusting saturation, but also smoothing skin tones and sharpening the eyes. It's like a digital filter or a selective sharpening tool.

This is where we DPs, as well as AC, Director and Producer jump up and applaud. That buzz-focus shot of the stellar star's slashes (eye lashes) can now be rescued. Previously, the entire face or even worse, the entire shot, might have been sharpened with an over-aggressive digital enhancing of edges and contrast that made you wince as skin tones might have looked like fine-grit sandpaper.

Martin Tlaskal explains, "One of the things that was a consistent theme when we talked to our customers was how much time they spent doing beauty work. Face Track now works like this. You add a shape operator. It will find all the faces in the scene, and you can then decide which face you wish to work with. You draw or refine the shape and go to the tracker. It is a machine learning model that has been trained specifically to look at human faces, extract the pose and construct what we call face space. It is basically a model of that person's face and how it's moving.

"The soften plug-in is something we've had for a while, but it had always been difficult to isolate it well enough. Now, you can apply softening to the skin tones but still keep the important bits sharp, like the eyes or mouth. You exclude the eyes with a quick shape that basically isolates the eyes out of the softening process with their own separate curves. Face Track will follow the actor's movements and maintain the same skin softening and eye isolation. And, a Colorist will be delighted to be able to copy and paste these corrections and enhancements made in Face Track for an entire sequence or on the whole timeline."

Baselight 6.0 for DPs, ACs, Directors, Producers...
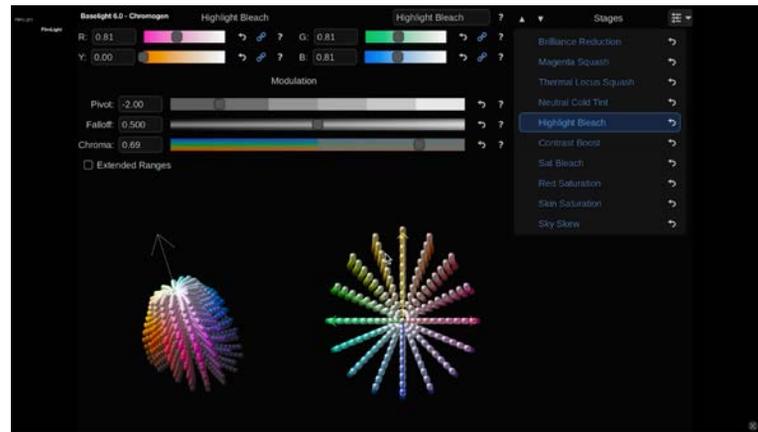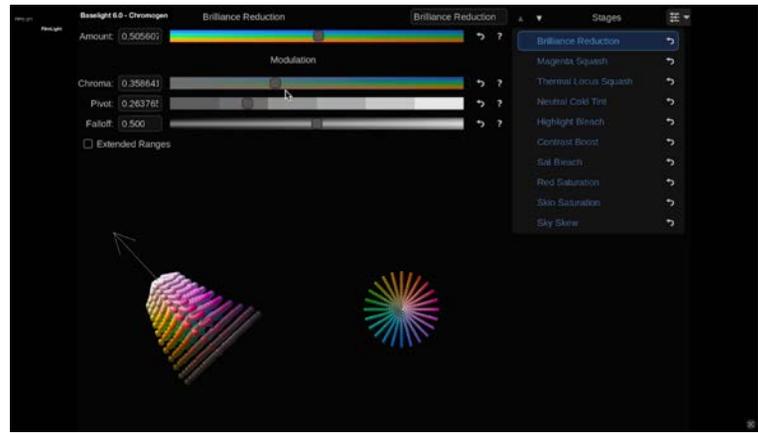
Applying LUTs from Look Library, at left and making adjustments, at right—in Baselight 6.0.

Chromogen

Chromogen is Baselight 6.0's new look development tool to help DPs and Colorists create Looks and export them for on-set use as Show LUTs. Until now, you probably edited and worked on your previous LUTs to create a new one for the current production. With Chromogen, you can easily create looks from scratch, and even adjust the look from scene by scene, interior to exterior, day to night—though you may want to be more restrained. It is also reassuring to know that it is almost impossible to "break" the look creation process with Chromogen, despite our occasional efforts to "break the image" (as our French DP colleagues call it) with interesting or esoteric lenses.

Here's a much-shortened edit of Daniele Siragusano's recent in-depth discussion with FDTimes about Chromogen:

"Essentially, we have FilmLight's new X Grade, which is the primary grading tool of Baselight 6.0—and we have Chromogen, the new color management part of the entire image formation pipeline. This is the crucial, middle part of look development, a building block that brings cinematic colors and the look to your pipeline.

"In the past, you might have taken a film LUT that came from the print film emulation of a film lab and you would apply that to your material to achieve some filmic colors. You had a look library or some LUTs, you chose the one you wanted to use and then slapped on some grading before and after, but that really was not great from a quality point of view. There were some limitations in terms of dynamic range and workflows.

"So, we developed Chromogen as a new toolset that allows you to build custom looks in a modern scene-referred pipeline. In other words, you have a color management system that recognizes the input device transform and the output display rendering. It works with ACES, it works with ARRI Color Science. For example (shown above), you can start with a look library. Add skin tone smoothing, bleaching, warming, cooling, curves, contrast, etc. Once you are happy with a preset, it doesn't end there.

"After finding something that resonates with your imagery, you can actually go inside the look building process itself and examine how that look is built and exactly what it's doing. You can modify each and every parameter. It's very different from taking a black box lookup table that comes from a film process. With Chromogen, you can really go inside and modify the process itself.

"It is set up in stages. If you think of the analogy of film, you build the lab process for your particular show and then you have this tool, which in itself is a collection of 10 different tools to create a non-destructive custom look. It's all formula-based, using 32-bit processing on the GPU. It's not based on a lookup table. This really is the novelty and it leads to a pleasing and natural look by design.

"At the beginning of your production, you want one look for your show, or at least for certain sections. At the end of the day, you export that look from Chromogen as a LUT to your camera. It's not grading. Grading is what you do to one shot or a series of very similar shots. But a look is something that generalizes a very important and more global approach for the entire show."

AJA ColorBox v2.1

AJA ColorBox

ColorBox v2.1 from AJA Video Systems is a free software update for the AJA ColorBox.

Quick review: AJA ColorBox is a powerful device for on-set color management, DIT carts, post-production work and live production. It does LUT-based color transformations using the AJA Color Pipeline as well as other look management tools—including Colorfront, ORION-CONVERT, BBC, NBCU LUTs and now ACES.

ColorBox has 12G-SDI in/out and HDMI 2.0 out. It can handle up to 4K/UltraHD 60p 10-bit YCBCr 4:2:2 and 30p 12-bit RGB 4:4:4 output. ColorBox's browser-based user interface makes it simple to adjust settings—connected via Ethernet or a third-party WiFi adapter.

ColorBox v2.1

AJA ColorBox version 2.1 updates include:

- 4K/UltraHD down-conversion can output SDI and HDMI to lower resolutions (4K to 2K, or UltraHD to HD). This is helpful when using a 4K camera but 4K monitors are not available on set.
- 4K/2K crop for HDMI output lets you convert and center-crop 4K to UltraHD or 2K to HD—so an unscaled image can be viewed on consumer UltraHD or HD displays.
- ACES Pipeline lets you load an ACES Metadata File (AMF)

into ColorBox, combining things like IDT, LMT, RRT and ODT data into a single XML file. This is the 6th pipeline added to ColorBox.

- Support for ARRI Wireless Video Optimized LogC4 (WVO LogC4) decoding helps eliminate banding with some wireless video systems on the receiving end of ALEXA 35 cameras.
- SDR Preview for Colorfront Live Mode lets you see how HDR output looks when converted to SDR. You don't have to change the HDR monitor settings and wait for the display to reconfigure. The Colorfront Engine maps the video to the targeted HDR with values that accurately represent the SDR image.
- BBC HLG LUTs v1.7 supports the latest BBC HLG transforms.

AJA President Nick Rashby said, "For ColorBox 2.1, we are focused on making 4K on-set color workflows easier for productions to manage using the monitors and equipment they already have. Whether it's the ability to review 4K accurately with SDI and HDMI monitors, offer simplified AMF processing to more parts of the production team, or enabling ARRI WVO LogC4 decoding to be easier to deploy LogC4, this new release helps productions easily take advantage of new workflows and with greater cost-efficiency."

Tim Walker on ColorBox v2.1

Tim Walker, Senior Product Manager at AJA, explains:

"We had a number of feature requests from people doing 4K
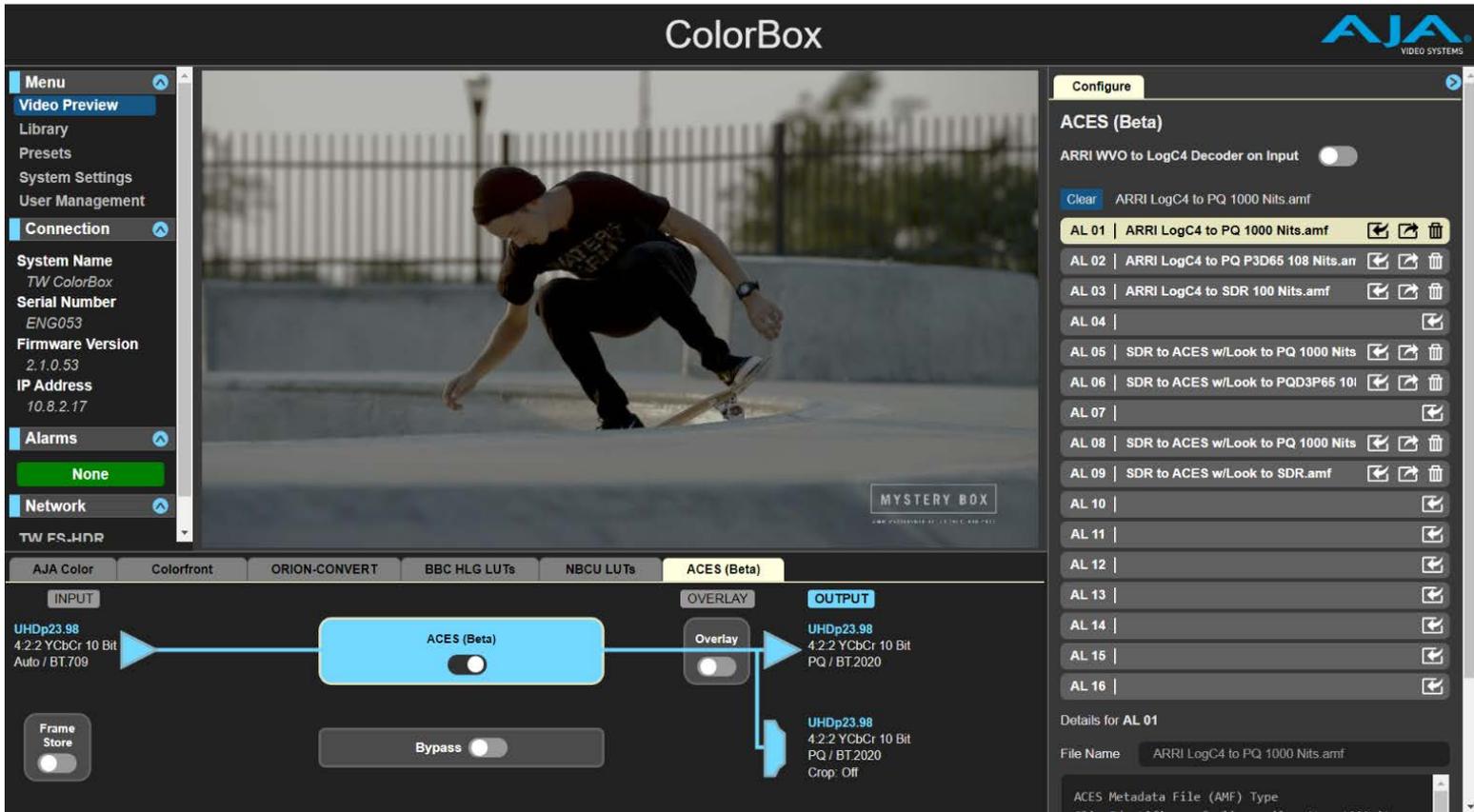
AJA ColorBox v2.1

AJA ColorBox browser-based UI showing ACES Pipeline with ALEXA 35 WVO LogC4 decoding.

productions who don't always have 4K monitors on set. So, we've added the ability to do a down-conversion with our SDI and HDMI outputs. Also, HDMI doesn't always support DCI 4K or 2K resolutions, so we can center crop 4K into UHD, or 2K into HD resolution images for use on a wide range of HDMI consumer and prosumer monitors. We're just trying to make 4K on-set easier for people to use with the equipment that they have.

"Another one of the pillars for this release is with the ACES file metadata support, where an AMF is essentially an XML that describes a recipe for a transform. That recipe could include information like an input device transform, look transforms, render transforms, and the output device transforms. All those things are different elements in the recipe to create a look. Those can all be put into an AMF file.

"We had 5 ColorBox pipelines before. Now we have 6—with this new and free ACES pipeline. It gives you the ability to import an AMF file into ColorBox, load it into a node and turn it on, and then you can get AMF processing. It's helping to push the ACES initiative forward just a little bit. And this is fairly new for a standalone device to be able to support it.

"Products like Pomfort Livegrade have the ability to support ACES AMF in conjunction with the ColorBox, have that workflow. But if you don't have Pomfort and you've got a colorist who's created an AMF, they can just send it to somebody with a ColorBox and they can load it and get the desired transform.

"Next on the list is for the ARRI ALEXA 35. When they introduced LogC4 with that camera, it was a new encoding method-

ology. However, certain wireless transmitters and receivers may wind up showing some artifacts or banding on monitors."

[See ARRI Tech Note of Nov 6, 2023: When the SDI processing of the ALEXA 35 is set to Wireless Video Optimized LogC4 (WVO LogC4), the LogC4 signal is further encoded in such a way as to optimally preserve its integrity even when transmitted wirelessly at a low data rate. This is done by applying a WVO encoding curve to the LogC4 signal, allocating more bits to the mid-tones where banding would be visible. On the other end, the WVO LogC4 signal needs to be decoded with a WVO decoding LUT to reconstitute LogC4. The WVO decoding LUT is the inverse of the encoding.]

Tim continues: "The Alexa 35 can be set to output WVO LogC4 that helps it traverse the wireless network but that needs to be decoded on the other side, the receive side. At the request of ARRI, ColorBox now has the WVO decoder built into both the AJA Color and ACES pipelines."

ColorBox Prices and Availability

AJA ColorBox Version 2.1 is available now as a free download from the AJA Support Page and is on display at the AJA NAB Booth SL3065. ColorBox can be purchased through AJA's worldwide reseller network for $1,995 US MSRP, with optional licenses for Colorfront at $995 US MSRP, the ORION-CONVERT pipeline at $695 US MSRP, and the BBC HLG LUT pipeline at $145 US MSRP.

For more information: *www.aja.com/colorbox*

Tiffen MagSafe 58mm Filter System for iPhone

Your iPhone is probably with you for every location scout, look book and pre-viz. Oh, and you also take photos and videos with it.

Now, the new Tiffen 58mm Filter System for iPhone attaches to the magnets in the back of your iPhone 14/15 Regular, Plus, Pro and Pro Max. It works with or without a MagSafe iPhone case.

Tiffen brings professional motion picture and still lens filters to the iPhone. It's super quick and easy to attach—no tools required. Thanks to Apple's MagSafe Technology, the new Tiffen Filter Mount magnetically secures to the back of an iPhone, ready to accept any Tiffen 58mm filter. The filter then simply threads on.

With its 58mm Filter Mount, the family of Tiffen Emmy and Academy Award winning filters (sold separately) are ready for the iPhone in almost everyone's pocket.

There are the Tiffen filters you need—to control light—NDs (Neutral Density), Variable NDs, UV, Polarizers. And there are the Tiffen filters you want—for creative looks—Glimmerglass, Pro-Mist, Smoque, Fog, Digital Diffusion FX, and a multitude of individual color filters, including Sunrise.

Andrew Tiffen said, "We used 58mm to avoid any vignetting issues while using all 3 lenses with the filter and mount attached on the front of the iPhone."

The Tiffen Smartphone 58mm Filter Mount is precision made of black anodized aluminum. It is extremely lightweight at 2.4 oz / 68 grams.

The Tiffen Smartphone 58mm Filter Mount list price is $29.99. Kits with filters are also available.

tiffen.com/pages/smartphone-58mm-filter-mount

Circular Polarizers and Variable ND filters are especially helpful with the Blackmagic Camera App for iPhone since the iPhone 15 Pro lenses have fixed apertures. The 24mm Main lens is f/1.78.

SHAPE WLB

The team at SHAPE has been busy building systems that facilitate life on set and on location. Here are some of their latest products.

Sony BURANO is a terrific camera, and perhaps the only beef about BURANO has been the viewfinder system that you have to unscrew when switching from EVF eyepiece mode to monitor mode. EVF mode has the eyepiece loupe lowered and the monitor is parallel to the body; Monitor mode is perpendicular.

SHAPE's new pivoting EVF bracket system lets you reposition and pivot the viewfinder with the simple push of its Mini Push Button.

Visit SHAPE at NAB, booth C4425.   *shapewlb.com*

SHAPE's BURANO Cage includes a top plate with front 15mm rod holders. You can attach the BURANO or FX9 factory top handle.

SHAPE's comprehensive, ergonomic kit for BURANO includes a Universal Baseplate, Shoulder Pad, Top Handle, Handgrips, Mattebox, Follow Focus, etc.

SHAPE handles, sun-hood, 5/8" stand receiver and strap for OVIDE KOKO 10" Director/DP Monitor.

SHAPE Cage, Top Handle and NATO Side Handle for handholding the Blackmagic Cinema Camera 6K, 6K Pro, or 6K G2.

This is SHAPE's full outfit for Blackmagic Cinema Camera 6K, 6K Pro, or 6K G2. shown here on a fluid head.

Leica SL3

Leica SL3: L-Mount, 60 MP, 5-axis image stabilized sensor.

5.7 Million dot EVF. 2.3 Million dot LCD rear touch panel display.

Tiltable, customizable touchscreen with separate Photo or Video menus. Video includes Cinema 8K 17:9, 8K 16:9, C4K 17:8, 4K 16:9, HD 16:9.

USB-C, HDMI Type-A (incl ext. video recording) . Mic in, Headphone out.

CFexpress Type B and UHS-II SD card slots.

EVF diopter, timecode in port, top LCD status display, customizable dials.

Optional HG-SCL7 battery handgrip attaches to the bottom.

Leica SL3

Above: opening of NYC Leica Store and Gallery.

The new Leica SL3 launched on March 7, 2024. It landed a week later at the grand opening of the Leica Store and Gallery in New York's trendy Meatpacking District, at the downtown end of the High Line and a block from the Whitney Museum.

Fashion photographers, videographers and decisive moment M shooters lined up to try the Leica SL3. This nimble and versatile camera captures high resolution 60MP stills as well as video up to 8K.

Cinematographers will love the choices of completely customizable aspect ratios and framelines.

The Leica SL3 joins the growing collection of cameras and lenses in the L-Mount Alliance that Leica Camera launched in 2018 with SIGMA and Panasonic LUMIX. Subsequently, Leitz, Blackmagic Design, DJI, Samyang and Astro Design joined the alliance. The L-Mount has a 51.6mm diameter and 20mm flange focal depth. Adapters let you attach almost any still or cine lens.

The SL3 is the third generation mirrorless Leica Format (Full Frame) camera. The original SL arrived in 2015. SL2 came out in 2019.

Your cherished Leica M lenses will fit the Leica SL3: like this Noctilux-M 50mm f/0.95 ASPH with L to M adapter.

Some of the many L-Mount cameras and lenses.

ARRI ALEXA 35 Live - Multicam System

LPS-1 Fiber Camera Adapter (FCA)

ALEXA 35 Live

Camera Right Side

Between the dark and the daylight, when the presses are ready to roll, Marc Shipman-Mueller, ARRI Senior Product Manager, and John Gilbert, ARRI Product Manager Fiber Systems, appear on a video meeting with stop-the-press news. In-depth details will follow online and in future editions. Here now the news:

Marc began, "ARRI is introducing a completely new camera system called the ALEXA 35 Live - Multicam System. It is for live production applications such as concerts, musical events, sports, esports, TV shows, fashion shows, scripted content, comedy specials, etc.

"ARRI is announcing a major commitment to the live entertainment sector, bringing together specialist cameras, stabilizers, lighting, and custom solutions. We put a lot of resources into this and we're planning other products in the future and expanding the system."

"Shooting with Super35 cinema cameras is a growing trend in live production. The ALEXA 35 Live - Multicam System delivers the unique cinematic ARRI look using ARRI's top-of-the-line camera, the ALEXA 35, and a fully featured new fiber system with all the controls and interfaces expected in live production. These include 4K, HDR, SMPTE 2110 IP, and additional creative possibilities like ARRI Looks and ARRI Textures. The system can be seamlessly integrated into existing live production environments.

"The ALEXA 35 Live - Multicam System combines an ALEXA 35 Live Camera with a newly developed fiber system (LPS-1) and accessories."

ARRI ALEXA 35 Live - Multicam System

ALEXA 35 Live Camera

LPS-1 Fiber Camera Adapter (FCA)

Camera Left Side

I interrupted, "Wait, wait. I see the LIVE logo on the camera right side below ALEXA 35. Is it a new type of camera? And what about existing owners who already have ALEXA 35 cameras?"

Marc continued, "The ALEXA 35 Live camera is exactly the same hardware as the ALEXA 35 and both connect easily to the LPS-1 fiber system. ALEXA 35 Live runs from 0.75 to 60 fps and records Apple ProRes, but not ARRIRAW. A regular ALEXA 35 goes to 120 fps, with ProRes and ARRIRAW. The Live camera has 4 sensor modes: 4K 16:9, 4K 2:1, 3.8K 16:9 and 2K 16:9 S16. ALEXA 35 has 8 sensor modes, all the way up to 4.6K 3:2 Open Gate.

"You can upgrade an ALEXA 35 Live to a fully festooned ALEXA 35 with an optional Cine license. You can also purchase a Multicam license, which is included in the Live camera, for existing ALEXA 35 cameras."

"ARRI is seriously committing to the live entertainment sector with this system. Our goal is to bring ARRI's cinematic look to live productions, with our Super35 4K sensor, HDR, REVEAL Color Science and support for all the controls and interfaces those in live production are used to.

"In live production, so-called system cameras have the fiber adapter and camera in one housing. They have lots of features, but they can't work on their own. They don't have internal recording. Then, you have dockable cameras with third party fiber adapters that attach in back. Those are more flexible, but usually do not have as many features.

"The new ALEXA 35 Live system does both: it is modular and dockable; you can use the camera on its own or connected and with the full feature set of a system camera.

ARRI ALEXA 35 Live - Multicam System

TLM-1

Camera to FCA Ethernet Cable

Hirose to Box Lens Cable

ALEXA 35 Plate

LPH-1

LPS-1 FCA

PL Mount with Hirose

ALEXA 35 Live Camera

LLA-1

TBP-1

TRP-1

LPS-1 FBS

I barged in again, over-caffeinated on Nespresso Napoli (on a scale of 1-10, it's a 13). "But, why would you want to undock and untether?" Too late, I knew the answer. Duh.

John replied, "The Fiber Camera Adapter can be removed quickly and easily when the operator goes on a TRINITY or Steadicam, Spidercam, crane, drone, gimbal or handheld. You may want to record in-camera only or attach a wireless transmitter."

How far can the SMPTE 311 cable run, with its hybrid fiber for video, audio, Ethernet, comms, and copper wire for power?

Marc: "The Live Production System (LPS-1) Fiber Camera Adapter (FCA) can send uncompressed 4K/60p 12G video as far away as 2km from the LPS-1 Fiber Base Station (FBS). 400W of power can be sent to the camera from 1km away."

**ALEXA 35 cameras have LPL mounts. What does the ALEXA 35 Live camera have?**

Marc: "The ALEXA 35 Live comes standard with an ARRI PL Mount (Hirose). If you want to use an existing ALEXA 35, we

recommend purchasing our PL Mount with Hirose connector. The Hirose is a broadcast industry standard for connecting ENG style lenses with servo and box lenses, like the popular Fujinon 25-1000." *[shown on next page.]*

What are the key ingredients of the ALEXA 35 Live System?

- The ALEXA 35 Live camera is the same as ALEXA 35 but with a reduced feature set and more affordable. It is only available as part of our Multicam (camera + fiber system) or Extension Sets (fiber system only for existing ALEXA 35 owners).

- The Live Production System (LPS-1) Fiber Camera Adapter (FCA) attaches to the back of the camera using the Fiber Interface Plate FIP-1. No cables have to be plugged in except one Camera to FCA Ethernet Cable.

- The LPS-1 Fiber Base Station (FBS) lives in a control room or OB van. It can output UHD and HD (progressive or interlaced) at the same time and has hot-swappable, redundant power supplies.

- The Skaarhoj Remote Control Panel (RCP) connects to the FBS. It's operated by a Shader, who "paints" the image and matches cameras.

ARRI ALEXA 35 Live - Multicam System
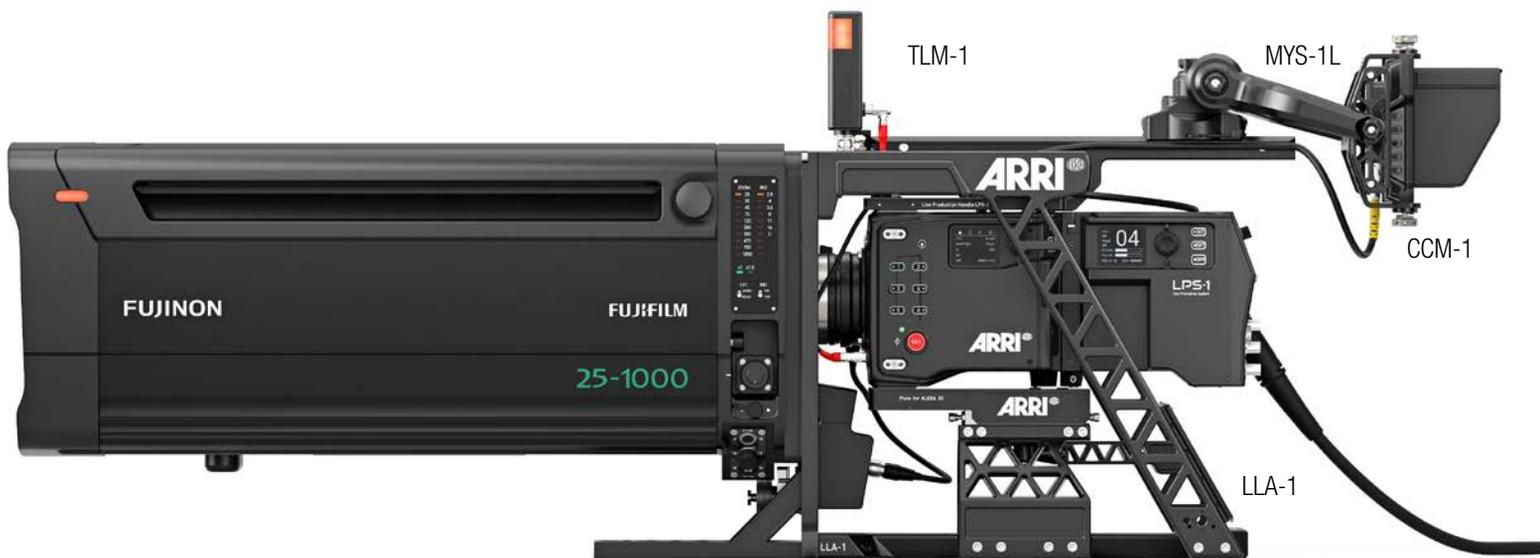
And then there are helpful ARRI Multicam Accessories:

- The Live Production Handle (LPH-1) balances camera and FCA.
- The ARRI Touchdown Base Plate (TBP-1) and ARRI Touchdown Receiver Plate (TRP-1) comprise a new system to connect camera to tripod. It is self-aligning, easier to use and more secure than a traditional VCT-14.
- The Monitor Yoke Support (MYS-1L) holds the 7-inch Camera Control Monitor (CCM-1)—same one introduced for ALEXA 35. A 10-inch monitor is in the works.
- Tally Light Module (TLM-1) with camera ID, mounts using RIA-1 bracket and connects via LBUS to the camera.
- The Large Lens Adapter (LLA-1) elegantly supports and connects B4 and PL box lenses (including the Fujinon Duvo HZK 25-1000mm) to the camera. It has a quick-release clamping mechanism for very fast setup. The lens connects to the camera with a Hirose to Box Lens Cable (available now) or with the LLA-1 Control Module (planned for Q3 2024).

- A camRade rainCover OB/EFP protects camera, LLA-1 and-Box Lens.

ARRI has been doing multicam since the days of AMIRA Live and AMIRA 1800. What's different now?

Marc: "We are are addressing a wider market with the ALEXA 35 Live: broadcast studios with fixed multicam installations, OB van companies, production companies using mobile units, and rental houses who are specialized for or want to diversify into multi-camera production."

John: "Our research shows that the market for this type of live production using Super35 cameras is rapidly growing. There's more and more interest in using high quality Super35 cameras to achieve beautiful images at a concert event, for example, because of the ALEXA 35's high dynamic range, best skin tones and great performance at the very low light levels we see on stages going into total darkness. And the fantastic image quality also makes the performers look great, which they very much appreciate."

Philipp Paulus on Blackmagic Cinema Camera 6K

Jon Fauer: Tell us about your work with the Blackmagic Cinema Camera 6K.

Philipp Paulus: I started out as a photographer's assistant. When I began, I always wanted to be in fashion. Fashion photographers, at that time, always worked in print—you had an advertising job and it went on a billboard or you had an editorial and it went into a magazine.

And then, photographers started to slowly think about getting into film. Someone gave me a Blackmagic Pocket Cinema Camera 4K, and I thought, why not try to actually do a project with it? Suddenly, because it was so intuitive and easy to use, I actually got the pictures and videos that I wanted. That was so interesting because it was exactly the opposite of all these high-end photography cameras lined up in my studio that I thought I needed. Eventually the Blackmagic camera really freed me up. It enabled the worlds of photographers and filmmakers to merge.

I do not suggest that narrative film is merging with photography. It's more the concept that we fashion photographers are now shooting for both print and online media. In the commercial fashion industry, the marketing people have found out that the customer stops scrolling when they see something moving. Furthermore, fashion should be portrayed in moving images because it helps the viewer to imagine how they would look while wearing those clothes.

Why do you stop scrolling when you see motion?

Because your attention span is limited in a world of many images. I truly admire photographs, obviously. When I go to a gallery and see a Richard Avedon photograph, or read the New Yorker magazine when they have a spread of documentary photographs—I look at them and see depth and even some secrecy. What we consume on Instagram is just not that. With motion, you definitely have more capabilities in telling a story than you have when someone is scrolling past a still image.

Where do you live?

I live in New York. I've been here for 10 years. And I have a studio in Paris. I try to split my time between these two.

A tale of two cities.

In New York, you can do different jobs than the ones in Paris and vice versa, so it is a nice split.

Tell us about your work these days.

My clients include Peter Do, Helmut Lang, Banana Republic, Breitling, Bergdorf Goodman, Vogue, Cartier, etc. Basically, I'm shooting everything in video—the entire campaign. That is the main asset. We often export still framegrabs from the video.

Philipp Paulus on Blackmagic Cinema Camera 6K

Opposite: Philipp Paulus, director, photographer, filmmaker, with Cinema Camera 6K in cage-free mode. Above: in studio setup. Photo: Alaina Imperio.

Even then, the images actually look exceptionally beautiful because they are in motion. They do not look completely frozen at 1/500th of a second, and so they actually appear more natural at 23.98 fps [1/48th second with a 180° shutter angle].

You use only the Blackmagic Cinema Camera 6K these days, or are there other cameras as well?

In the beginning, I had earlier Blackmagic cameras that complemented my Bolex, along with rented, bigger, famous German ones on big-budget productions. But then I slowly figured out a lighter, faster way to work. I remember a job for a brand at a beach in Long Island with a crew of about 100 people. When it was time to wrap at the end of the budgeted 10-hour day, the light was absolutely beautiful, the sun was setting, but everyone was packing up.

And then the model jumped in water in front of me. I was standing there alone with my Blackmagic camera. I ran into the ocean to join her and started filming. That short 30 second spontaneous clip looks like a perfume commercial and got me countless jobs afterwards. I never would have gotten the shots with the "A" camera because it was already in the truck being packed away by our five person camera crew. I even exported stills from the video and printed them in an A2 size and they look absolutely beautiful.

This is the "decisive moment" type of work that still photographers talk about. Even during lunch, still photographers have a camera nearby because maybe the model is biting into something and it looks beautiful and they want to grab that moment. You just can't whip out a big camera out and have it ready. That, to me, is the absolute advantage of these Blackmagic cameras.

And what about the new Blackmagic Cinema Camera 6K?

Now we have Full Frame 6K. I just used it on a project where the Helmut Lang brand was doing a collection called *Projection versus Protection*. It was inspired by the protection wear that we have, like gloves, and umbrella, or knee pads used for gardening.

There's no better location than New York for those things. The goal was to do a two-minute film in the Atelier where they work on the clothing and then juxtapose it with protection wear that you see on the street.

And what better camera would I have than that Blackmagic Full Frame 6K? I had a Leica R 180 mm telephoto lens with an L to R mount adapter, and I shot handheld. I had the battery grip on the bottom and the accessory viewfinder on top, tilted straight up, and all of a sudden it felt like a Pentax 67 camera, which is the famous one that Herb Ritts, Bruce Weber and everyone used. It just fits in your hand beautifully.

Do you extract stills from the video, or capture framegrabs on the fly, or shoot stills separately?

I extract stills from the video in post, 90% of the time. The cameras's 6K sensor provides the resolution that I need, and then I run it through Topaz AI to enlarge it.

Is there any motion blur to those images?

There is motion blur. If you shoot at 23.97 fps, there's definitely more motion blur. But for the projects I do, I like to intentionally have that. You can get beautiful results.

Since the Cinema Camera 6K also has a button to capture stills while you're shooting video, do you use that function?

No, I just extract the stills when I'm editing in DaVinci Resolve.

Do you edit and grade the images yourself?

Yes. I took a few weeks off to learn the basics of grading. I like the trial and error of the process. Obviously I'm not a colorist and not as good as a colorist, but it's really helpful and easy to try and learn DaVinci Resolve.

Are you shooting Blackmagic RAW files?

Yes. I usually shoot in 5:1 Constant Bitrate BRAW at ISO 800.

Philipp Paulus on Blackmagic Cinema Camera 6K

HORATIO STREET AND 10TH AVENUE, MANHATTAN, NEW YORK

39TH STREET AND 1ST AVENUE, BROOKLYN, NEW YORK

What lenses do you use with the Cinema Camera 6K?

I have a Leica R set from the 1970s or 80s—the whole range from 21mm to 180mm. The 21mm f/4 Super-Angular was my favorite lens because it had a beautiful wide angle and you could also go really close onto someone's face without getting distortion. Now, with the Blackmagic Full Frame 6K, I like the 50mm Leica R lens.

Since the camera has an L Mount, you don't mind having an L to R lens mount adapter?

No. It's nice because I can use the Cinema Camera 6K in two ways. One way is to rig the camera fully when I have ACs on set pulling focus. But I also want the ability to just put the camera in a backpack with the battery grip and three batteries. They run about four hours each. There's an SSD on top and I can just shoot that way without any accessories, which to me is really special.

A cageless and free-range camera configuration. The camera's rear monitor is almost as big as an onboard monitor.

You can approach things in a completely different way. You can shoot things that you otherwise wouldn't be able to do before.

It is all about getting the shot or not getting the shot.

How do you rig the camera when working with a focus puller?

I use a Tilta Nucleus system for wireless focus. It has been reliable and I even use the handgrip that comes as an accessory for it.

In studio mode, I also add a Teradek wireless system for client monitors, a SmallHD monitor, mattebox, et cetera, and then it's a fully built-out camera system.

For studio setups, I will also have a second Cinema Camera 6K on set that is not rigged out so I can just take it out and shoot, still photography style—because on a photography set, you always have several cameras.

You have multiple bodies and just pick one up from your cart?

Exactly. It gives you so much flexibility. The idea comes from the still photography world where the camera bodies are not so expensive and you can have them prepared with different lenses and in various configurations.

What computer are you editing on?

I have a MacBook Pro M3 with DaVinci Resolve for editing. It is incredibly fast. I have little Samsung 8TB SSDs. They're great because 8 terabytes is enough to store two projects.

SOUTH STREET AND FULTON STREET, MANHATTAN, NEW YORK

BROOKLYN HEIGHTS PROMENADE, BROOKLYN, NEW YORK

And those SSDs are fast enough to edit in 6K?

Exactly. Even if you do a split screen of two 6K signals, it's still fast enough. Another tool that I really love in my kit is the DaVinci Resolve Speed Editor, because it saves so much time. It's not even expensive for what it does. Earlier, it would take two days to review footage after a shoot. But, with the Speed Editor, I can use its knob to zip through the footage in half a day. I also have the DaVinci Resolve Micro Panel in the office, which I like working with. But it's the Speed Editor that goes with me wherever I go. It's so small and it fits in a backpack.

What are your usual deliverables?

I bring it down to 4K and often deliver in a 16:9 aspect ratio. For Instagram, I try to push for a 4:3 ratio.

To wrap up, sun setting, camera always ready?

Video is increasingly sought after by clients. Whereas brands previously only booked photographers, now they need videographer/photographers. Blackmagic Design cameras and workflows address these modern needs from capture to post production, helping photographers and videographers like myself push the boundaries of what's possible.

Philipp Paulus on Blackmagic Cinema Camera 6K

PIER 16, MANHATTAN, NEW YORK

"Helmut Lang was one of the brands that recognized, early on, how important it is to have a motion film campaign. We wanted to document our models in the hours before a fashion show opens."

Director, Filmmaker, Photographer Philipp Paulus explained, "I normally shoot horizontally, but here we needed vertical compositions as well. It's so easy with the Blackmagic Cinema Camera 6K. All you need is one 90-degree angled cheese plate, and all of a sudden the format is vertical. You don't really have to switch anything except turn the camera on its side.

"The absolute game changer about this Blackmagic camera is that the sensor is full height 36mm x 24mm Full Frame 3:2 Open Gate (and not just 16:9). "This also lets me shoot horizontally and then crop for vertical aspect ratios in post.

"Sometimes you know it's definitely going to be vertical and then you turn the camera sideways, but that is usually the B camera. The main camera is usually set up in horizontal mode.

"The camera has gyro stabilization data, so you often can shoot without a tripod, even with a long lens"

[The gyro embeds camera movement metadata into recorded 6K Open Gate and 6K DCI files. In post, click the Stabilize button in Davinci Resolve data to smooth the shots.]

Philipp Paulus on Blackmagic Cinema Camera 6K

GANSEVOORT STREET AND WEST 4TH STREET, MANHATTAN, NEW YORK

"The Blackmagic camera freed me up. It enabled the worlds of photographers and filmmakers to merge. Today, no fashion campaign is stills only."

Philipp Paulus said, "Since the introduction of DSLR filmmaking, photographers have been experimenting with video. At a slower rate at first, but to a point that now in 2024 it actually feels that a lot of campaigns have video as their hero and supplement with photos. That is very natural for fashion, as you want to see the collection moving and in motion to imagine what it would be like to wear the clothes.

"Blackmagic's Cinema Camera 6K and Pocket Cinema Camera lines are unique because you can treat them like still photo cameras. You can grab them, shoot a film, shoot stills, grab stills from the video, and they have everything you need on board while creating beautiful images.

"Blackmagic Design has a very unique setup that's beneficial to the continuing merger between photography and videography that the fashion industry is experiencing. For example, clients, who used to book photographers and now need videographers, want to see a look preview with the first draft they receive. Since I use DaVinci Resolve end-to-end, I'm able to do it efficiently all in one program."

Nanlux Motorized Fresnel FL-35E for Evoke 2400B

The Nanlux Evoke 2400B LED is a powerful COB (chip-on-board) LED with color temperatures adjustable from 2700K to 6500K, with plus and minus green/magenta tweaking, and accurate color rendition of 97 TLCI.

The Evoke 2400B may, at first, remind you of a PAR fixture. It is compact (16.8 x 12.5 x 10.4") and weighs about 33 lb. With the accompanying 45° reflector, it measures 41,910 lux (3,893 footcandles) at 9.8' and 5600K color temperature.

Perhaps you worked with a manual FL-28 Fresnel attachment on NANLUX Evoke 900 or 1200 fixtures?

Things become even more interesting when you add the new NANLUX Motorized Fresnel Lens FL-35E to an Evoke 2400B. It attaches easily and provides motorized local and remote control from spot to flood, 15° to 46°. At 15° spot, 9.8', 5600K, you'll measure 75,700 lux (7033 footcandles). It's lightweight—at 22.05 lb.

Motorized spot-flood control is done with buttons on the unit, or from the Evoke 2400B's main menu, or with the NANLINK 2.0 App *(shown at right),* from a DMX console, or a wired controller.

Why do you need a Fresnel when you have a perfectly good open face or PAR-style Evoke fixture? Well, now you have convenient choices with a comprehensive modular system. A Fresnel is a flattering light, easy to cut, even and smooth. In the "good old days" when a Hollywood gaffer might not have considered a light fixture unless it was painted purplish, there were, and still are, Fresnel lights with family names like Baby and Senior. There were

PAR lights with brutish names like Mini and Maxi. And there were open face lights from Italy, named blonde and red-head. These were separate things, for specific tasks, and you probably had all of them on the truck.

Now, the new NANLUX Evoke 2400B, paired with a motorized FL-35E and some accessory reflectors, is a versatile, modular system. It's IP55 weather-resistant (Limited protection from dust, low-pressure water jets from any direction and against damp and wet weather). The Motorized Fresnel Lens FL-35E, with rolling case, is US $1,190. The Evoke 2400B, with 45° reflector and power supply, is US $6,880. *(Prices and specs may vary.)*

Nanlux Motorized Fresnel FL-35E for Evoke 2400B

The Motorized Fresnel FL-35E comes with removable barndoors.

Rear view showing blue spot-flood buttons (at left) and pogo pins that connect to the Evoke 2400B.

Spot

Flood

Fujifilm GFX100 II Larger Format

In the last episode of FDTimes Fujifilm Tour, Takuya Noguchi and Hideyuki Kasai led the expedition to Shiogama to test lenses, GFX100 II and X-T5 cameras. We followed a few of the footsteps of Matsuo Bashō, one of Japan's greatest haiku poets. In 1689, Bashō visited here—Shiogama Shrine *(above)* on his 150-day journey across Japan.

The other goal of our 350 km journey by high-speed (2-hour) Shinkansen to Sendai was to visit Fujifilm's Taiwa Factory, where the GFX100 II and additional cameras and lenses are made.

Fujifilm Optics Co, Ltd. was established in 2010 after merging company groups originally founded in 1968 to manufacture Fujinon lenses. More than 1,000 people now work in this group. For GF lenses, the glass molding is done in the Mito Factory, where the Duvo 25-1000 is also assembled. Lens polishing takes place in Morigane, Sano handles barrel processing, and final assembly happens in Taiwa.

The Taiwa Factory *(below)* produces not only the Fujifilm GFX camera bodies, but also lenses from 14mm primes to 150-600mm zooms and the new GFX eries Tilt-Shift lenses.

Assembly is done in the cell production method, combining advanced automation and skilled personal attention to detail. Let's assemble a GFX100 II.

Fujifilm GFX100 II Larger Format

GFX100 II camera body with its GF Mount.
43.8 x 32.9 mm sensor, 54.78 mm Image Diagonal Ø,
IBIS (in-body image stabilization)
Dimensions: 6 x 4.6 x 1.8 in. / 152.4 x 117.4 x 46.5 mm.

GFX100 II camera body with
GF to PL Mount Adapter.

But first a word about this versatile, multi-format Medium Format camera. The Fujifilm GFX100 II is not much larger than a Full Frame camera. But, call it "Medium Format" and you might think its 8K 43.8mm wide x 32.9mm high sensor would be smaller than so-called "Large Format" 36 x 24mm Full Frame, once known as Leica Format.

I like the term "Larger Format" (larger than Large). The newly developed GFX100 II sensor has a 55mm diagonal. That is about 1.7 times larger than Large Format/Full Frame. The camera's Fujifilm G Mount has a flange focal depth of 26.7mm with a 65.0 mm inside diameter.

That means you can use almost any cine lens with lens mount adapters—which is why Fujifilm calls the GFX100 II a multi-format cine camera.

There are at least 17 Fujifilm GF lenses, including the new 55mm F1.7R WR, 30mm F5.6 Tilt Shift and 110mm F5.6 Tilt Shift Macro.

Attach a G Mount to LPL, PL or PV adapter, and the Larger Format world widens with more than 100 lenses that include ARRI 65mm series, Vintage 765, Leitz Thalia, Hawk 65 Anamorphic, ZEISS/Hasselblad, Whitepoint, Ottoblad, Panavision 65 and more.

You can choose more than 594 Full Frame lenses, from Angénieux and Anamorphics to ZEISS and ZERØ OPTIK, and more than 489 Super35 or Standard 35mm lens models. Crop in camera or in post.
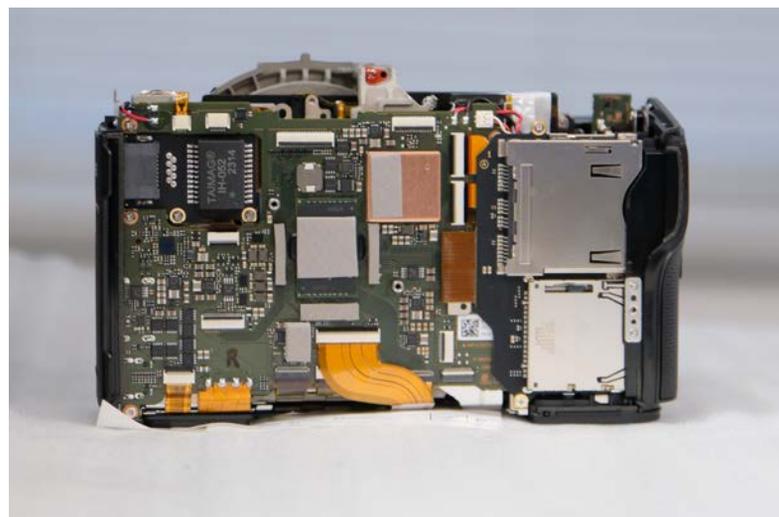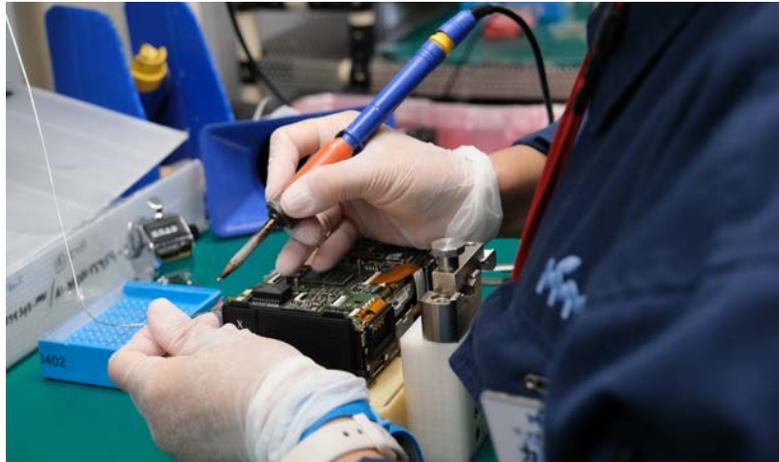

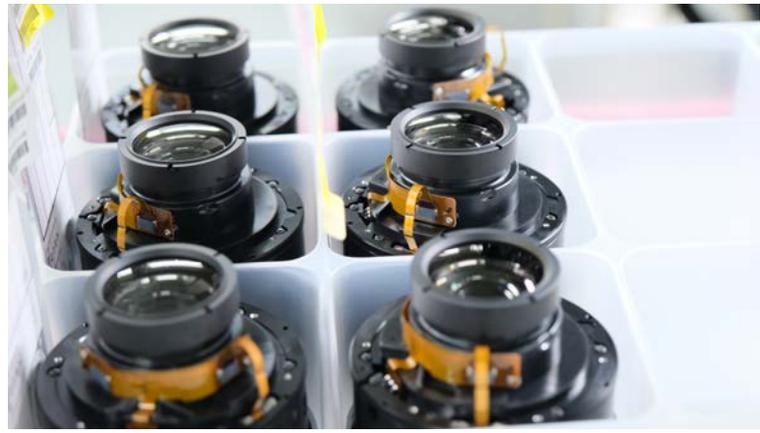GFX100 II with GF55mmF1.7 R WR Larger Format Lens.

GFX100 II with PL Adapter and
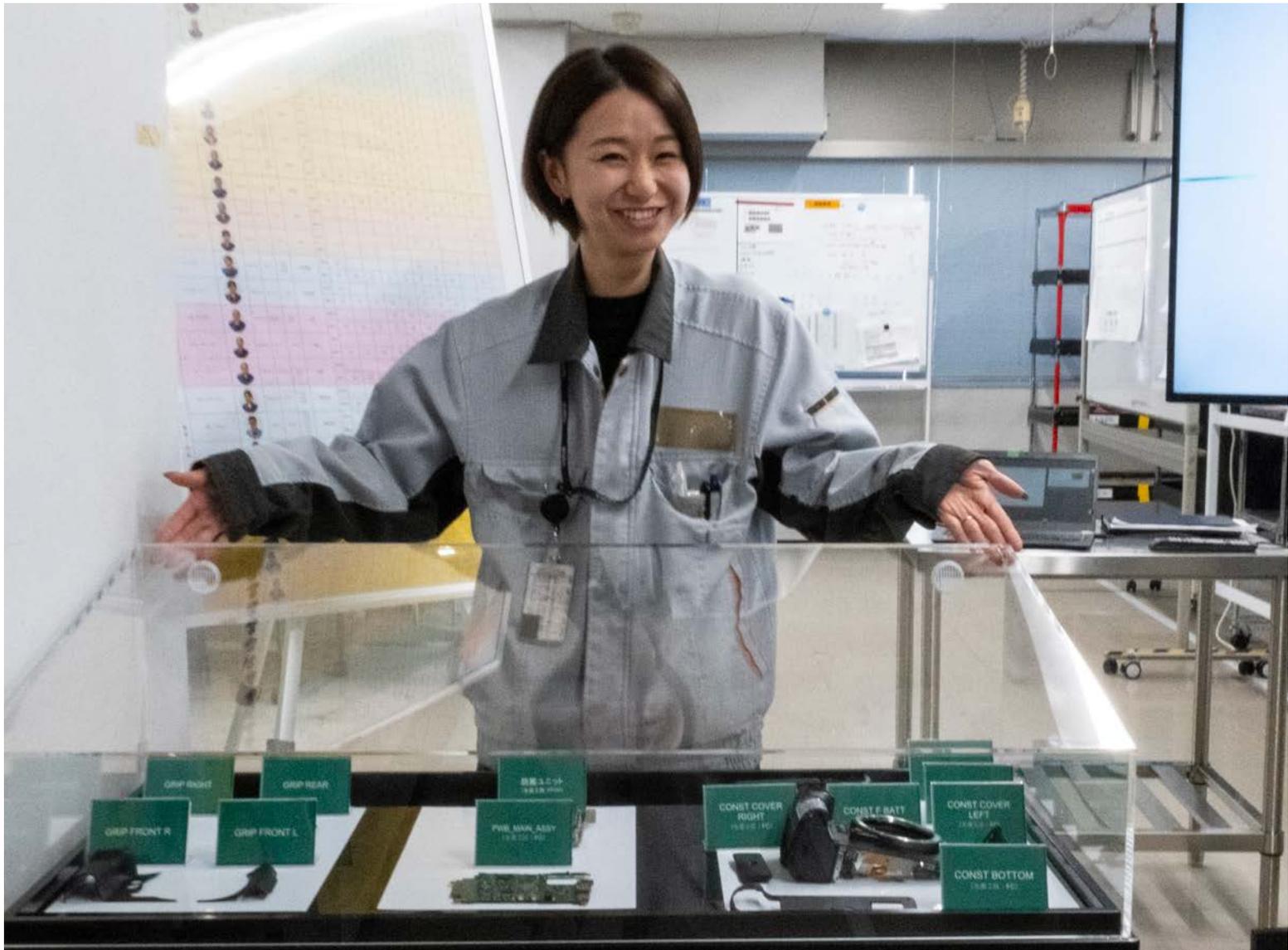Leitz THALIA 120mm T2.6 Larger Format Lens.

Assembling Fujifilm GFX100 II   Fujifilm GF Lens Assembly

The GFX FDT Assembly Challenge

Welcome to the Fujifilm GFX100 II Assembly Challenge. Meet Ms. Satsuki Oizumi at the Taiwa Factory. She is presenting the main components to be assembled (above). It essentially begins with the IBIS (In Body Image Stabilized) sensor (below).

Fujifilm describes the 102-megapixel GFX 102MP CMOS II HS sensor as having "surgically accurate AF, advance video capabilities, 8K internal recording to 30 fps, and up to 8 stops equivalent in-body stabilization."

Of course, they are not going to let me touch the sensor.

Instead, Ms. Oizumi has challenged with a race to the finish—to put the finishing touches on the camera.
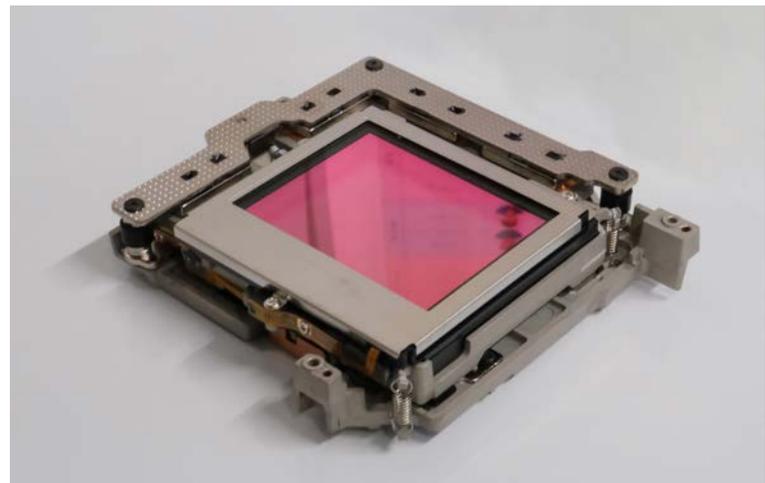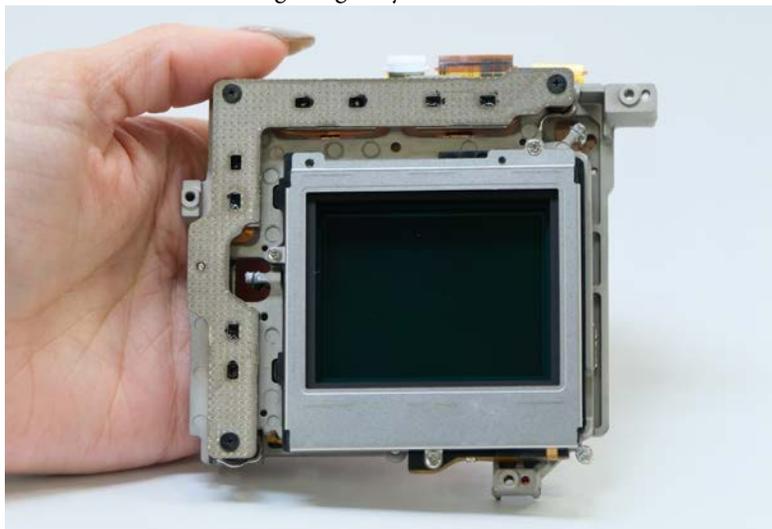
Fujifilm GFX100 II In-Body Image Stabilized Sensor.

The GFX FDT Assembly Challenge

Ms. Oizumi attends to the final flourishes in the production process. If there are two things you notice when first looking through a camera, it's the viewfinder and then the ergonomic feel. The GFX100 II has a 0.64-inch OLED viewfinder with 9.44 million dots and has been described as one of world's best.
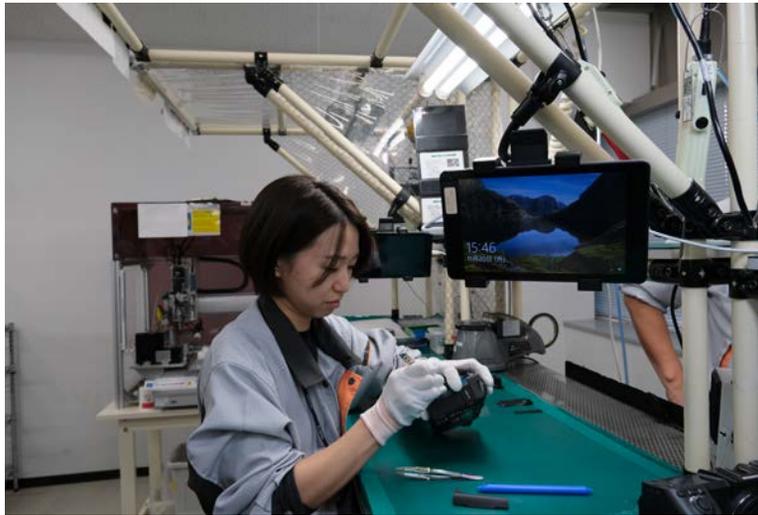

At 1/80th sec and f/4.0, Ms. Oizumi's fingers are a blur as she smooths the double-sided super-sticky surface to the camera body. For example, even one grain of sand (62 microns) would be annoying to the touch. Imagine how a bump, bubble or ridge would feel?

Ms. Oizumi attaches a textured, non-slip surface to the camera body. It takes her less than 3 minutes from start to finish. At least two months are necessary to become proficient at this.

I have not practiced for two months, or at all. She grants extra time: 5 minutes. She looks on with a mixture of amusement and alarm.

Uh-oh. The double sided adhesive becomes bumpy and gooey.

Fujifilm engineers are watching. My fingers are sweating.

# The GFX FDT Assembly Challenge

Ms. Oizumi predictably wins the GFX100 II challenge by a mile. And what does "JIGU" mean on my camera? Maybe something like, "Jettison Incredibly Garbled Unsellable" camera?

I am not invited to assemble anything else.

Below: an optical engineer adjusts a GFX Tilt-Shift prime on the lens test projector.

Cartoni Encoded E-Lambda 25, E-Maxima 5.0, E-Jibo

Cartoni E-Jibo

Cartoni E-Lambda 25
Fluid Head,
underslung

Cartoni VR Box
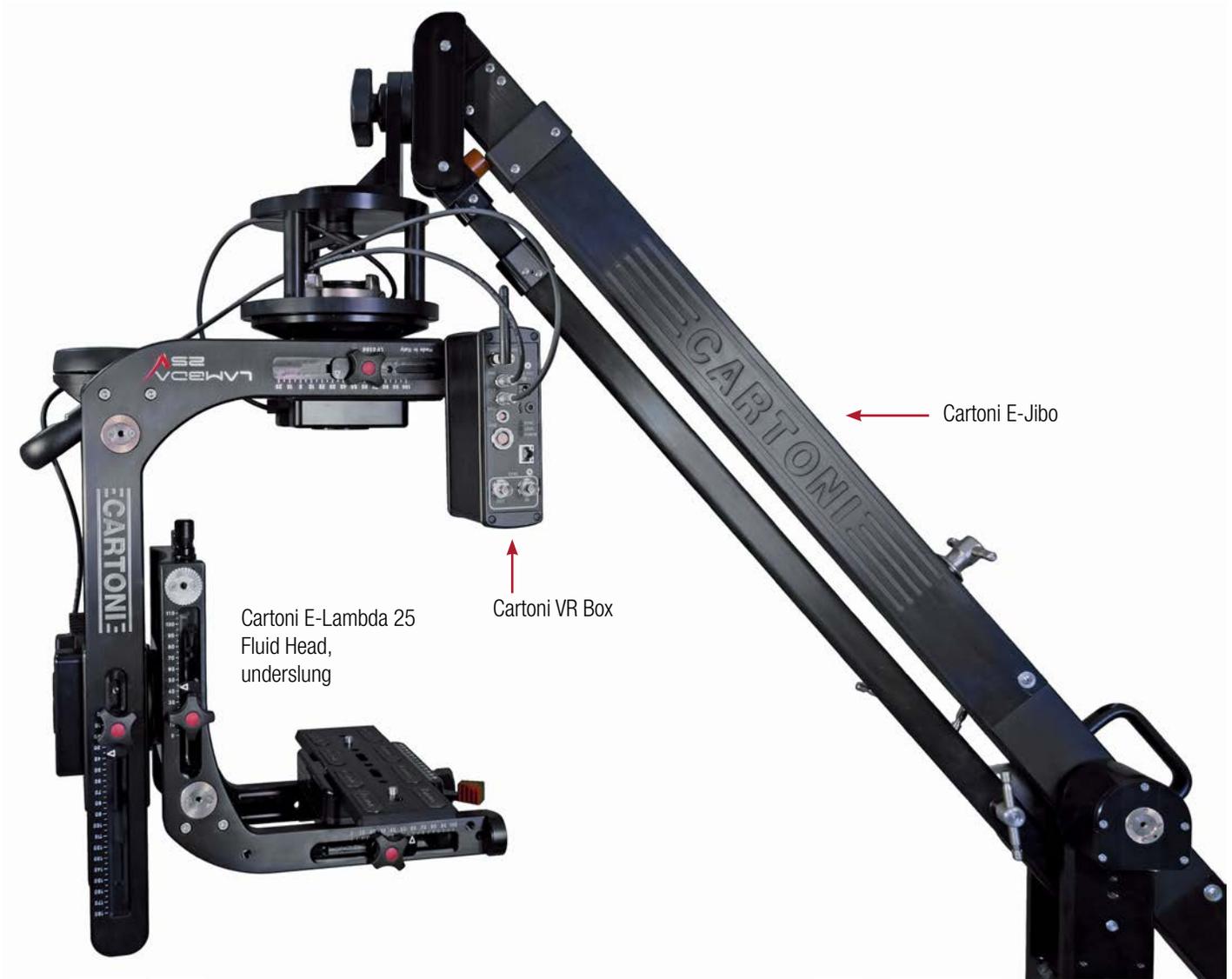
Cartoni presents, among several other new products at NAB, a full line of encoded fluid heads and jibs. The Cartoni E-Lambda 25 Nodal Fluid Head and Cartoni E-Jibo *(shown above)* now have integrated position tracking.

Cartoni President and CEO Elisabetta Cartoni said, "We are the first company to offer position tracking in camera support products. Image acquisition protocols are evolving and advancing. Very soon, the integration of position data from the camera support will become a common requirement to correctly match a virtual or graphic element to a real-time image. Anticipating this trend, we have moved quickly to meet the diverse needs of cinema production, studios, television, sports, news, corporate, education and commercials."

For a decade, Cartoni has been developing the integration of high-precision, absolute optical encoders into its fluid heads and supports. With these encoders placed directly on the rotation shafts, extremely precise angular readings are ensured. Data is presented in a simple open protocol, compatible with almost any image compositing software.

Cartoni's encoded E-Heads not only assist sophisticated special effects, visual effects, and similar applications, but also provide precise tracking of remote cameras with reliable accuracy and

zero delay. Position metadata is available to most systems or can be channelled via the Cartoni VR Box which has a specialized electronic interface compatible with virtual engines. The VR Box also receives metadata collected from the lens and consolidates it with camera tilt, pan, angle, and height position data into a single data stream.

Visit Cartoni at NAB: Booth C6125.   *cartoni.com*

Cartoni E-Maxima 5.0
Fluid Head

Tilta Khronos System for iPhone 15 Pro / Pro Max

Fan

Magnetic Filter Holder

Tilta iPhone Cage with electronic contacts and mounting points

Khronos NATO Bracket Handgrip and Nano II

USB Hub

You may have seen Claudio Miranda, ASC shooting a short film with an iPhone and Tilta Khronos system last Christmas. *youtu.be/6zbbCHeH7Do*

Things got interesting when Camera Assistant Bob Smathers showed up in a video describing how he was pulling focus manually using the Tilta system.

Tilta's new Khronos Kits for iPhone 15 Pro / Pro Max are being introduced at NAB 2024. Yang Shao, CEO of Tilta North America explains, "From the Greek word for time, the name 'Khronos' embodies a profound concept. More than just a phone case, it serves as a vessel to preserve cherished memories shared among families, friends, and loved ones." Add to that list: Directors, DPs and crews with location scouting pictures, test and previz shots to share—or, as Claudio did—an entire short film.

The Khronos system begins with a camera cage that looks like an extraordinary iPhone case. Four screws keep the case tight. It has many mounting points and electronic contact points for additional accessories such as focus side handles, cooling module, filters, on-board light, USB-C hub and more. Once a power source is connected, the case uses a power pass-through system similar to Tilta's Advanced Ring Grip and Tilta's ALEXA Mini Cage to power the entire case and any connected accessories. Focus and iris work seamlessly with the Blackmagic Camera App.

There are various kits and configurations. The Khronos Focus PD Handle has an internal battery that provides additional power to the system. It connects to the iPhone 15 with an integrated USB-C cable and uses Bluetooth to control focus or zoom with the dial on the front of the handle. The Khronos NATO Bracket Handgrip incorporates the popular Nucleus Nano II Wireless Lens Control.

The Cooling System for Khronos uses a heat dissipator and variable speed fan capable of reaching a maximum speed of 6700 rpm. It attaches to the iPhone using MagSafe connectors. Khronos Magnetic Filters are specifically designed to be used with the iPhone 15 Pro and Pro Max. They drop into the Khronos Quick Release Filter Tray for iPhone.
Visit Tilta at NAB Booth C4725. *tilta.com*

Khronos Focus PD Handle

Vertical Capture Mode

Funicular Goats, l-r: Morgan Kellum (Partner, Head of Business Development & Sales); Aaron Cooke (Partner, Executive Producer and founder of Digital Cinema Collective); James Coker (Partner, Head of Engineering & Tech Management). Photos by Brianna Resuta.

A railway with very particular boats
Pulled through the air by Funicular Goats.

(from *Happy Birthday to You!* by Dr. Seuss. © 1959. Random House.)

Fast forward 60 years to 2019. Morgan Kellum and James Coker establish the Cinematic Multicam Company called Funicular Goats together with Aaron Cooke at Digital Cinema Collective.

Jon: How did Funicular Goats begin?

James: We were looking for a cool and different name. Aaron came back after reading the Dr. Seuss book about Funicular Goats, referring to moving things from one place to another in the mountains. That resonated with us: moving things from one location to another, cables connecting multiple cameras, humping heavy equipment around, and all the stuff we go through in our business. We, as an engineering and tech team, were moving mountains and making things happen and the goats were pulling the funicular. Now, a lot of people call us the Fun Goats.

Where were you before that?

James: I was doing features and TV. Then I worked at Panavision. After I left Panavision, I also got into sitcoms. That was kind of my intro into multicam.

Morgan: James and I worked for a number of years at VER. James was an engineer and I was in the sales department working with clients. We had opened up a cinematic unit. In those years, we met a lot of great people. One of them was Aaron Cooke. Aaron was a very forward-thinking cutting edge producer who wanted to bring more dynamic flare to his projects.

We ended up starting a production entity called Digital Cinema Collective in 2019. At the same time, we built out a separate sister company, Funicular Goats, to service the engineering and packaging of multicam jobs.

Aaron: I am a producer. I've been producing my whole career, starting in production management, working my way up the ladder and managing the financial aspects of productions. But I was also learning all the different elements that go into a production—from lighting to sound and all the elements it takes to put them together. We always had the idea of working in production and engineering. It took us a little time to decide that there should be two different companies, and keep them separate, but that's the history of how we came together.

What are the main differences between the two companies?

Aaron: Funicular Goats is the technical entity. It's not an equipment rental company. We own equipment and we own our own engineering equipment, but we are focused on implementing it all in cinematic style multiple camera shows. Funicular Goats is more of a technical solutions provider. Digital Cinema Collective just finished producing the Anime Awards at the Grand Prince New Takanawa Hotel Ballroom in Tokyo.

Where did you get the equipment in Japan?

Morgan: From Sanwa Cine Equipment Rental in Tokyo. Masa Yasumoto and his team were very helpful and we had an incredible

Fun Goats
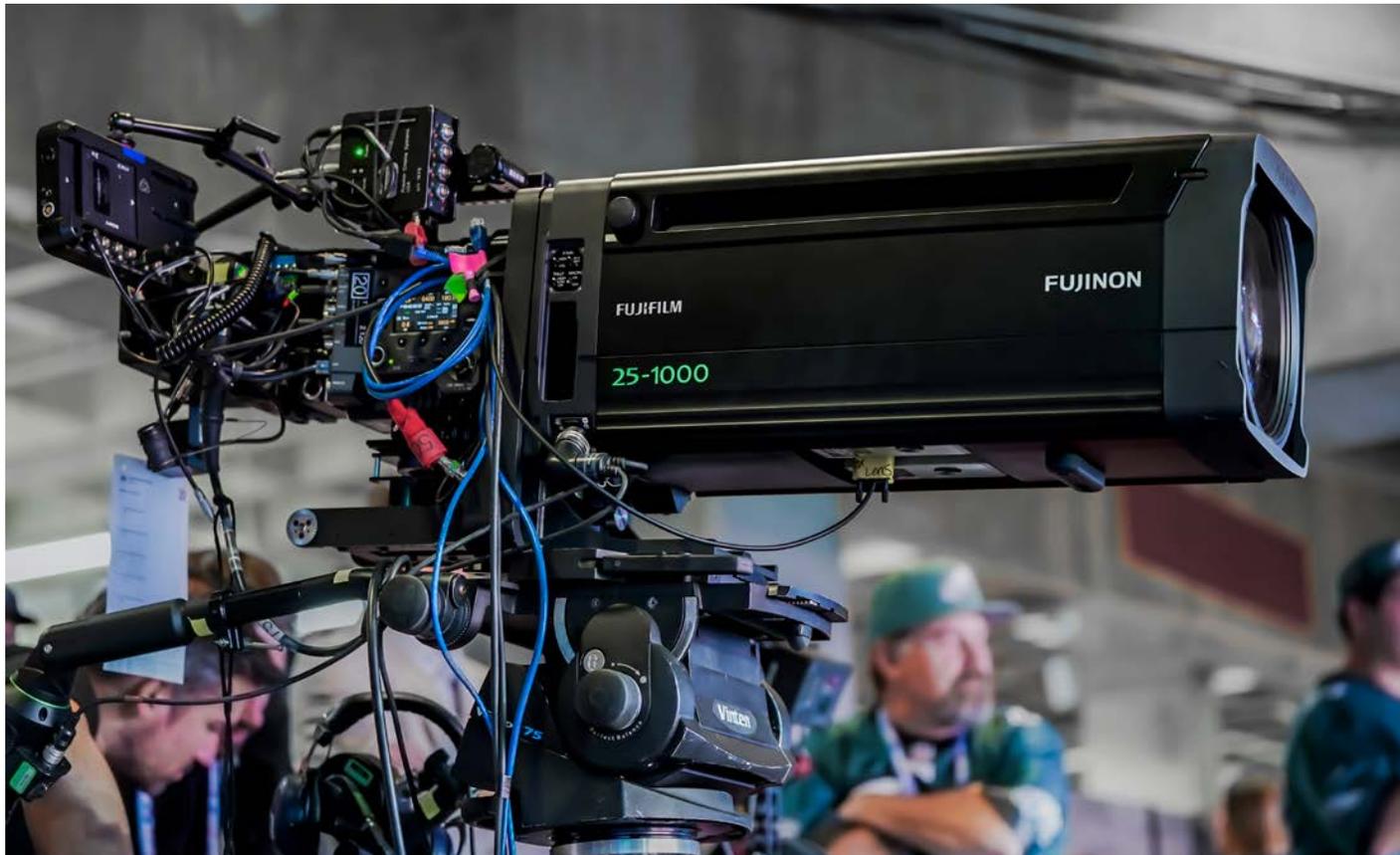
Sony VENICE 2 with Fujinon 25-100 and Preston MDR in tunnel from 2023 Super Bowl halftime show.

experience working with them. The Sony Cine group and Fujifilm were amazing partners too. These companies have always been very supportive of what we do. We couldn't have done this show without their help. We did shoot the show cinematically.

What cameras are you mostly using on your jobs?

James: We mostly use Sony VENICE 2 because they give us the confidence that we need to go live when we're doing something like Super Bowl, and because we can get them up and running quickly and seamlessly. But we also use ARRI and other cameras. Essentially, when we plug in the VENICE 2 cameras at the Super Bowl, within two seconds, our DITs and video engineers will see the images back in the control room. That's important because most of our cameras can't be plugged in until we show up on the field. It's all about the quick speed with which they come up and are ready to go. The more feeds, communications and additional accessories you have, the more fail point potentials there are. That being said, we use ARRIs quite frequently based on director and DP preference. And if it's in an environment like a theater or we're not quickly trying to get it up and running on the field, we use them all the time and they look great.

I hear you own many Fujinon 25-1000 zooms.

Morgan: Yes, we do. We have invested in specialty cine equipment like those lenses.

James: For years, there was a gap. When you are far away from front of house to the stage, what lens can get an extreme close-up? You have the Fujinon 75-400 or an Angénieux 24-290. But then you have to add a doubler and you lose 2 stops of light. Fujinon made the 25-1000. It has a PL mount and its maximum aperture

is f/2.8, ramping to f/5.0, which is fine. We've been eager to have these long range zooms in the cinematic multi-camera world.

Is there a focus puller on those long zooms?

James: It depends. If the shot is pretty tight and the camera operator is on the long end of the lens, we'll add a focus puller and a FIZ lens control system from Preston, cmotion or ARRI. We have been working with the vendors so all the software protocols talk to each other.

Typically, we don't use the FIZ systems wirelessly in the multi-camera world. For example, with about 25 cameras, all of those hand units are connected by hard wire using a command cable. That will limit the errors we could have during the show. Only the Steadicams and cameras that have to be RF go RF. That might amount to only two cameras with wireless systems. I will hardline all the cameras that have focus pullers. I have methods of doing it with adapter cables and running up to 500 feet of CAT5 to connect the hand units and eliminate the chances that they disconnect during a show. Because, when you bring in 60,000 fans, all with smartphones, the RF goes crazy and you want to try to minimize what RF you're using.

So, do you mostly use focus pullers or do the operators focus?

James: On a 25 camera show, I'll probably have 16 or 17 focus pullers. The other 8 camera operators will be doing it on their own. For instance, on handheld run-around cameras, those operators can grab the lens barrel and do the zoom and focus by themselves.

Do you put filters in front or in back of the 25-1000 zooms?

Morgan: Up to now, we have been putting them in the back. I

Funicular Goats

L-R: Kei Takahashi (Senior Manager, Creator Support Division, Sony Corp), Chiaki Koga (Quality Assurance Division, Sony Corp), Yasu Yamamoto (Product Manager of Cinema, Sony Marketing of Japan), Morgan Kellum (Funicular Goats), Nobu Takahashi (Head of Cinema Camera, Sony Corp), Shinichi Ohno (Marketing Planner, Imaging Marketing Division, Sony Corp), Sho Tanaka (Junior Product Manager of Cinema, Sony Marketing of Japan).

heard there are front filters and a large mattebox for this lens. [6.6"x 9.0" filters and Abracam ClipOne 6x9 mattebox from PhotoCineRent Paris.]

Are you gravitating to Full Frame now?

James: Yes, Full Frame—and we still do a lot of Super35. That's why we're working with the ALEXA 35 as well. But we can also use the VENICE 2 in Super35 sensor mode and we are still at 5.8K. But then, let's say we have 20 cameras, half of them could be in Full Frame and the other half could be in Super35, depending on the lenses.

The Fujinon 25-1000 is a Super35 lens. Do you use it in Full Frame, as a 35-1500 with its 1.5x expander?

James: Yes, on Full Frame cameras. And from what I see, it doesn't degrade the image, or, if it does, it's so minimal. You can't see any image degradation, even looking at a high res monitor.

Do you use diffusion on your shows?

Aaron: There are DPs and productions that want a filter setup depending on the look. For the Anime Awards, our Director-DP used Tiffen ⅛ Black Satins. On other shows, we have used Tiffen Glimmerglass, Black Promists and Blue Streak filters. Once, we actually turned the Blue Streaks on their side. So instead of having the streaks going horizontally, they went vertically. The cast on the field had streaks of light extending from their hands straight up to the sky. It was like everybody was holding a laser.

Morgan: I think that's kind of thing that separates us from broadcast capture: we bring to the table new ideas, innovative ways of doing things, new tools like lenses, filters, lighting. We are always

testing new lenses at different rental houses and with wizards like Dan Sasaki at Panavision.

Describe an example of a Funicular Goats job.

Morgan: We pretty much are in charge of the full technical management of the production. James Coker is often tech managing these projects, but we also have other managers who work with Funicular Goats. We will arrange the camera package. The engineering systems are ours as well. We have a communication package as well as a video RF package. We also hire crews, ACs and camera operators who are skilled and dedicated to this type of hybrid workflow. So we take on the full technical management of these projects. We're not just one part of the puzzle coming in, we're taking on the whole thing so we have full accountability for everything.

Aaron: We own all of our own routers and our own switchers. And so we really build the core engineering systems, all of our own Multidynes, fiber backs and fiber base stations. We have created multiple systems, flypacks and Sprinter vans that we use as well as trucks. We own the core engineering systems because that's what we need to be able to quality control all of our shows. We do own some cameras, but we fill in with different vendors. And then certainly all of the specialty equipment is owned by others. The jibs, techno, jibs and cranes come from rental houses and owner-operators that we work with.

Morgan: We own a vast amount of equipment. All the engineering systems we've designed and built out are customized for our projects. We have a range of different size systems matching the size of the project.

You rent equipment from different companies?

Above: Masa Yasumoto of Sanwa, at left. Morgan Kellum, right.

Above, right: Jofre Rosero, cam op. Below: Ron Lehman on Steadicam.

Morgan: We have some camera systems and lenses. But we also use vendors and partnerships to serve the creative ideas of the director and DP. If they have a certain type of lens they like, for example Ottoblads, then we will rent them from Otto Nemenz. If they want to use Panavision, we will work with them. And we use Abel Cine Rentals quite a bit for various projects.

Aaron: We used the Otto Nemenz Ottoblads [Hasselblad lenses with a built-in optical tuner] recently at the Grammys show on a Billie Eilish performance. We had an AC pulling focus, and our DIT adjusted the tuning and detuning live because the lens has a separate geared ring for that. So we were not only doing focus, but throughout the performance we were tuning and detuning the lens with a separate lens motor. The challenges were not with operating the lens but rather around when to tune or detune with Billy Eilish and her brother Phineas, who both wrote that song together.

It's a really beautiful performance in a single 3-minute continuous shot with a Steadicam. Our DIT was also live grading. He created a custom LUT for this performance, and then we implemented that into the workflow. That's also part of our specialty—using DITs who will be grading these shows live versus using the RCP (Remote Control Panel) to do color.

How much time do you spend planning a show in advance?

James: I tech manage shows and help plan them from the very beginning. Once a director is hired, we'll talk, we'll go on scouts. If it's a concert, we'll go and watch the show and figure out how to handle everything. On a Taylor Swift concert, I think we watched three of her shows before we did the event at SoFi Stadium. Every

show and concert is going to be different. We have to figure out the power, the cable paths, where to build out our control room, set up video village and tech facilities. So, every venue is going to be different depending on space and availability.

Do you record locally to each camera or to a central server?

James: They always want to archive the show, whether it's the Super Bowl halftime show or a concert. We're going to record it locally in the cameras and download the files after the show. Whether they ever use it or not, we're still going to try to archive the files for them and deliver them on a drive.

We record externally and locally. We'll always do a reference line cut—cutting the show with a switcher in the control room with a technical director calling the cameras. When they go to post and do an edit, they have a reference line cut. Then, they can take all the individual files from the cameras and use the reference line cut to help pull together their show quickly. They can tweak and grade from there because they have the master files recorded from the camera. The reason I like in-camera recording is because the quality is much better, and they're more reliable than central recording. I've had very few issues with in-camera recording. We're viewing all cameras and managing them during a three hour show, and we can catch any error because we have full IP control of every camera.

What format are you usually recording?

James: It depends on the show. If we don't have access to change the cards in the camera, that may determine the in-camera recording format. We don't want an AC running up on the stage
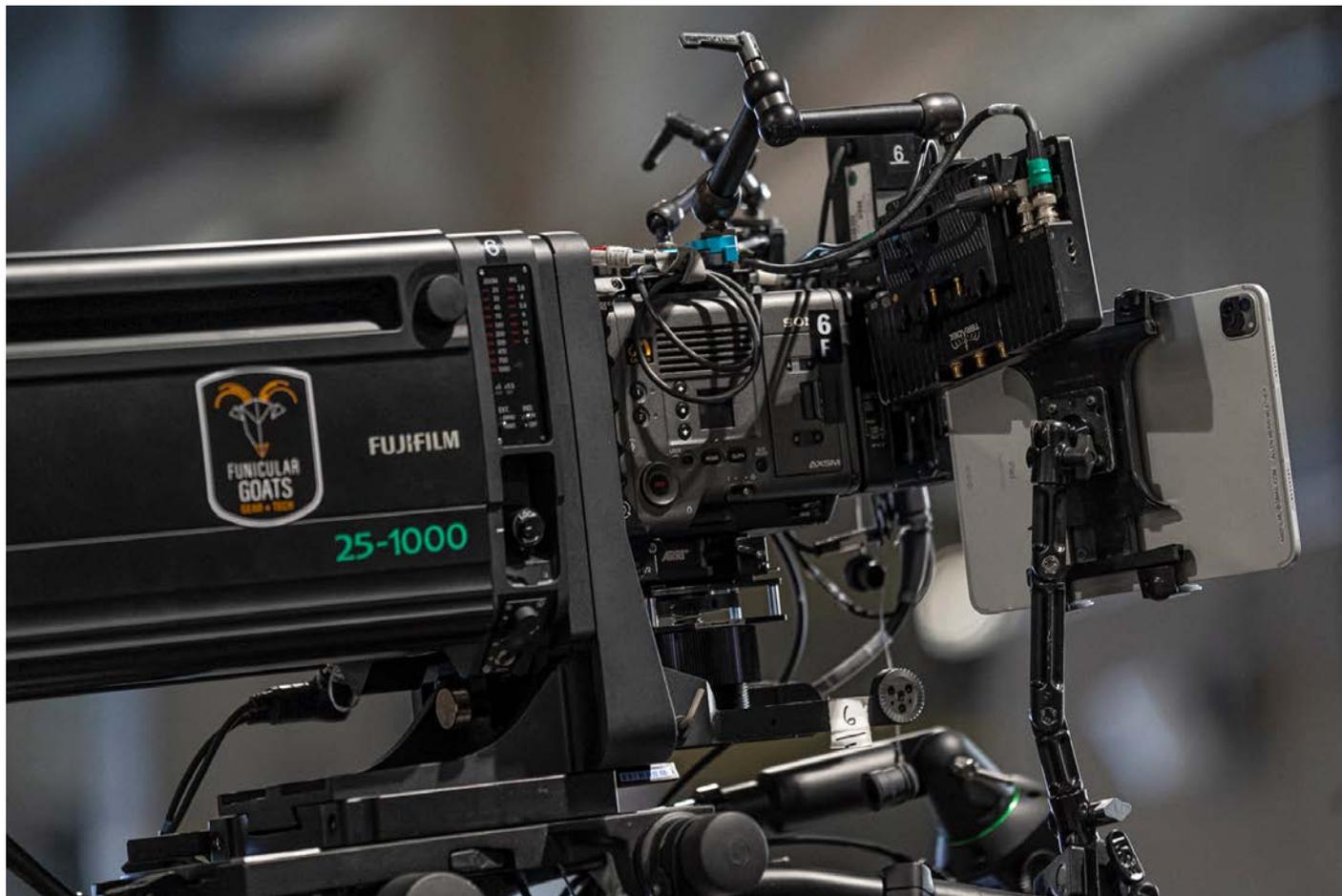
during the show to swap out media cards. In those we'll step the VENICE camera's bit-rate down to maybe X-OCN LT (higher compression) instead of ST. Ideally, we like to record in X-OCN ST which has less compression. It's the same idea with ALEXA cameras. I'm going to make the determination where access is a critical part of it. We'll always push for the best quality.

How did you bring the "broadcast world" from 2/3" to Super35 and Full Frame/Large Format? The argument, for a long time, was: "But we need the depth of field of 2/3" lenses." How did you explain cinematic multicam?

Morgan: It's been a 15-year process. They are two different disciplines, with two different educational processes and clients. You meet broadcast engineers, with different mindsets than camera crews from the film feature world. From my perspective, we were in a good place at the right time—VER had both the broadcast engineers and the right cinema people. And then you had forward thinking producers like Aaron who said, "I really understand what you guys are doing, to see dynamic cameras working in live broadcast, sports and large event spaces." A lot of it couldn't have happened without people like Aaron who gave a chance to James, myself and a few others to really try to do something special.

We had some other supporters when Netflix was starting to do comedies. They had a very rigorous approval system, as you're aware, that involved 4K cinema cameras. We had to work within those parameters. So we started off the smaller six to eight camera shows shooting on Sony F55, Varicam, Canon and some other camera systems.

Aaron: There were multiple arguments that various people made—redundancy, backup and other things—as talking points against cinematic workflow. And one by one, we just knocked those down, all the while doing cinematic multicam on our projects so the work was there and spoke for itself. I think that was the big difference. We were out there, actually producing our shows that way and showing people that it could be done.

Morgan: Just to add to that—we would have tech managers who might have had an experience with a film crew coming in with something like seven film cameras with BNC, XLR, CAT5 cables and all these messy things everywhere. Added to that, they might have gotten attitudes from camera assistants or DPs. There was a certain clash of culture.

I think that James, Aaron, and I realized, right off the bat, that we couldn't create any extra drama here. We were bringing a new medium into this space. Efficiency became our best friend. We embraced the fiber systems, we used the Multidynes on almost every show, with one single cable bringing power, signal and comms. There are so many efficiencies with the fiber system.

Our crews understand that we are not shooting *Star Wars* here, we're shooting a live event, and we have to be fast and efficient. Having that hybrid understanding of the engineering side with the cinematic workflow, I think, has truly been a benefit to us in terms of how we get hired onto the next projects. And to Aaron's earlier point, the higher profile shows we do demonstrate that we can do it fast and just as well or better than what was done in the ⅔" world before.

SIGMA 15mm F1.4 DG DN | Art & 500mm F5.6 DG DN | Sports

Left to Right:
- SIGMA 15mm F1.4 DG DN Diagonal Fisheye | Art
- SIGMA 500mm F5.6 DG DN OS | Sports
- SIGMA 24-70mm F2.8 DG DN | Art

SIGMA released two new Full Frame primes: the SIGMA 15mm F1.4 DG DN Diagonal Fisheye | Art and SIGMA 500mm F5.6 DG DN OS | Sports. They are available with a Sony E-mount or SIGMA/Leica/Lumix/DJI/Blackmagic L-Mount.

Both lenses are extremely compact and lightweight, as shown compared to a SIGMA 24-70mm F2.8 DG DN | Art lens, above.

The 15mm F1.4 DG DN Diagonal Fisheye | Art is the world's first Full Frame F1.4 diagonal fisheye lens, as of Feb. 2024. It is extremely sharp across the entire 180 degree field of view. There are 21 elements in 15 groups, including 4 FLD and 3 SLD low-dispersion glass elements and 2 aspherical lens elements.

The SIGMA 500mm F5.6 DG DN OS | Sports lens is remarkable because telephotos with this amount of magnification rarely fit into a small backpack. Furthermore, 500mm and handheld are not terms normally used together, and yet this lens is a delightful exception. If you do use a tripod, it has a convenient Arca Swiss style tripod mount/lens support (as does the 15mm Fisheye).

Nature photographers and BBC wildlife crews will love the 500mm F5.6 DG DN OS | Sports lens. This new 500mm mirrorless camera lens has responsive autofocus and three optical stabilization settings: Off, Mode 1 for most situations, and Mode 2 for panning shots, especially in video.

Photo of SIGMA 500mm DG DN: Guillaume Bily

SIGMA 500mm DG DN Photo: Liam Doran

The SIGMA 15mm F1.4 DG DN Diagonal Fisheye | Art lens is great for astrophotography and for places where you want to capture panoramic 180 degree horizontal views, like this FDTimes favorite lens testing interior. Sistina Restaurant is half a block away from the Metropolitan Museum of Art in NYC.

Vittorio Storaro, ASC, AIC liked the corner table. Start with zucchini flower, follow with mezzi paccheri frutti di mari, and hydrate with wine from the 80,000 bottle cellar ("No water," said Storaro). Geometric distortion isn't pronounced toward the SIGMA 15mm fisheye's center, so you can even use this as a wide portrait lens.
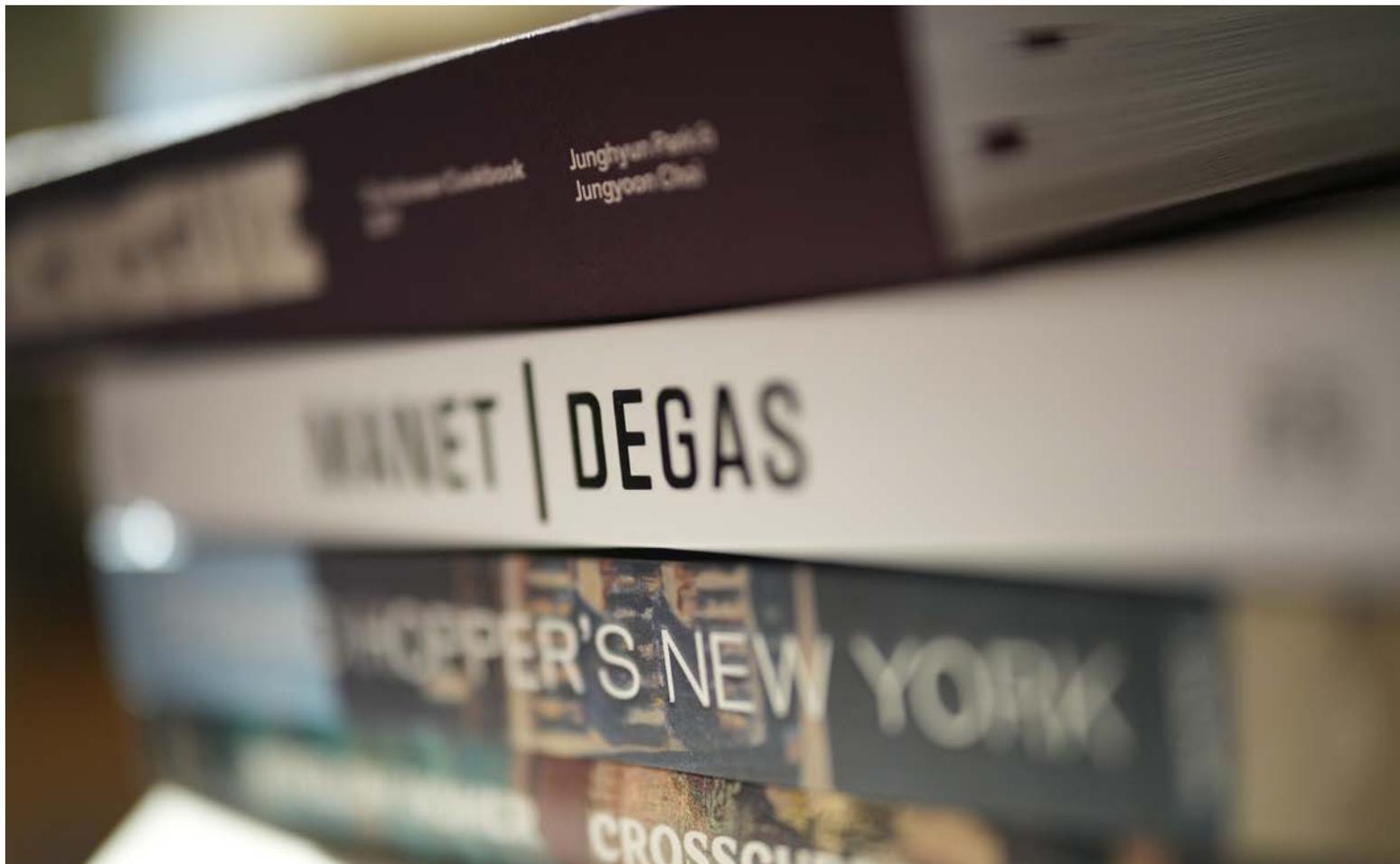
Photo: Jon Fauer. Wide open at F1.2.

Here is SIGMA's fastest 50mm prime with the highest levels of optical performance. Welcome SIGMA 50mm F1.2 DG DN | Art for E-mount and L-Mount Full Frame mirrorless cameras.

It has SIGMA's first rounded 13-blade iris for smooth, circular bokeh. When people ask why you want such a fast, F1.2 lens, smile serendipitously and sigh, "It's all about those big, beautiful bokeh."

Filmmakers may be breathless with joy. This lens doesn't breathe, thanks to the dual HLA (High-response Linear Actuator) silent, smooth, floating focusing mechanisms, with one group in the front of the lens and one group at the rear. With cine in mind, there's iris-declick and an auto/linear calibrated manual aperture ring. The manual focus ring can be assigned to be linear or non-linear on compatible L-Mount cameras.

The SIGMA 50mm F1.2 DG DN | Art weighs a mere 745g / 26.3 oz. (with L-Mount) and is 108.8mm long x 81mm diameter.

Product photos: Alexandre Souetre and SIGMA

Godox Knowled P1200R Hard

The Godox P1200R Hard is a versatile evolution of traditional LED panel lights that have an inherently wide illumination spread, whether bare-bulb or diffused. The P1200R Hard uses lenses on the LED pixels to focus the light into a tighter, more powerful beam. What was once soft now becomes harder. But not as hard as a COB fixture. If you want to soften the P1200R, a large assortment of accessories are available: softboxes, diffusion frames and spacelights. You can also stack P1200R Hard fixtures together with 2-light or 4-light brackets and multi-headers.

Once upon a time, panel lights were soft. Sure, you could pull out their matte-finish plastic diffusion screens to get a slightly harder (multiple) shadow, but the light still spilled all over the place and was a challenge to cut.

The P1200R Hard draws 1,200 Watts, plugs into a household outlet, and outputs 17,100 lux (1,588 fc) at 5600°K at 3m (9.8'). It has onboard controls at the rear as well as DMX 512, LumenRadio CRMX, Ethernet and Bluetooth. Bluetooth connects to the Godox App, described on the next page. There's also a smaller companion fixture: Godox P600R Hard.

Godox P1200R Hard Specifications

- Power: 100V-240V at 50/60Hz. 1500 Watts maximum.
- Color Modes: HSI, RGBW, Gel, X-Y coordinates, Effects
- Color Temp: 1,800°-10,000°K
- Dimming: 0-100% with linear, S-curve, exponential or logarithmic curves
- Controls: Onboard, Bluetooth, DMX 512 (RDM protocol, LumenRadio CRMX)
- Color Rendition: ≥98 TLCI. ≥96 CRI.
- Dimensions, with yoke: 32.8 x 23.8 x 6.7 in / 83 x 60 x 17 cm
- Weight, with yoke: 18.5 kg / 48.8 lb.
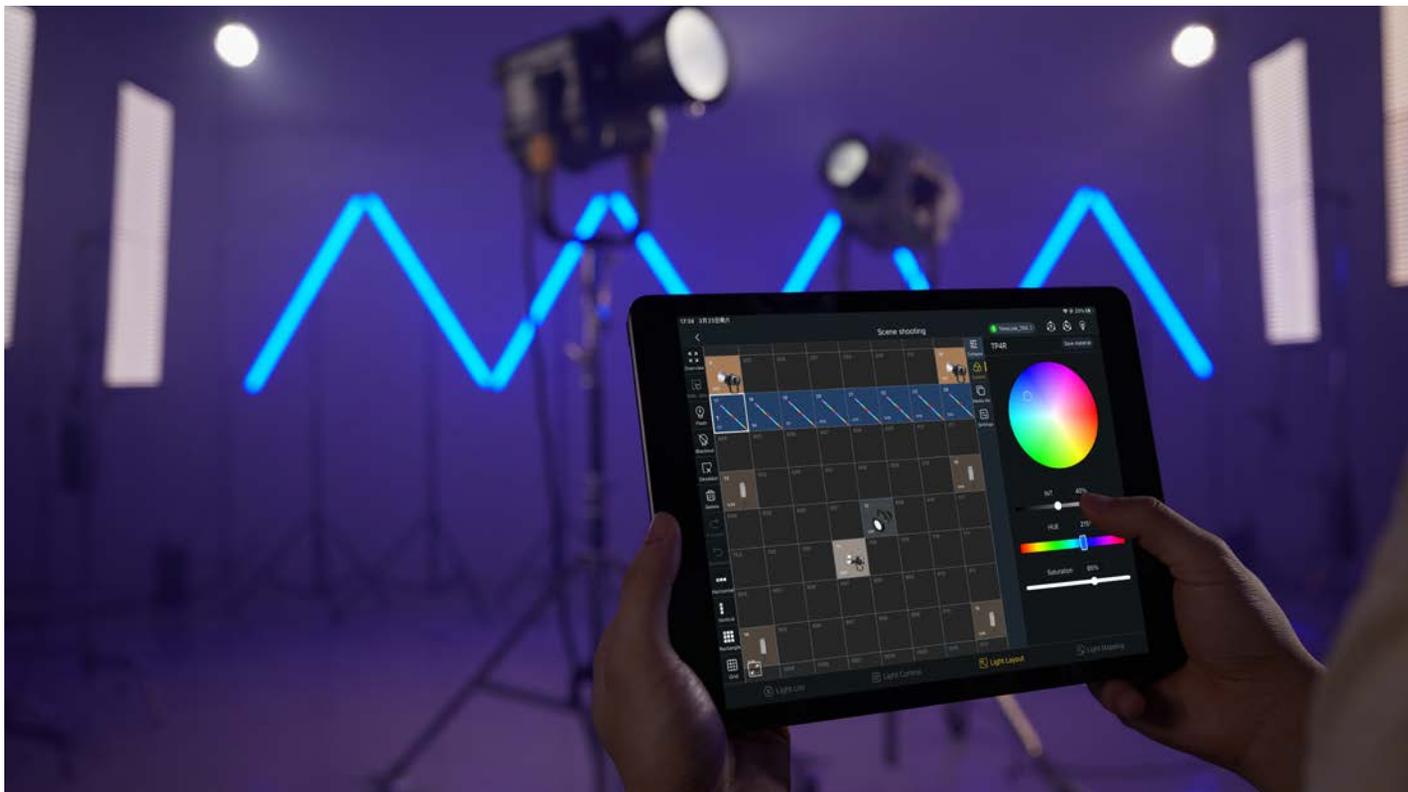
For more information go to: *godox.com*

Godox P1200R at 2m (6.6') produces a 3.2m diameter spot.

Godox P1200R and P600R Hard LED fixtures in various configurations: on a truss, hanging within Spacelight skirts, in 4-light arrays, with softboxes and a domed diffuser.

Godox Knowled App

1. Tablet running Godox KNOWLED App.

The Godox KNOWLED App is a professional lighting control application, available for free on both iPad and Android tablets.

1. Godox KNOWLED App lets you manage DMX-compatible light fixtures of almost any brand. It works seamlessly with TimoLink TRX for CRMX-controlled fixtures and supports Art-Net.

2. Light Mapping becomes a breeze, allowing seamless scene and lighting synchronization directly from your tablet—fast, budget friendly, and potentially dispensing with additional equipment.

3. Visualizing your lighting setup is more intuitive than ever. Easily position fixtures on the App's grid to represent a plan view of your actual set. It's intuitive and efficient.

4. The App includes a large library of lighting fixtures from Godox and other brands. It can be customized to your individual specifications. Add, edit, or delete fixtures in your local library.

2. Light Mapping.
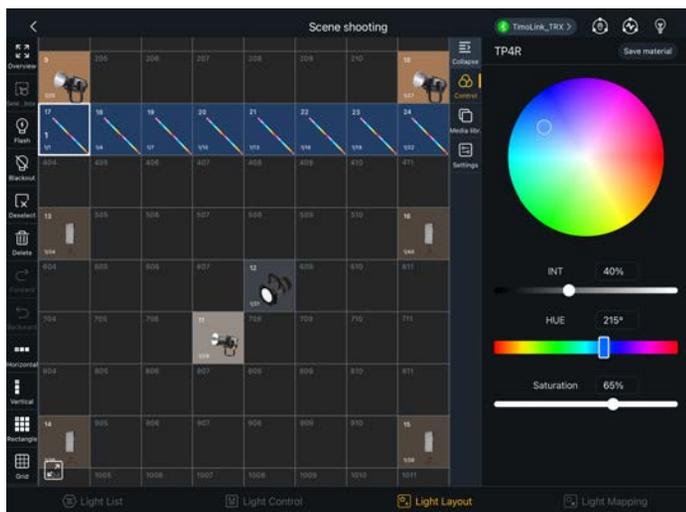
3. Light Layout.
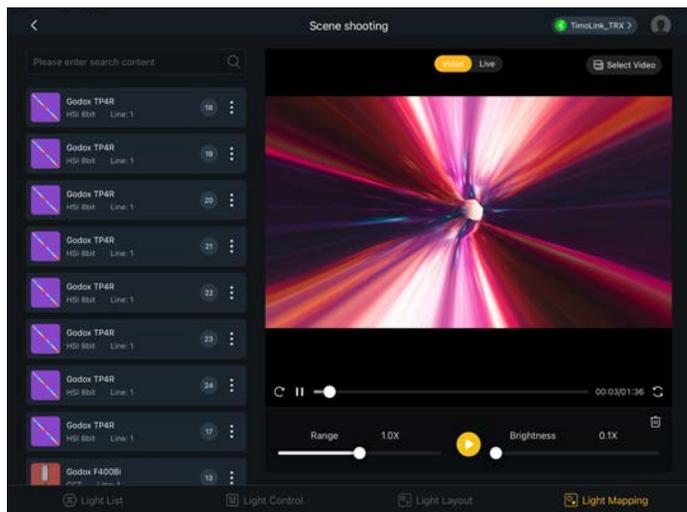
4. Light Mapping, with Light List in left column.

STEADICAM G-70x² Arm

The Tiffen Company, makers of the Steadicam, announce that the Steadicam G-70x² Arm is now available.

It flies and stabilizes payloads from 13 to 70 lb (5.9 to 31.8 kg) with a boom range (up-down) of 29" (737 mm).

There are many upgrades from the previous G-70 line, which is popular for its twist-resistant core design, carefully sourced metal alloys, propriety coatings and components that work together to add strength, enhanced stability, and durability. Building on the Steadicam G-70x, with its patented Iso-Elastic and Geo Spring Geometry, the new G-70x² includes features and functions that significantly enhance reliability, durability, safety, set-up speed, and smooth stabilization.

The new Steadicam G-70x² has a dual bearing mounted ¾" arm post. Rotational locking and drag control is done without tools—for quick adjustments from a solid lock-off to free rotation of the arm post, even when changing posts.

The new, rigid pivoting steel Socket Block also adjusts without tools and eliminates flex that can be inherent in traditional rod ends. This offers more precise sled positioning, with faster set-ups and on-the-fly adjustments, without removing the arm. Also, as a safety benefit, it prevents the operator from mistakenly over-extending the rod ends.

The popular kickback link, which gets the arm further out of the way as the sled crosses the operator's body, now has a multi-position socket block to locate the arm in the most convenient position, whether operating front- or back-mounted.

The new Steadicam G-70x² also has a sleeker design, with lower profile arm links that make it appear more transparent and less intrusive to operator movements. Operation is smoother thanks to Tiffen's attention to detail: with a full complement of low friction pivot point bearings, updated arm bumper design, and Lift and Ride knobs that have rubber grips and are easy to turn. Furthermore, the G-70x² uses Metric assembly components for easier service.

The G-70x2 comes with a soft-sided Arm carrying bag, special tool for user servicing, an operating manual, and 3-year full parts and labor warranty.

tiffen.com/products/steadicam-g-70x-2

STEADICAM G-70x² Arm

Dual Bearing Mount for 3/4" Post Rotational Lock and Drag Control

Easily adjustable, rubberized Lift and Ride Controls

Arm Post Lever Lock and Drag Controls

Lower Profile Arm Links minimize arm interference

Updated Bumpers

New Socket Block:

- precision sled positioning
- faster setups
- on-the-fly adjustments
- tool-free
- without arm removal
- Multi-position adjustability
- Better for back-mount users
- Reduced spring kick-back

Twist-resistant Core

Easier Tuning of ISO Elasticity

Metric assembly components for easier service

Specifications

- Weight: 13 lb / 5.9 kg
- Boom Range: 29" / 737 mm
- Minimum Lift Capacity: 13-lbs / 5.9kg
- Maximum Lift Capacity: 70-lbs /3 1.8kg
- Easier tuning of ISO Elasticity settings
- Sleeker Design
- Twist-resistant core
- Lower Profile Arm links minimize operator interference
- Redesigned Socket Block for precision sled positioning, faster setup & on-the-fly adjustment, tool-free, without arm removal

- Multi-position adjustability
- Reduced spring kick-back
- Better for back-mount users
- Rubberized, larger & better spaced Lift & Ride Knobs
- Updated Bumpers
- New Arm Post Lever lock
- Dual bearing mounted 3/4" extendable post with rotational locking & drag control
- Metric Assembly Components for easier service

No longer top secret: Easyrig Boom Rig for Sound

6m / 236"
≈ Max 700 grams
(1.5 lbs)

4m / 157"
≈ Max 1300 grams
(2.7 lbs)

2m / 79"
≈ Max 3800 grams
(8.4 lbs)

0m / 0"
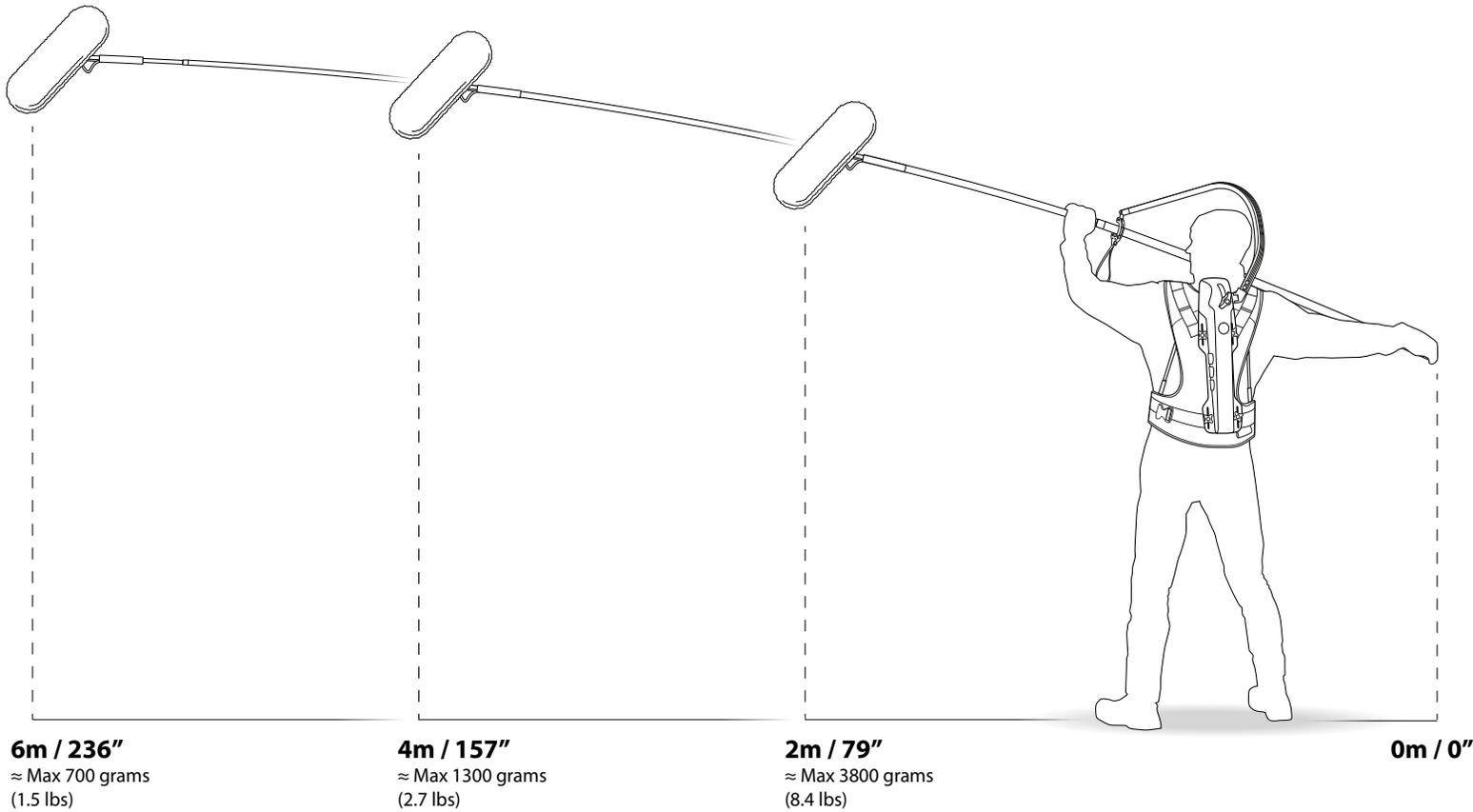
The nice folks from Umeå, Sweden take pleasure in tempting with "top secret" products in anticipation of major tradeshows. But it is a rare opportunity to get a sneak peak in time for publication. This time, Easyrig's Pontus Jonsson sent advance information on their new product for NAB 2024. He writes:

"After working with this new invention for more than 5 years, we are excited to announce that the Easyrig Boom Rig is finally released. The Easyrig Boom Rig is a new chapter in the story of Easyrig. After successfully helping camera operators for more than 30 years, we have now taken our expertise in weight distribution and support to address a new market: Boom Operators and Sound Engineers.

"We have been working with boom experts all over the world— including USA, Germany and Sweden—to perfect this new invention. It is patented and trademarked. The Easyrig Boom Rig is designed so that all the weight of the boom pole is on your hips, while still giving you full control of the boom pole. You can operate the boom with your hands as you always have done, but now you can do it without hurting your shoulders, arms or back.

"The Easyrig Boom Rig allows the user to operate high and low angles. You can attach a mixer to it in the front and even fasten the boom to the side of the vest to be able to free both your hands. You can also mount a small monitor using our umbrella attachment, which has threaded holes in it. This helps you see the exact framing of the shot."

The Easyrig Boom Rig is available now worldwide from any Easyrig reseller or distributor. Watch the release video of the Easyrig Boom Rig at *easyrig.com*

Boom Operator Erik Henebratt with Easyrig Boom Rig.

Co-Producers

CINEPAD⁵ · AATON DIGITAL · ORCA · matthews studio equipment · CINEMATOGRAPHY electronics · HASSELBLAD

Associate Producers

VOCAS · Easyrig · BRIGHT TANGERINE · Ronford-Baker · louma systems · 16x9 INC. · Panasonic · LAOWA · J.L.Fisher · Chrosziel · INOVATIV · DENZ PRÄZISIONS-ENTWICKLUNG · CHENG SENG GROUP Image Solution · INFINITY PHOTO-OPTICAL · SEKONIC · FilmLight · Prêt à Tourner accessories · RAID · DMG LUMIÈRE BY ROSCO · MYT WORKS

Rental Houses

CAM-A-LOT · RVZ LOCATION · BECiNE · CAMERAS BY OTTO NEMENZ · LJUD & BILD MEDIA AB · nac IMAGE TECHNOLOGY · KOERNER CAMERA SYSTEMS · K FILM RENTAL · HD systems camera rental · SERVICE VISION · LITES · CINE DIVING · C&L RENTAL · lemac · LENSWORKS · PHOTO CINE RENT · ARRI Rental · MUSITELLI · AbelCine · MOVIE PEOPLE · sanwa CINE EQUIPMENT / PRO LIGHT · Panalight · Lensrentals · LVR · RAW · OVIDE

Media and Production Partners

cinec · AFC Micro Salon Show · fsf THE FSF DAYs · NABSHOW · EURO CINE EXPO · BSC expo · Cine gear EXPO · IMAGO · CAMERIMAGE · ICG · CineLenses · SOCIETY OF CAMERA OPERATORS · Broadmedia & Entertainment Inter BEE · airstar · ibc

Titans of the Industry

SONY

ARRI

Canon

DJI PRO

Blackmagicdesign

CREATIVE SOLUTIONS

Cooke

TIFFEN

Leitz

Moguls

CVP

AJA VIDEO SYSTEMS

Leica

ZEISS

RED

FUJIFILM FUJINON

SIGMA

Angénieux

TERADEK

Videndum Production Solutions

bandpro FILM & DIGITAL INC.

NANLUX
INNOVATE · ILLUMINATE

THE STUDIO B&H
PHOTO · VIDEO · AUDIO

ANTON BAUER

PRESTON CINEMA SYSTEMS

frame.io

TILTA

Executive Producers

Emit

PANAVISION

WOODEN CAMERA

SMALLHD

Godox

Litepanels

oconnor

STEADICAM

Producers

NANLITE

lowel

ATLAS LENS CO.

IBE OPTICS

sachtler

CARTONI
PROFESSIONAL CAMERA SUPPORT

Tokina VISTA
BEYOND FULL FRAME

AbelCine

HASSELBLAD

PHOTO CINE SHOP.com