

ARRI NEWS

IBC ISSUE 2017

**100 YEARS
INSPIRING YOUR VISION**



EDITORIAL

DEAR FRIENDS AND COLLEAGUES


Happy 100th birthday, ARRI!

Not every company can claim such a long and rich history, and we are humbled and thrilled by this milestone. Since its founding on September 12, 1917, ARRI has been creating quality products and offering services to support and advance the art of filmmaking. These 100 years have only been achievable through the unwavering patronage and critical advice of industry professionals, as well as our partners, customers, and friends. Thank you to all those who have contributed over the years! Personal thanks must go out to the 1,500 current employees worldwide, as well as those who have worked for ARRI over the past 100 years. Without our talented and devoted staff, none of this would have been possible.

To mark its 100th year, ARRI is hosting various celebrations around the world and launching a commemorative online platform. Please join us at 100.arri.com to experience ARRI's history through our interactive timeline and over 250 video interviews with world-famous filmmakers and commentators. This special video series sketches a multi-faceted portrait of the industry and provides a unique perspective on the future of film.

For this centenary issue of ARRI News, we have collected stories from around the world that showcase ARRI products and the talent who put their faith in our equipment. Our popular SkyPanel family is growing in number and in size, and it now features a wireless communication component. ARRI is also dedicated to keeping the legacy of film alive and well. As a gift to the Murnau Foundation and the global film community, our ARRI Media services division took on a special project to restore the historical German film, *Münchhausen*.

Above all, ARRI is committed to inspiring and enabling professionals to reach their goals. This was the ambition of our founders, and it will continue to drive us in the future. Thank you for taking this journey with us; there are sure to be exciting times ahead. Here's to the next 100 years!



Dr. Joerg Pohlman



Franz Kraus

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EXPERIENCE THE HISTORY OF ARRI

To celebrate its centenary, ARRI is launching an interactive historical timeline that incorporates hundreds of filmmaker interviews.



INTERACTIVE TIMELINE - THE FILMMAKER'S VIEW



**TOM TYKWER
DIRECTOR**

“I realized that there are people at ARRI who really care about film. Up until then, I had always been the one saying, ‘Can’t we do that better?’ or, ‘Not bad.’ But at ARRI, people used to just come up to me and say, ‘No, that’s not good enough. We can do that better.’ And I thought that was awesome. It was so different.”



TAKE A JOURNEY THROUGH TIME

Visitors to the online timeline can explore the history of ARRI products, services, end users and milestone productions all the way back to September 1917, when August Arnold and Robert Richter rented a small former shoemaker's store in Munich and set up shop as a film technology firm. From the very beginning, their interest in technology was driven by a passion for visual storytelling.

Alongside the timeline, and woven into it, are more than 250 video interviews with international filmmakers, inventors and historians. They share their love of cinema, their creative approaches, and their experiences with ARRI. Linking every anecdote and historical event is ARRI's belief in empowering storytellers to realize their vision. That philosophy still defines the company on its 100th birthday; it always will.



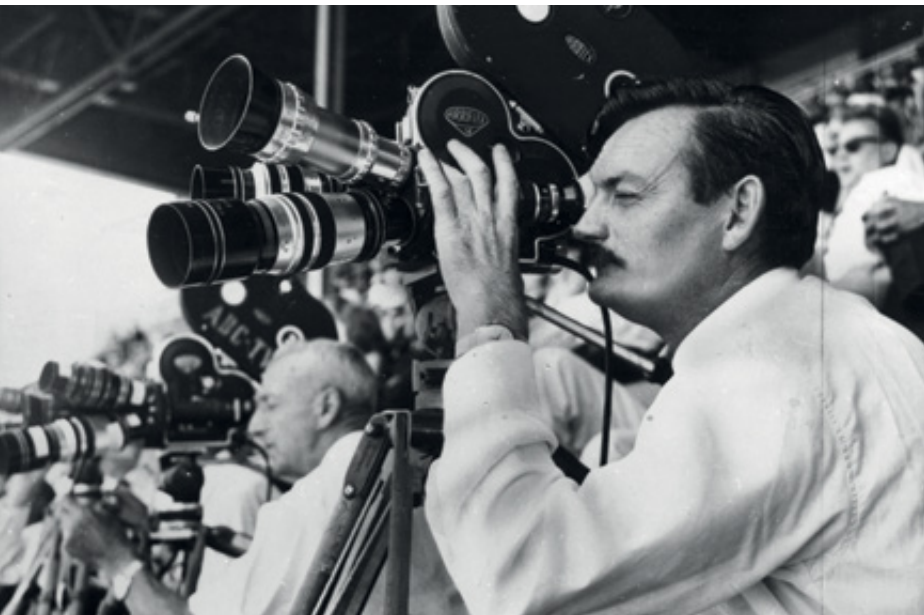
ELLEN KURAS ASC CINEMATOGRAPHER, DIRECTOR

“One has a relationship with the camera when you are that close to it, when you are constantly touching it and you know it so well. You know how it sounds; it becomes a part of you. It becomes an extension of yourself.”



**JUDITH KAUFMANN BVK
CINEMATOGRAPHER**

“I’m still curious and interested in new ways of working, because that for me is the core of our work: the perpetual search for the right expression.”



**RODRIGO PRIETO ASC, AMC
CINEMATOGRAPHER**

“There are certain things in photography, and in cinematography in particular, that an audience does not know are happening, but will affect them. That is where texture comes into play, and texture could be many things. It could be simply the lighting of a scene, and the depth you give it, or the mood you give it.”



**ANG LEE
DIRECTOR**

“While I was making *Life of Pi*, I often wondered whether I would be the same filmmaker when I went back to 2D. I guess not, because my eyes are now 3D trained. I have a different pair of eyes.”

**SANTOSH SIVAN ASC, AIC
CINEMATOGRAPHER**

“A cinematographer should be like a boat that wants to travel all over the place and discover new things, but it becomes very easy for the cinematographer to also become a ferry—to just go here, then come here, then go back here, and never go out of the safety zone.”



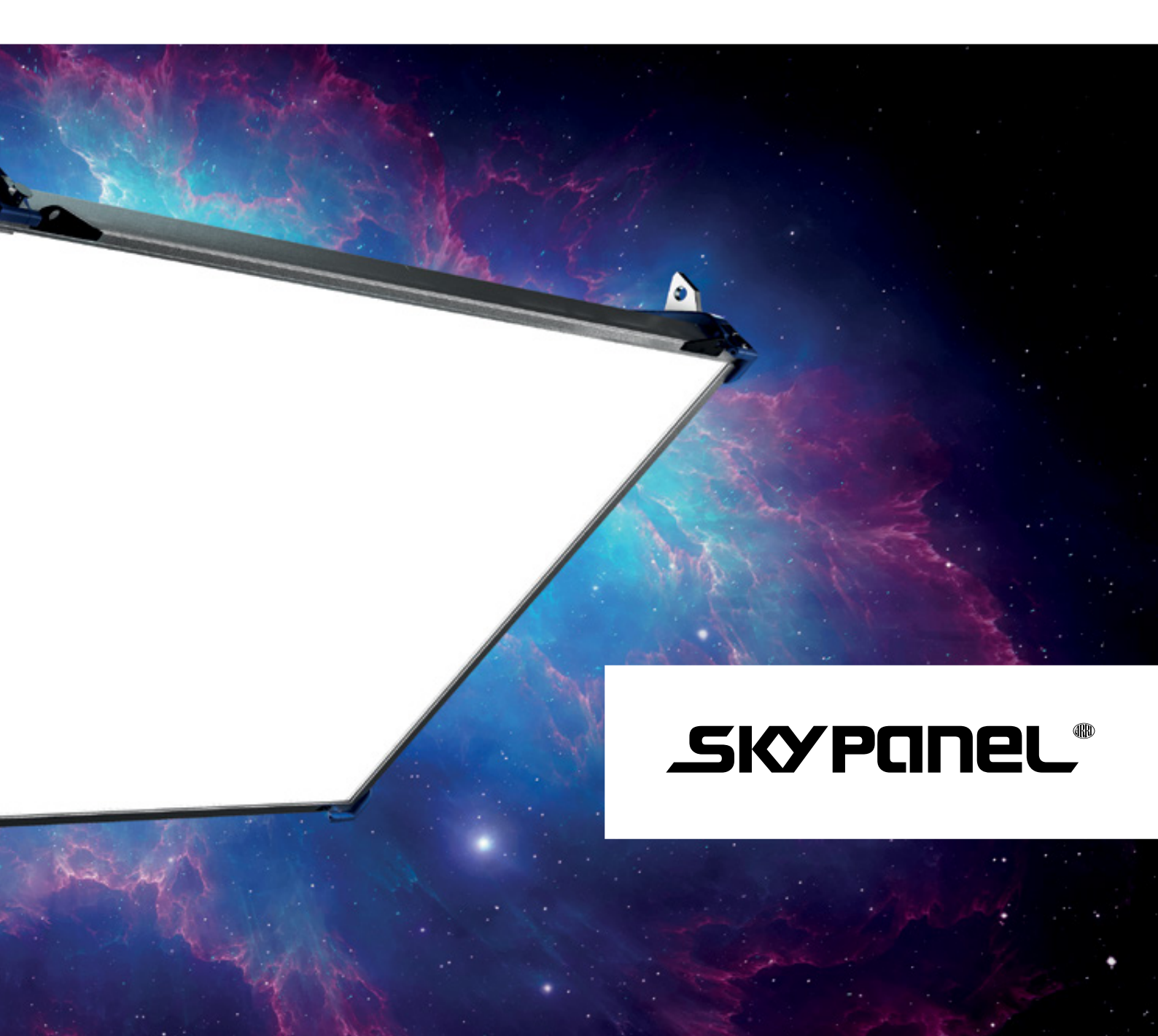
Visit the ARRI centenary timeline
100.arri.com

LET THERE BE SKY

*Introducing the new SkyPanel S360-C,
the biggest and brightest LED fixture
ARRI has ever produced.*

The ARRI SkyPanel has always been known for its tremendous output and large light aperture. The new S360-C has expanded ARRI's LED soft light range with the largest and brightest SkyPanel to date. Not only is the S360-C powerful, but it is packed full of exciting features, making it one of the most versatile LED fixtures on the market. These features include full color control, lighting effects on a huge aperture, wireless DMX built in, a unique carbon fiber yoke, and much more. The S360-C is truly a beast of a light.





SKYPANEL®

ENORMOUS APERTURE

Soft lights are all about size—the larger the aperture the better. With the S360-C, size has not been compromised. The surface area of the S360-C is over 5.8 times larger than the S60 and produces beautiful soft light in a wide 105° beam angle. The light will wrap around large objects and throw much farther than the smaller SkyPanels.

LUMENS, LUMENS, AND MORE LUMENS

At over 120,000 lumens, the S360-C is one of the brightest LED soft lights on the market. Compared to the S60-C, the S360-C is more than four times brighter and maintains excellent color quality and tuneability. Consuming only 1,500 watts, the S360-C is twice as bright as a 4,000-watt

tungsten soft light and over three times as bright as a 12,000-watt tungsten space light. Achieving an energy efficacy of over 80 lumens per watt, the S360-C is also one of the most eco-friendly LED soft lights available, while also being one of the brightest.

WIRELESS DMX, BUILT IN



SkyPanel has always had a multitude of ways to control the light output: DMX, RDM, Art-Net, sACN, 5-Pin XLR, and Ethernet. The S360-C adds another important communication method, and this one does not involve any wires: Wireless DMX by LumenRadio. Built into every S360-S, the CRMX chip allows for DMX and RDM communication without the hassle of cables and data distribution equipment. Simply link a compatible LumenRadio transmitter to the S360-C and you're good to go. Using the 5-Pin DMX output on the S360-C also allows for daisy-chaining other non-wireless SkyPanels to the DMX network.

SWAPPABLE PANELS



SkyPanel is one of the only LED soft lights to allow for the changing of diffusion panels in front of the LEDs. This feature is also offered with the S360-C. The diffusion panels are exchangeable and come in Lite, Standard, Heavy, and Intensifier. The Intensifier increases the S360's brightness by 50%, enabling the light to be thrown even farther.

FULL COLOR TUNEABILITY

As with all ARRI LED lampheads, the S360-C is fully tuneable. Easily adjust the CCT from 2,800 K to 10,000 K with plus/minus green control and access the full color gamut with hue and saturation, RGBW mixing, digital gels, source matching, or CIE x, y coordinates. Achieving over 85% of the colors within the Rec 2020 color space, it is now easy to create the look and color you want, right on set.

LIGHTING EFFECTS ON A GRAND SCALE

In SkyPanel Firmware 3.0, powerful lighting effects were introduced into the SkyPanel family. And with the introduction of the S360-C, these effects are even more impressive. Over the large aperture of the S360-C, the dynamic light effects appear more dramatic and powerful. The fire effect covers a huge area, the cop car effect can blast down a street, and the paparazzi effect looks like an entire press corps snapping photographs. With the turn of a few knobs, amazing and realistic effects are at the crew's fingertips.

A PLACE FOR YOUR REMOTE



No detail is too small or unimportant in the design of a SkyPanel. The S360-C housing features a SkyPanel Remote docking port. Able to control the S360-C via a USB cable, the SkyPanel Remote can be attached to the docking port on the back of the fixture using the remote's rear magnet. The docking port provides a space for the remote to rest or, if the fixture is upside-down, a place for an extra set of controls closer to arm's reach.

CARBON FIBER YOKE



The S360-C comes as standard with a state-of-the-art carbon fiber yoke. This yoke reduces the overall weight of the lamphead by several kilograms and provides a safe and robust solution. Made with a unique carbon fiber weave and metal-reinforced fittings, the S360-C yoke offers a weight reduction of over 50% compared to a typical steel yoke and can support 10 times the weight of the fixture.



For more information on the S360-C, please visit:
www.ari.com/skypanel360



SKYLINK

SKYPANELS GO WIRELESS WITH SKYLINK

The perfect wireless solution for ARRI SkyPanels is now available. Say goodbye to DMX cables with SkyLink.



ARRI and Innovative Dimmers have teamed up to create SkyLink: a two-part system that allows for wireless DMX and RDM communication to SkyPanels. The SkyLink Receiver and the SkyLink Base Station use LumenRadio for DMX/RDM communication and a WiFi chip in the Base Station allows for direct control from a DMX control application on a tablet or computer. Setting up a control network has never been easier.

WIRELESS FOR ALL SKYPANELS

The SkyLink Receiver plugs directly into the DMX port on the back of any SkyPanel and receives power from the USB port directly below the DMX. This compatibility allows for SkyLink to work with all SkyPanel models including the S30, S60, and S120, offering a wireless solution for the entire SkyPanel family. The new SkyPanel S360 already has Wireless DMX built in and works seamlessly with the SkyLink products.

WIFI TO WIRELESS DMX

The real wireless magic happens in the SkyLink Base Station. Armed with two wireless chips, the SkyLink Base Station can communicate LumenRadio's Wireless DMX and the international standard of WiFi. Therefore, a tablet or computer can communicate, via WiFi, to the SkyLink Base Station which can, in turn, communicate the reliable CRMX standard to the SkyLink Receiver on the SkyPanel. This communication chain supports new and simple ways of controlling one or many SkyPanels.

DMX + RDM = TOTAL CONTROL

ARRI LED products have always included an excellent implementation of RDM (Remote Device Management) in addition to the DMX protocols. RDM allows for two-way communication with the fixture and enables the ability to change all settings on the lamphead remotely. The SkyLink system is fully RDM capable and provides complete control over all aspects of the SkyPanel.

COMPACT AND RUGGED DESIGN

The SkyLink Receiver has a unique, compact, and robust design that fits perfectly within the SkyPanel family. The SkyLink is one of the smallest Wireless DMX receivers on the market and is designed specifically with the SkyPanel in mind. The swivel DMX connector allows for the SkyLink Receiver to be rotated 180° in order to achieve the best signal strength, regardless of the SkyPanel's orientation.

OUTSTANDING RANGE

The reliable Wireless DMX in SkyLink allows for strong and consistent communication to the fixtures. With an outstanding range of 150 m (500 ft.), SkyLink performs well on stage, even with the typical obstructions. In optimal conditions, for example direct line of sight, the SkyLink can receive a signal up to 400 m (1,300 ft.) away. This facilitates dramatically increased freedom on set, while still maintaining total control over the SkyPanels.



Original band members, Roger Daltrey (vocals) and Pete Townsend (guitar) performing at the Royal Albert Hall, London

AMIRA^{ARRI} CINEMATIC MULTICAM ROCKS

For the largest multi-camera utilization of ARRI cameras to date in the UK, ARRI AMIRA cameras were called upon to capture The Who live at London's Royal Albert Hall.

When one of the world's most influential bands gives a benefit concert at one of the most beloved venues in Britain, people want to experience it. This was the case when The Who played to a full house at the Royal Albert Hall in London this past spring. Long ranked among the greatest live acts in rock history, The Who revived their classic rock opera *Tommy*, along with other timeless hits during the concert. Their show marked the 100th performance sponsored by the Teenage Cancer Trust at the Hall. With this annual fundraiser, Teenage Cancer Trust raises millions to provide specialist care to young people with cancer.



Aspiring to achieve a cinematic look for The Who's legendary performance, Teenage Cancer Trust, together with EP-PIC Films & Creative, Eagle Rock Entertainment, and Procam Projects, relied on the premium quality of ARRI AMIRA cameras to capture the experience. Emer Patten, Executive Producer at EP-PIC Films & Creative, explains: "The main reason that we used the ARRI AMIRA and ALEXA Mini is that I love the ALEXA family of cameras and a proper 35 mm aesthetic. Back in the day, we used to shoot on film all the time, and the evolution of digital film cameras has finally



AMIRA Multicam in action



Photos: Christie Goodwin

caught up with the aspirations of producers and directors, so I now try to specify the ALEXA and AMIRA for all of my productions.”

In what turned out to be the largest multi-camera utilization of ARRI cameras in the UK to date, six ARRI AMIRAs, two ALEXA Minis, and four Sony A7S II were employed for the event. All the ARRI cameras were able to be racked through a centralized engineering portable production unit gallery. By combining Procac Projects' Ereca CamRacer with AMIRA and ALEXA Mini cameras in Multicam mode, the engineering team matched the cameras using standard Remote Control Panels (RCPs) in a familiar live broadcast workflow with an industry-standard SMPTE Hybrid fiber. Offering a simple and flexible interface, an AMIRA in Multicam mode can be used with virtually any camera-to-base transmission system, providing the same production benefits regardless of which system is used. It allows the image parameters of multiple AMIRA cameras to be remote controlled using conventional Sony RCPs.

Available for all AMIRA models, the Multicam mode makes the exceptional image quality of ARRI's ALEV III sensor available to an even wider range of productions in the broadcast sphere. It can take the cinematic look of AMIRA's unrivalled dynamic range, natural colorimetry, and the large format's shallow depth of field into the fast-paced world of live multi-camera productions. “That same look is the reason so many cinematographers around the world choose



to use ARRI cameras,” said Andy Hayford, Business Development Manager at ARRI.

Increasing demand for high quality imagery with Multicam mode has been noticeable in the wider broadcast market and AMIRA cameras are often called upon to capture monumental events. AMIRA Multicam shoots to date have included major US comedy shows, Broadway stage productions, fashion shoots, TV talent shows, corporate events and, of course, concerts.

Another standout event of 2017 for the AMIRA Multicam was the World Club Dome in Frankfurt, Germany. Promoted as the “biggest

club worldwide,” this electronic dance music festival brought together more than 160,000 visitors and 200 international DJs on 20 separate stages. Six AMIRAs and three ALEXA Minis were employed to capture footage for the event spaces and 20 Facebook livestreams. All in all, World Club Dome reached around three million viewers.





CHOOSE FLEXIBILITY

*Introducing the new and already
prize-winning ARRI Lightweight Matte
Box LMB 4x5.*



Ultralight single stage clamp-on



2- and 3-stage clamp-on



15 mm lightweight



Studio 19 + 15 mm

This year's winner of the Cine Gear Expo Technical Award for camera technology was not a camera at all, but a mechanical accessory: ARRI's new Lightweight Matte Box LMB 4x5. After evaluating nearly one hundred of the latest technologies submitted and presented at this year's Cine Gear Expo in Los Angeles, the team of judges awarded ARRI's new LMB 4x5 with one of the top prizes at the event.

ARRI is continually investing in its high quality, rugged, camera-independent accessories range and the new Lightweight Matte Box LMB 4x5 is no exception. This modular matte box expands on the feature set and creative possibilities of the popular LMB-25 while retaining an entry-level price tag. Suited for a wide range of applications in

just one product, this robust but lightweight matte box allows for an unprecedented level of flexibility.

From a single-filter configuration for gimbals, drones or Steadicams to clamp-on versions and rod-mounted solutions (using either 15 mm lightweight or 15/19 mm studio rods), the LMB 4x5 makes short work of challenging situations. Altering the various applications does not necessitate any supplementary tools, making set-ups quick and easy. The new matte box is also highly compatible with existing legacy accessories; all clamp adapters and filter frames from the former models LMB-5, LMB-15, and LMB-25 are suitable. Also, to protect the investment of ARRI's current customers, two levels of attractive upgrade options from LMB-25 to the new LMB 4x5 platform are available.

Offered in both a 4"x 5.65" and 4"x 4" filter size, the LMB 4x5 comes with a two-stage, non-rotating filter stage assembly. It can hold up to three filter stages, allowing either a non-rotating or rotating stage to be added to the two initial stages. The rotating stage allows for a 360° rotation, making it the first rotating stage on an LMB. Another new efficiency feature of the LMB 4x5 is the option to mount a 15 mm lightweight console to the top or the bottom of the clamp adapter. This feature was added to accommodate optical center rod mounts that are attached above the camera. In its most pared-down form, one filter stage together with one clamp adapter, the LMB 4x5 can also provide the smallest and lightest single filter stage setup available.

The valuable features of ARRI's studio matte box line, such as tray catchers, tilting capability, and swing-away modules for

"I always loved the reliability and simplicity of the LMB-25. To have a new system that is thoroughly upgradeable with an effective lightweight tilting mechanism is just fantastic!"

Brendan McGinty, cinematographer

fast lens changes are now available for the first time in a lightweight model. New enhancements, such as an additional filter stage in two different versions, a tilt-and-flex adapter, as well as expandable carbon fiber top and side flags that also fold flat for easy storage and transportation, make this matte box unique. The weight of the LMB 4x5 has been optimized to meet the demand for lightweight accessories on today's film sets. The LMB 4x5 also maintains the streamlined design for which ARRI's LMB range is known.

The LMB 4x5 was launched at Broadcast Asia in Singapore at the end of May and was on display directly afterwards at Cine Gear in Los Angeles, in early June.





ALEXA MINI SMALL CAMERA SHOOTS BIG

Veteran cinematographer César Charlone ABC turns to the flexibility and capability of the ALEXA Mini for this autumn's action blockbuster, "American Made."

Starring Tom Cruise and based on the true story of Barry Seal, a commercial pilot turned drug smuggler turned informant, *American Made* contains all the elements of a high-action thriller. Having to film in varied and often constrained environments, DP César Charlone ABC shares his experience working with ALEXA Mini.

How did ALEXA Mini stand up to the various tasks at hand?

The ALEXA Mini was very nice in regard to size and weight, very comfortable. The feeling that we wanted to get for the film was documentary style, kind of run-and-gun, and for that we needed a very light camera. The size of the ALEXA Mini gave us the freedom to move around easier. With

handheld you can move around with the actor and let him be free. It changes the entire attitude of filmmaking, and it gives the actors more of a natural feeling of being in the scene.

Did this flexibility help with any scene in particular?

Some of my favorite scenes that we shot with the ALEXA Mini were the interiors in the planes and cars, where we were doing handheld. I could put the camera on the dashboard of the car and I could get a close-up of Tom Cruise with the actor in the back seat. We can just do that in a rhythm and not have to reset for each camera angle because I can simply switch seats in the car to get the perspective I want with little effort.

Did the ALEXA Mini facilitate your way of working?

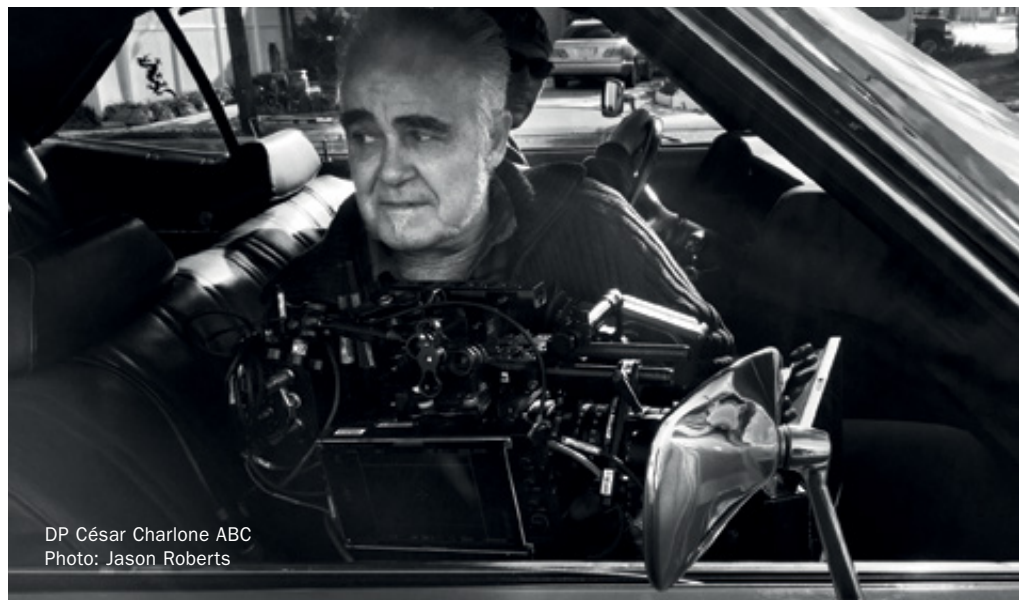
Since I left school in the mid-1970s, I've had this urge to have the camera act like a free microphone, where you could monitor in one place and capture in another. I have been doing this for quite some time now. I use little goggle eyeglasses where I receive the image, then I hold the camera away from my body and shoot. So, when the ALEXA Mini arrived, I did the same. I just took the eyepiece away and used my goggle glasses; the camera body was just attached with a cable. This allowed me to operate freely. For example, when I operate inside a plane, I can put the camera in front and shoot backwards, with me sitting in the back. There's no way I can do that through a viewfinder, so the cable and those goggles help me a lot.

How has digital capture changed the filmmaking process?

I come from a still photography background, so I have been postproduction-



Photo: Robin Le Chanu



DP César Charlone ABC
Photo: Jason Roberts

dependent from the beginning. It's a completely different approach to cinematography. Before digital there was so much pressure on set to have the right filter and equipment needed for your look, and that compromised the relationship between the DP, director, and actor.

I did a film in the mid-1980s where I committed everything to a visual proposal on the film, and then after it was edited, there were so many things that I wanted to change. The film flows in a certain pace and a certain rhythm, and maybe you want to change the contrast or the color saturation for some

scenes; now you can do it all in post. I believe so strongly in the power of editing and being free to choose afterwards, away from the stress of set. I have a joke on set, I say: "Quantity is better than quality," because I can get the quality in editing. Let's give the editing teams as many shots and camera positions as we can, because the real truth comes out in the editing.

How have ARRI and its products affected your industry?

When ARRI came out with the RAW sensor that's like negative film, it gave us

cinematographers so much liberty. The sensor that ARRI has is beautiful, it's perfect. I'm very happy that ARRI is at the forefront of the film industry because there is constant research being done, and these discussions with cinematographers help in bringing out new cameras. It's nice to know that ARRI works so closely with cinematographers, and now we have a camera that I have no complaints about.



Photos: © 2017 Universal Pictures



LIGHTS OVER INDIA

Rental facility Light N Light supplies the full range of ARRI daylight, tungsten and LED lighting fixtures to high-profile Indian productions and DPs.



With branches across Mumbai, Delhi, Hyderabad, Abu Dhabi, and Mauritius, Light N Light provides lighting, grip, and camera equipment to productions shooting all over India and beyond. Servicing one of the most prolific and demanding film industries worldwide, Light N Light has chosen to invest in equipment of the highest possible quality. ARRI fixtures form the backbone of the company's considerable lighting inventory, among them the very latest M-Series, L-Series, and SkyPanel lampheads.

ARRI daylight fixtures are a staple on Indian feature film sets. Location shooting is commonplace, and since Indian cinema revels in large-scale spectacle—from stunningly choreographed dance numbers to carefully planned action sequences—vast areas often have to be illuminated. For this reason, the ARRIMAX 18/12 has been a popular fixture in India from the moment it was introduced.

Countless Indian movies have relied on the ARRIMAX; one recent example is the upcoming Bollywood film *Bhavesh Joshi*, shot by cinematographer Siddharth Diwan. For an elaborate nighttime bike chase in a big train yard, Diwan needed a single light source that would give him as much freedom to shoot as possible. “The area was so large that no single unit could help us,” he says. “We

came up with the solution of building two trusses, each rigged with six ARRIMAX and hoisted on a 200-foot industrial crane. From a distance of close to half a kilometer they became this beautiful single source, with one shadow.”

The MAX Technology first incorporated into the ARRIMAX went on to be utilized in the M-Series, ARRI's latest range of daylight fixtures. These, too, have been enthusiastically embraced on Indian productions and Light N Light carries the entire series. On the Bollywood romantic comedy *Half Girlfriend*, released earlier this year, cinematographer Vishnu Rao repeatedly turned to M-Series lights.

“The M-Series proved particularly useful in the lighting of larger locations, packing a real punch of output while being the same



physical size as a conventional light,” notes Rao. “In the film, we see our male lead on the streets of his small home town on a night when the electricity is out, walking among all the townspeople as the camera cranes up for a wide view. There was nowhere to hide lights, so I used one M90 on a rooftop at the far end, backlighting the entire street. Then we made balloons out of three M18s and hung them overhead with cables—that was all. The M90 gave us a natural, moonlight feel. That one light and the three smaller fixtures were enough to light up around 200 meters of the street and give us the beautiful mood we wanted.”

As well as the M-Series range, many of Light N Light's customers make use of other ARRI lights such as ARRISUN, TRUE BLUE, Compact and Studio fixtures.

For Light N Light, the long service life of ARRI lights is a big part of their appeal. By investing in quality, the owners maximize return on investment and can rest assured that the fixtures will withstand constant use and transportation, heavy handling, and challenging on-set conditions, year after year.

With the addition of ARRI L-Series and SkyPanel LED fixtures to Light N Light's inventory, even more options are now available to filmmakers. Cinematographer Priya Seth worked with SkyPanels on the upcoming Hindi film *Chef*. “We were in Kerala, in 38-degree heat, and they were invaluable in maintaining a cool temperature inside the real locations we were shooting,” she says. “The gel library was also very useful; it minimized expendables costs and allowed for quick creative ideas. For a restaurant

scene shot in New York the city ordinances forbade big lights on the sidewalk, so we just put two SkyPanel S60-Cs above each window, through a softbox, to extend the ambient light. The results were stunning. The SkyPanels were so lightweight and I could just dial in the color temperature to match the exterior.”

Like *Chef*, numerous Indian productions are now combining LED and conventional lighting, another example being *Badrinath Ki Dulhania*. Cinematographer Neha Parti Matiyani comments, “To observe and recreate a visual so that the recreated images are every bit as memorable as the ones they were inspired by—that is the job of a DP. What makes every day special is having found the perfect partner in the form of ARRI lighting and the wonderful people at Light N Light, who work tirelessly to bring these tools of our trade to every foolhardy, impossible, and unforgiving location we DPs demand them at.”





The team from ARRI Media Sound for Kraftwerk's 3-D *The Catalogue* (from left): Andreas Hemberger (Stage Operator), Tschangis Chahrokh (Head Sound Engineer), Daniel Vogl (Head of the Sound Department), and Philipp Baur (Postproduction Producer Sound)

KRAFTWERK AND ARRI AT THE MOVIES

Kraftwerk chooses to use two ALEXA cameras from ARRI to shoot their concert film "3-D The Catalogue" and produce the cinema version at the ARRI@Bavaria Film postproduction facility.

Kraftwerk has been making music history for almost five decades now. These pioneers of electropop are acknowledged as the forefathers of several musical genres, as well as a major influence for well-known musicians around the world. Ever since their formation in 1970 in Duesseldorf, Kraftwerk has always used cutting-edge technologies to create their works of performance art.

New, revamped versions of Kraftwerk classics were released at the end of May 2017, together bearing the name 3-D *The*

Catalogue. One of the options for fans is a Blu-ray Disc of Kraftwerk's spectacular multimedia concerts held at the Museum of Modern Art in New York, the Tate Modern in London, and the Neue Nationalgalerie in Berlin, to name just a few of the tour venues filmed in high-resolution 3D and with state-of-the-art sound. The big challenge for the Blu-ray was finding a way to reproduce the enormous 3D wall on stage behind the band members Ralf Huetter, Fritz Hilpert, Henning Schmitz, and Falk Grieffenhagen, in 3D on the disc.

Extremely light-sensitive cameras are needed to make that kind of video, and the polarization filters reduce the image brightness by half again, which means that the cameras have to meet the most demanding standards. The band members weren't about to rely on other people's recommendations when choosing the right system; they arranged for all the appropriate camera systems to be sent and they tried them all out for themselves. In the end, Kraftwerk, together with cameraman Sebastian Cramer, decided upon the ALEXA

“The collaboration with the ARRI team was professional in every way.”

system because, as the band stated, it was the only camera that delivered enough contrast when faced with the difficult lighting conditions at the live concerts. Ultimately, the performances were filmed stereoscopically with two ALEXA cameras in a mirror rig fitted with polarization filters.

The collaboration with ARRI Media came about through personal contacts made in the course of mixing the 3D sound together with Tom Ammermann of New Audio Technology. “We recommended to Kraftwerk that they have a cinema version of *3-D The Catalogue* made. They loved the idea,” recalls Daniel Vogl, site manager of ARRI@Bavaria Film and Head of the Sound Department at ARRI Media, the ARRI division responsible for postproduction. And that was how the idea was born to hold exclusive cinema screenings in six German cities a few days before the

release of *3-D The Catalogue*. Rather than simply taking the Blu-ray material and projecting it onto the big screen, Kraftwerk stayed true to its principle of insisting on the best quality available. That meant a special cinema mix in Dolby Atmos—a scalable sound system with which sound objects can be positioned in a space. The mix was produced in Studio A at ARRI@Bavaria Film in Geiselgasteig near Munich—the same rooms in which the industrial production of talkies began in Germany in 1930. It is in this historical location that Kraftwerk’s sound engineer Fritz Hilpert, Tom Ammermann, and ARRI Media’s Head Sound Engineer Tschangis Chahrokhi, together with his team, created the soundtrack in Dolby Atmos under cinema-acoustic conditions. And the result is something special: the re-interpretations of *Radioactivity*, *Trans Europe Express*, and *The Robots* are groundbreaking in the field of 3D audio.

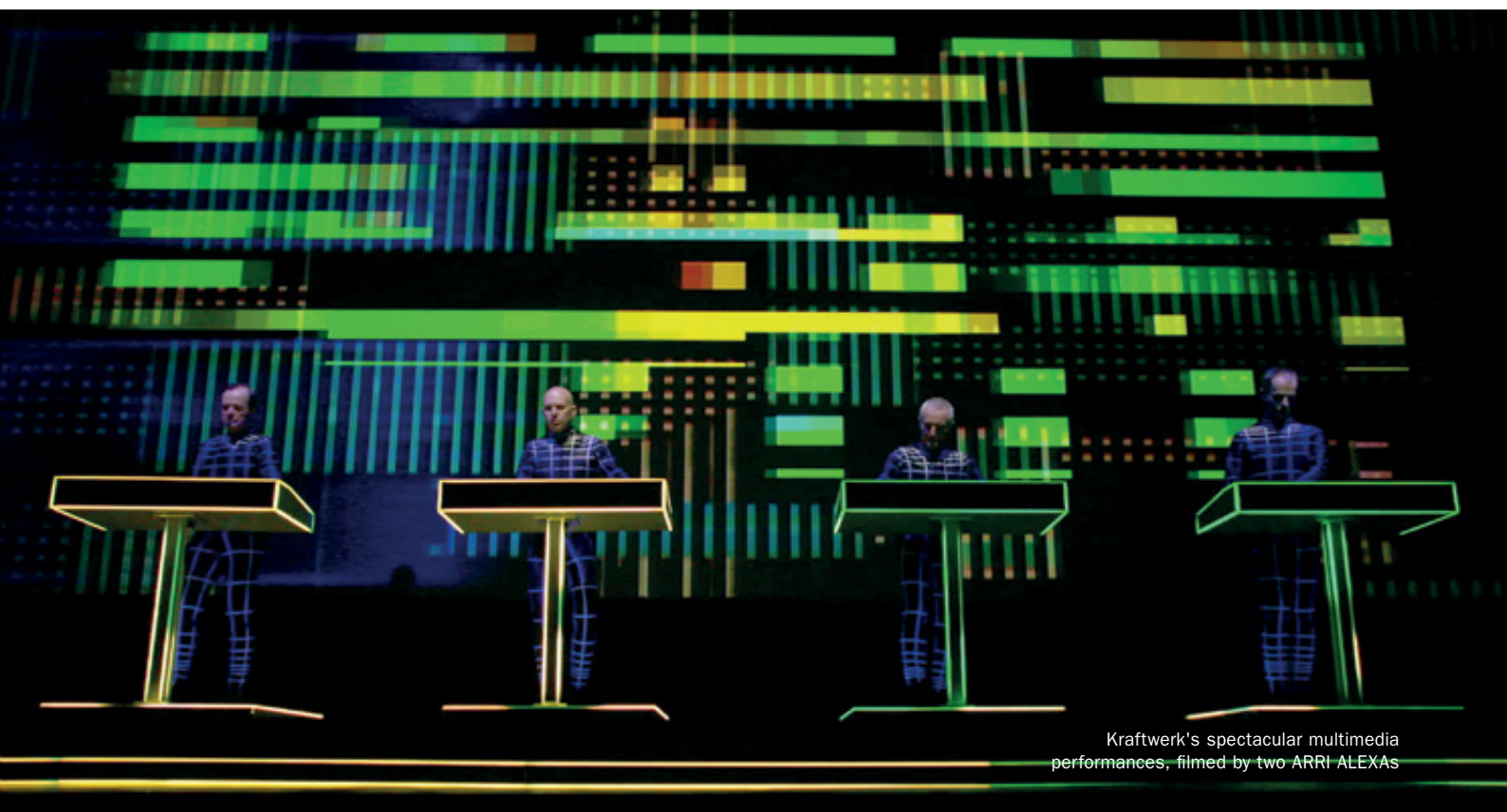
Naturally, the visual experience also has to be of optimal quality. Senior Colorist Florian “Utsi” Martin adapted the Blu-ray version to the cinema screen, performing a color correction in High Dynamic Range (HDR) in Dolby Vision 3D. This exclusive procedure is only possible through ARRI at its Geiselgasteig

location in Southern Germany, because ARRI@Bavaria Film has the only Dolby Vision grading suite in Europe. Kraftwerk confirms: “The far greater contrast scope means the concert images have much more depth and vividness.”

And finally, ARRI transported the film via DCP into the movie theaters, where audiences enthusiastically celebrated *3-D The Catalogue*. Daniel Vogl is very pleased about ARRI’s involvement in this synthesis of the arts: “It’s an experimental and exciting collaboration. We set ourselves the goal of achieving the very best that is technically possible in cinema today. Immersive audio in Dolby Atmos and HDR in Dolby Vision 3D, shot with the best camera and with fantastic music and magnificent images.” The result is a product that sets new quality standards. Kraftwerk is happy too: “The collaboration with the ARRI team was professional in every way.”



More about Kraftwerk at
www.kraftwerk.com



Kraftwerk’s spectacular multimedia performances, filmed by two ARRI ALEXAs



CANNES WINNERS SPEAK WITH ARRI

At the 70th anniversary of Cannes, filmmakers, including several whose films picked up awards, were interviewed by ARRI. They discussed their work on the films and explained how ARRI technology had helped them.

THE SQUARE (PALME D'OR)

Cannes' top prize, the Palme d'Or, went to Swedish director Ruben Östlund in 2017 for his feature film *The Square*. Cinematographer Fredrik Wenzel captured with ALEXA XT and Master Prime lenses. "Ruben has a great sensibility for when the camera should move and when it shouldn't," says Wenzel. "I try to push that when I see where it could benefit the situation of what we're doing. We have a lot of whip pans in the movie, which are trying to implement some sort of weird, unsettling insecurity. When you have to operate and do precise movements you're very present and there; it takes a huge amount of energy to perform those over and over again, and be precise every time."



DP Mikhail Krichman RGC

LOVELESS (JURY PRIZE)

Cinematographer Mikhail Krichman RGC worked with ALEXA XT and ALEXA Mini cameras, as well as SkyPanel lights, on director Andrei Zvyagintsev's intense and disturbing film *Loveless*. "On Andrei's movies, the camera doesn't move without any purpose," says Krichman. "It moves with action, with actors, or with a special purpose that belongs to the scene." The cinematographer continues, "We had eight SkyPanels—they worked every day, in the studio and for exteriors as well. We could put them anywhere and didn't need to take them down or up, you don't need any gels, and that actually made us flexible and let us experiment more with the color of the light... the light became a character."



DP Ed Lachman ASC sharing his experiences with ARRI
Photos: ARRI

THE RIDER (ART CINEMA AWARD, DIRECTOR'S FORTNIGHT)

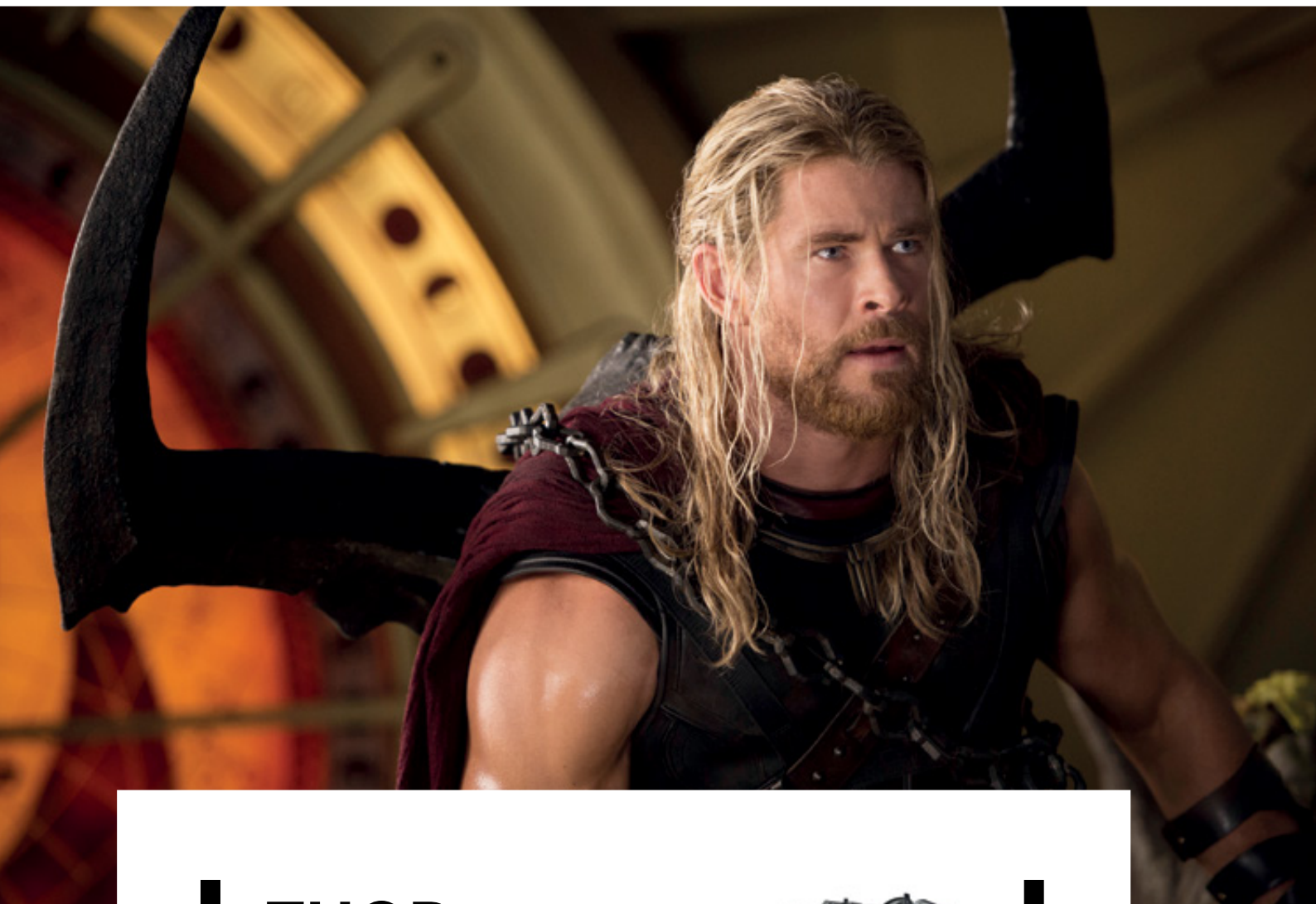
Director Chloe Zhao's film *The Rider* won the top prize in the Director's Fortnight selection at Cannes this year. The movie was shot by British cinematographer Joshua James Richards, who captured with AMIRA and Ultra Primes. "I've always really liked how the AMIRA feels on the shoulder—it's a well-balanced camera. I've become well adjusted to the ease and ergonomics of it, and that coupled with the Ultra Primes gave us the latitude we needed in a broad range of situations, from firelight scenes to very bright days at a rodeo." Richards continues, "There was one particular night, it was a harvest moon...it was so bright, I had never seen that before, so out of curiosity we got the AMIRA out and framed up, and you actually see in the film a scene lit purely by moonlight. If that's not a great testament to the sensor, I don't know what is."

WONDERSTRUCK

Continuing their long-running creative partnership, director Todd Haynes and cinematographer Ed Lachman ASC teamed up for *Wonderstruck*, which was selected for the main competition in Cannes. Lachman comments, "We referenced the silent era of movie making, which was in black-and-white. So what better way to do that than actually shoot on film with black-and-white negative?" Lachman shot primarily in color and black-and-white 35 mm with ARRICAM cameras, though about 10% was captured with his own ALEXA Mini, for scenes in a museum where time and lighting were limited. He also worked with ARRI SkyPanels, which he says allowed him to have "a third of the lights, and the colors were unbelievable, to play with without gels, so I'm a big fan of the SkyPanels—they're a brilliant light."

DIRECTIONS

Screened in the Un Certain Regard category and picked up for distribution by the World Sales unit of ARRI Media, *Directions* is a gritty and technically bold examination of life on the streets of the Bulgarian capital, Sofia. Directed by Stephan Komandarev, it was shot by cinematographer Vesselin Hristov in long, single takes with an ALEXA Mini. Komandarev notes, "We wanted our film to have a lot of realism and authenticity, that's why we chose this crazy way of shooting, with every episode filmed in one shot...that's also why we chose the ALEXA Mini. In a taxi cab with the actors there is not so much room and no possibility to put in a lot of lighting, so with this camera it was possible to be very moveable, very dynamic, and to shoot with a very low level of lighting and equipment."



THOR: RAGNAROK



Javier Aguirresarobe ASC, AEC captures the latest Thor movie with ARRI Rental's exclusive ALEXA 65 camera system.

Marvel Studio's third film starring Chris Hemsworth as the superhero Thor was directed by Taika Waititi and shot by cinematographer Javier Aguirresarobe ASC, AEC. Aguirresarobe speaks here about how he worked with the full camera and lighting package supplied by ARRI Rental, which included the exclusive ALEXA 65 camera with Prime 65 and Vintage 765 lenses, as well as ARRI SkyPanel LED soft lights.

What benefits did the ALEXA 65 format bring to this production?

The ALEXA 65 captured the color tones and chromatic contrast of scenes with enormous fidelity. It also provided very good definition and useful information for the development of visual effects, ensuring a high quality in backgrounds and other spaces created by CGI. Its technology and behavior were consistent in filming; I liked working with it and felt very safe on the set.

Our team also found the camera flexible to work with and there were no complications with the coordination or setup—it was as simple as the other ALEXA models that we already know. The workflow we established worked very well. We saw dailies of what we had shot the day before, with a color and contrast similar to the grading done on set.



Photos: Film Frame/Jasin Boland
© Marvel Studios 2017



DP Javier Aguirresarobe ASC, AEC

How would you describe the look and feel of ALEXA 65 images?

The look of the ALEXA 65, in principle, captures what is in the scene with a soft contrast that is a consequence of its high dynamic range. Highlights do not burn out and there is a margin to the treatment of dark areas. On the other hand, I personally like to rate the camera at a color temperature of 6,000 K. With the ALEXA 65 thus arranged, the skin tones, illuminated with warm light, seem insurmountable. I love it and it reminds me a lot of Eastmancolor, which has always been a good reference for me.

In general I think one can conform the characteristics of the ALEXA 65 according to one's visual expectations. The response of the sensor allows more creative freedom, with the possibility to take risks and get the desired look. For me, I see no limits to visual imagination with this camera. One may need more extreme lighting to burst the highlights or to take risks in the lows, but it's all up to you.

You had both the Prime 65 and Vintage 765 lens series; how did you use them?

Before traveling to Australia for the shoot I conducted tests with the ALEXA 65 and different lenses at ARRI Rental UK. When I screened tests of the Prime 65 and Vintage 765 lenses, I felt that they did not differ greatly in their visual characteristics. Perhaps the Vintage 765s had a bit more softness in their definition, which I found useful for establishing shots of the actors, but it certainly seemed possible to use both sets at the same time. The combination was favorable and facilitated a collection of 12 lenses with focal lengths ranging from 24 to 250 mm.

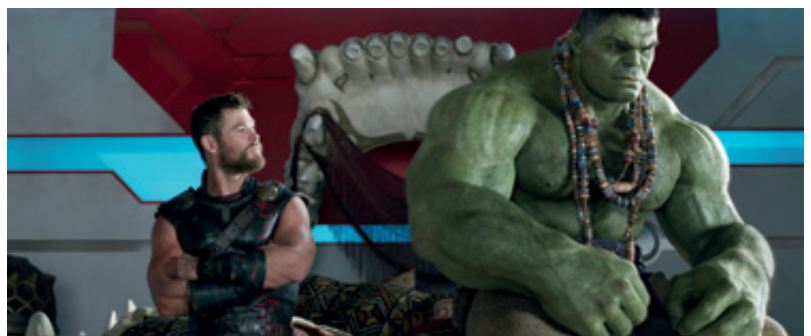
What kinds of applications did you use the ARRI SkyPanels for?

The SkyPanels were essential in lighting this film. I organized different boxes based on two, four, and six units, sometimes even up to 12. According to the type of scene, I used these boxes as the main source of

illumination. At other times, these boxes served as a powerful side light or fill light. I also combined LEDs with HMI fixtures to create spaces with contrasting intensities and textures of light. Our sets were expansive and the SkyPanels helped us to make fast transitions as scenes changed. They offer the possibility of adjusting intensity and color tone in record time. If a control panel is added, fast and efficient work is assured.

Has the ALEXA 65 changed your perception of the possibilities offered by digital cinematography?

I sincerely believe that with the ALEXA 65, digital cinematography is further consolidated, in case there was any doubt. After my experience on *Thor: Ragnarok*, I wonder where we are going to end up—where are the limits of digital technology in relation to the image? I am sure that although we will continue making new developments, we have reached a stage seemingly difficult to surpass.



SKYPANEL[®] FIRMWARE 3.0 PUT TO THE TEST

Rolled out just in time to assist in filming the forthcoming series "Troy: Fall of a City" (BBC One/Netflix), the new Firmware 3.0 for ARRI SkyPanels ably performed its tasks.

FW
3.0

Troy: Fall of a City is David Farr's visceral re-telling of the fall of Troy, produced by Wild Mercury in association with Kudos, the 8 x 60 adaptation of the enduring epic was commissioned by BBC One and is a co-production between the BBC and Netflix. The story of the war between Greece and Troy is a tale of love, revenge, intrigue, and bloodshed. Told from the perspective of the Trojan family at the heart of the siege, Farr's psychologically rich and sweeping narrative goes back to the saga's origins: to the judgment of Paris, his passionate elopement with Helen, and the ill-starred prophecy surrounding his birth.

What were the initial lighting challenges you experienced with *Troy: Fall of a City*?

I was about to embark on an ambitious retelling of the Ancient Greek story of Troy when the usual lighting problems sprang to mind. There are a variety of challenges: interior lighting with flame-lit torches, caldrons, exterior camps with open fires, and all of these elements needed to be created on a television schedule! The thought of

setting lamps with flicker generators that manage flicker speed, intensity, and color temperature in order to match a real flame was daunting enough without also having the additional, and just as important, task of managing it within a tight time schedule. Then I heard about the new firmware update for ARRI's SkyPanels ... it was perfect timing!

How did the SkyPanels with Firmware 3.0 make these various effects possible?

My whole experience was made significantly easier thanks to ARRI SkyPanels—a great lamp in normal circumstances but brilliant when the software is updated to include fire and candle effect settings.

The SkyPanel gave us the complete control to finely adjust the flame effect for intensity, flicker speed, and color, allowing the user to set the lamps to perfectly match the real fires and flames. After a little playing around, we found the candle effect setting ideal to enhance the ambient light from an oil lamp, which produced a steadier flame. The setting controls made the whole process fluid, effective, and most importantly, offered an ease of use that is unmatched.

There were also many nighttime shoots; what were the challenges here?

Oh, did I mention moonlight? The many night shoots were made simpler by constructing a two-meter cube frame under

the basket of a Manitou. Here we attached eight SkyPanel S60-Cs to the back wall and wrapped the frame in a full silk. For extra light throw we added an M40 to the top of the basket. A shout goes out to gaffer Kevin Gibb and key grip Toni Schoeman, who were heavily involved in building all the moon rigs. The result was speedy, controllable, and hugely effective.

Were there other benefits in using ARRI SkyPanels with Firmware 3.0?

I am reminded of a comment my colleague, second unit DP Bebe Dierken, made. She mentioned how very fortunate we were to be able to work with this new software, since the show was mainly lit by candles and fire. From using them in big rigs as a beautiful soft moonlight or big fire effect on battle scenes, or simply getting a bit more fill in the face of an actor with an easy, controllable candle effect, the SkyPanels with Firmware 3.0 were up to the task. Also, being able to control the fixtures via a mobile device is not only a great advantage, but it's also great fun!

Overall, the SkyPanel offered supreme controllability, a totally believable effect of true flame and natural light encompassed within a complete, efficient unit.



Lighting effects are a powerful new feature of the SkyPanel Firmware 3.0 update. Users can now choose and manipulate 12 unique lighting effects without the need for a lighting console or hours of programming. Effects such as candles, fireworks, lightning, or paparazzi can be customized to fit individual needs.



For more information on SkyPanel Firmware 3.0, please visit:
www.arri.com/skypaneeffects



Photos:
Graham Bartholomew



ARRI AT WORK IN CHINA

Cinematographer Huang Wei trusted in ALEXA XT Plus, ALEXA XT, ALEXA XT M, and Master Anamorphic lenses to shoot the epic TV drama “White Deer Plain.”

After taking reportedly 17 years of preparation, the historical TV drama *White Deer Plain* debuted in China earlier this year. It has already attracted high praise: “Since its premiere, *White Deer Plain* has become one of the hottest topics and has received very positive reviews...it reconstructs the atmosphere of the Chinese countryside perfectly,” according to NetEase, China’s main online news platform. The *People’s Daily* newspaper remarked: “*White Deer Plain* is one of the most successful Chinese TV dramas so far.” Set in the village of White Deer on the Guanzhong Plain of the Shanxi Province, the story is based on the classic, award-winning novel by Chen Zhongshi and centers around the power struggles between two families. DP Huang Wei spoke with ARRI about his work on the highly-anticipated show.



Can you tell us how you became involved as the DP of *White Deer Plain*?

I met actor Zhang Jiayi while I was working on another TV series. Sometime after that, I received a call from him asking me if I would be available to work as DP and co-director on a new TV series of *White Deer Plain*. I was thrilled for the opportunity to work

on the first TV adaptation of this influential piece of literature, which has already been adapted into a feature film, a stage drama, and a musical. It is a great honor to be able to work on a show of such scale. This project went through decades of preparation, eight months of principal photography, and involved thousands of background actors.

Did you test various products before choosing your equipment?

I started my career with ARRI film cameras and these experiences really solidified my trust in the reliability and robustness of ARRI cameras. I remember my tutor Zhang Li, an influential Chinese cinematographer, saying that listening closely to the claw mechanism working inside the camera is like listening to your lover's heartbeat. Therefore, I believe there is an emotional attachment between the DP and the camera he chooses to use. Having used other digital cinema cameras in the past, I favor ARRI for their consistent high quality and long history of R&D. The ALEXA has an excellent rendition of tonal range, reminiscent of 35 mm film. It also offers great exposure latitude; I am confident that the camera will retain rich detail even in the darkest areas of the image.

Our camera tests were mainly conducted to isolate our choice of lens. We started with a few zoom lenses but were unimpressed with the results. It wasn't until Master Anamorphic lenses were mounted that we realized that they were the ones. In the end, we used Master Anamorphic lenses for one month of principal photography; the images took everybody's breath away and were appropriate to the look and feel of the Shanxi Province of that period. We were the first crew in China to use anamorphic lenses on a TV production.



DP Huang Wei

How did you achieve the look of *White Deer Plain*?

There were extensive discussions with the director regarding the look of the show. Having seen the unique visual rendering of the Master Anamorphic lenses, I was able to get a rough idea of what we would like to accentuate—the expansive and historical atmosphere of the Shanxi Province. Looks were often finalized while we shot and we continually reviewed the results of all production elements coming together on a monitor on set. I consider it a creative process that involves a lot of exploration as well as preproduction planning and on-set improvisations. It is also important to maintain visual consistency throughout the production, which was challenging for a 227-day shoot

“I believe there is an emotional attachment between the DP and the camera he chooses to use.”

What are your views on the technological changes that have happened during your career?

The filmmaker's pursuit for the highest quality and most pleasing images is the driving force behind technological advancements. Thanks to newer and better equipment, we are able to keep pushing our creative potential. With every new innovation we are given new ways of storytelling. With *White Deer Plain*, the most fitting visual storytelling technique we found was using ALEXA's 4:3 sensor mode with anamorphic lenses. It proved that TV shows can be highly stylized. I particularly enjoy this process of exploring and experimenting; it fuels my creativity and imagination.



Photos: TV Production *White Deer Plain*

YOUR FIRST LINE OF DEFENSE FOR THE BEST POSSIBLE IMAGES

The new ARRI Full Spectrum Neutral Density filter serves as the front line of image control. A logical addition to ARRI's high-quality product line, this external FSND filter not only offers protection but has a palpable effect on image quality.

Due to the increasingly high expectations for modern deliverables, current industry image quality demands such as Ultra HD, High Dynamic Range, and Wide Color Gamut, and a growth in customer and end-user demand for top-quality external filters, ARRI was inspired to create its own FSND external filter. ARRI is already very familiar with premium filters; the ALEXA Mini and the AMIRA cameras come equipped with an internal FSND filter that is highly respected in the industry for its pure color neutrality. Based on this expertise, ARRI is now expanding on its offerings with additional front filters complete with premium coatings and direct part marking.

ARRI FSND 0.3 Filter	ARRI FSND 1.5 Filter
ARRI FSND 0.6 Filter	ARRI FSND 1.8 Filter
ARRI FSND 0.9 Filter	ARRI FSND 2.1 Filter
ARRI FSND 1.2 Filter	ARRI FSND 2.4 Filter

ARRI FSND filters are available in these listed densities for both sizes (6.6" x 6.6" and 4" x 5.65")



GLASS QUALITY AND UNIQUE FEATURES

The optical-quality, Schott B270i glass used in the ARRI FSND filter is manufactured to a very high standard. The glass is polished completely flat on both sides of the filter, with completely parallel surfaces. Plane parallelism is especially important when using a wide-open telephoto lens, as areas of the focal plane can become soft. FSND filters reduce the amount of light entering the lens, allowing the filmmaker to shoot at wider T-stops under bright conditions without overexposure. FSND filters make it possible to blur moving elements such as water or traffic in bright conditions. The ARRI FSND filter comes in 6.6" x 6.6" and 4" x 5.65" sizes.

Different from most competing external filters which have square, bumpy edges, the edges of the ARRI FSND filters are perfectly c-shaped. This curved edge reduces glass chipping and makes for easier and safer mounting. ARRI's FSND filter edges have also been colored black to prevent the scattering of light. Close to the filter's edge, the glass surface also features an engraved unique direct part marking (DPM), which will improve inventory security for rental houses and for individual owners. This GS1 bar code, which is readable by most camera-based bar code readers around the world, makes rental check-ins and check-outs easier, provides proof of ownership, and eliminates the need for stickers that can fall off or leave residue on the filter.

EXPERT COATINGS

Not only have the filter materials and shape been expertly selected, but ARRI has devoted a great deal of time and energy to the various coatings of the ARRI FSND filters. Multiple layers of ND coating, anti-reflective (AR) coating, hydrophobic coating, oleophobic coating, as well as a final "hard" coating have been applied to both sides of the filter (a feature only offered by ARRI). Standard air-facing filters have a reflectivity rating of 4%-6% at each air-glass surface, but ARRI has been able to achieve 0.2% reflectivity. Since crews often stack filters together and reflectivity is cumulative, reducing this aspect down by a factor of 20 is a sensation. Reducing reflectivity maximizes contrast, allowing the full dynamic range of the sensor to be captured, facilitating HDR workflows. The additional coatings, hydrophobic and oleophobic, keep water and grease, respectively, from adhering to the surface of the glass, thereby cutting down on cleaning time dramatically. The hard coating, used to prevent scratches on the filter, is extremely durable and resistant to wear and tear. In tests, competitor filters were far less able to withstand repeated rubbing or cleaning in the same area without leaving a mark. This coating makes the filters more robust and extends their life, prolonging the return on investment.

PREMIUM, ANTI-STATIC POUCH



The pouches provided with each ARRI filter are also high-quality items designed to provide the best possible protection throughout the filter's operational life. The outer fabric is durable and water-resistant CORDURA® while the lining is made of a microfiber-like material called MICRODEAR®. Anti-static MICRODEAR® is not only silky to the touch, but it also cleans the surface of the filter every time it is taken out of the pouch or put back in.

CORDURA® is a registered trademark of Invista for durable fabrics
MICRODEAR® is a registered trademark of Unitika



Skynamic at work
in Morocco

“ALEXA MINI CAN HANDLE IT ALL”

The drone pilots from Skynamic are specialists in aerial shots with the ALEXA Mini, and they appreciate the opportunity to keep their camera system on the cutting edge with software updates.

Since founding their company Skynamic in 2012, Julian Gloeckner and Gabriel Manz have filmed around the world in all environments: from the big city to the mountain range, jungle, and sea. Recently, these two German drone camera operators spent four months with their team working in Morocco. From Casablanca to Quarzazate and into the Sahara desert, they captured spectacular aerial shots for a Chinese action film with an ALEXA Mini attached to an octocopter. “Dust everywhere, huge differences in temperature between daytime and nighttime, lots of smoke. The conditions were really difficult,” Julian Gloeckner recalls, before adding: “But we never had any problems with the camera: ALEXA Mini can handle it all.”

The eight-motor drone, rechargeable batteries, camera body, lens, and gimbal: Up to 18 kg (40 lbs.) had to be manoeuvred steadily through the air—down narrow alleys and amid flocks of birds, past low-hanging power lines and in the most varied of wind conditions. “All a question of concentration,” says Gloeckner. That is why Skynamic always works in twos on set. A pilot flies the drone, while a camera operator controls the gimbal and concentrates on the shot. The images result from well-practiced communication between the two. Depending on the setup, a drone can stay in flight for between six and 15 minutes. The batteries are still the bottleneck preventing longer flights.

But there are no compromises when it comes to picture quality. The Skynamic team

nearly always flies with the ALEXA Mini. “Whatever film set we have been on, the ALEXA system is held in such high esteem within the industry that nearly everyone refuses to work with anything else,” notes Gloeckner. “But it wasn’t until the ALEXA Mini came onto the market in 2015 that we could attach the camera to a drone, because it was so light and finally offered filmmakers the quality they wanted.” However, it isn’t only about picture quality: “Topics like workflow, reliability, and user-friendliness also play an important role.”

The 30-year-old also appreciates the various file formats and adjustment options that provide for “maximum flexibility”—and the software updates for the camera system. Skynamic’s ALEXA Mini, of course, has also



An ALEXA Mini getting primed for action
Photos: Skynamic

Skynamic's reputation long precedes its work in Morocco. Among the company's earlier credits are ads for carmakers such as Porsche, VW, and Audi. Skynamic's six employees have also flown drones for the Netflix production *Berlin Station* and the RTL crime series *Alarm fuer Cobra 11*, among others. Then there are numerous other European and US TV and feature film projects on the list as well.

This diversity of projects has required Skynamic to meet the varying needs of many different customers. "Some want long, precise tracking shots, others need dynamic shots," Gloeckner explains. "Just a few years ago, drone pilots were oddities on set, viewed with some curiosity. Nowadays drones are a normal piece of equipment that filmmakers can use to tell their story."

been updated with the new SUP 5.0 (see sidebar): "There are constantly new functions being added that make our working day easier," says Gloeckner. The support of 1.3x anamorphic lenses is a "particularly useful new feature. It means we get a whole new set of lenses to work with." WCU-4 additions like the improved playback options are

"super," he says. "This is a very valuable function for us, as it means we can start the playback of all clips during the flight back to base." If it were up to Gloeckner, future updates could "happily involve more technical features like that." He admits that, "at the moment, we use our bare eyes to decide whether the horizon seen from above is really horizontal."

NEW FEATURES INTRODUCED WITH ALEXA MINI SUP 5.0

- **ARRI Look Library**
An extensive collection of 87 high-quality looks
- **Look files for HDR workflows**
Two pre-installed look files for PQ and HLG monitoring
- **EXT Sync**
Sensor and settings synchronization of up to 16 ALEXA Mini cameras for VFX plates, VR rigs and other multi-camera applications
- **ARRI Master Grips support**
3-axis control of ENG lenses (with AMIRA PL mount), focus and iris control of EF mount lenses, Master Grips specific user buttons
- **1.3x anamorphic desqueeze in preview**
Support for 1.3x anamorphic lenses
- **Multicam features**
Various improvements based on user feedback
- **Camera Access Protocol (CAP)**
Control of look parameters through an IP-based API
- **WCU-4 enhancements**
Wireless transfer of lens files to camera, playback control and loading of in-camera user setups
- **ECS improvements**
LBUS device update via camera, auto detection of motor gear teeth count, option to deactivate the lens mount
- **Improved timecode handling**
Addition of jam sync mode and free run timecode recovery after shooting off-speed
- **Extended support for EF lenses**
Support for a wider set of EF lenses, focus and iris control, support of built-in image stabilizers
- **Advanced user setup handling**
Store multiple user setups in camera with parameter blocks
- **WiFi infrastructure mode**
Connect the camera to a production network
- **Monitoring and display improvements**
ARRI Look Files V2 to support Rec 2020 color space, dual 422 3G UHD, dual 422 6G UHD, level A/B support for 3G, playback and user setup control for Starlite HD5-ARRI, playback shuttle speed up to 512x
- **Miscellaneous improvements**
Simplified Chinese UI, electronic horizon overlay for EVF and SDI, UDM-1 overlay for EVF and SDI, frame grabs while recording or playback, option to switch off OLED of MVF-1, user buttons for list-based settings



Download SUP 5.0 for free:
www.ari.com/camera/alexa_mini/downloads



THE RESTORATION OF BARON MÜNCHHAUSEN

ARRI sponsors a 4K restoration of the classic 1943 German movie "Münchhausen", carried out at ARRI Media using ARRISCAN Archive Technologies.

In the same year that ARRI is celebrating its centenary, UFA—the famous German film and television production company—is also marking 100 years since it was founded in 1917. In recognition of this, and as special gift to the Friedrich Wilhelm Murnau Foundation, ARRI recently sponsored and carried out a full 4K digital restoration of *Münchhausen*, the big-budget fantasy comedy film directed by Josef von Báky and originally released by UFA in 1943.

While a key function of the Murnau foundation is to preserve films made by the legendary German director F. W. Murnau, it also curates some 6,000 films produced in Germany between 1900 and 1960. Among its titles are cultural treasures such as *The Cabinet of Dr. Caligari* (1920), *Metropolis* (1927) and *The Blue Angel* (1930). When the foundation slated *Münchhausen* for a major restoration, ARRI stepped in as primary sponsor in order to encourage other companies and foundations to embrace partnerships for the preservation of historic cinema classics.

Inspired by American movies such as *The Wizard of Oz* and *The Thief of Baghdad*, *Münchhausen* was an early German color film. It utilized a photographic technology called Agfacolor, the first color system to use a negative-positive process, whereby the film material comprised three emulsion layers bonded on top of one another, each sensitive respectively to red, green and blue. Though this process allowed beautifully subtle hues to be captured, the coloring agents were not durable and fade over time to a red or magenta tone. In recent years, Agfa, ARRI Media and Prof. Dr. Barbara Flueckiger of Zurich University have collaborated on a special restoration method for Agfacolor films, which was further refined for *Münchhausen*.

"In addition to colorimetric measurements, extensive research into technical sources was required, as was exact documentation of the existing film elements and research into the color aesthetics of early Agfacolor films," says Flueckiger. "When restoring *Münchhausen*, the biggest challenge was that the original



Agfacolor camera negative had been replaced by a black-and-white separation master at a time when the negative had already faded to some extent."

This separation master comprises three separate black-and-white duplicate positives that hold information for the red, green and blue channels, and can be combined to produce a color internegative. Other historic film materials were available to the restoration team, but matters were complicated by the fact that two distinct versions of the movie had been assembled in the 1940s—one for German audiences and one for international distribution. The original camera negative of the export version was in reasonable physical condition, but the actual content was different, and inferior, to the German version. Essentially,



the export version had used a less desirable take of each shot. For this reason, the black-and-white separation master of the German version formed the basis of the restoration, with gaps filled by extracts from a print held by the Gosfilmofond archive in Russia.

Project manager Anke Wilkening, of the Murnau Foundation, notes, “The 35 mm prints of the film that had been made, via an internegative, from the separation master—and which up to then had been available as distribution copies—were distorted in their reproduction of the Agfacolor colors: too steep, blurred and with colored edges. The export negative was therefore also digitalized,

so it could be used as a color reference. ARRI Media did some of the digital color correction interactively, with both sources on top of each other in two timelines, so that they could be compared.”

An ARRISCAN at ARRI Media’s facility in Munich was used to scan all film elements. The materials were fragile, with damage including a visual artifact known as Newton’s rings, which comes about when combining the separation positives, as well as shrinkage of the film itself. For this reason, all of ARRI’s archive accessories for the ARRISCAN were put to use: the Wet Gate, Sprocketless Transport and Archive Gate. Every stage of

the restoration was carried out at ARRI Media: preparation for scanning, scanning, re-touching, color correction, sound digitizing, de-noising and de-crackling, new sound editing with new mix, and final mastering for the DCP and TV version.

The completed digital restoration, with the original Agfacolor colors brought back to all their former glory, had its world premiere at the ARRI cinema in June this year, during Filmfest Muenchen.



ARRI LEDS LIGHT UP RTL CITY

The new studios at BCE headquarters, a part of RTL City in Luxembourg, are among the first in Europe to be fully equipped with LED lighting.

Part of RTL Group, Broadcasting Center Europe (BCE) is a European leader in media services, system integration, and software development for the media market. Based in Luxembourg, this leading technology company inaugurated their new company headquarters in April 2017, complete with three brand new, state-of-the-art studios. After taking part in an EU tender and being awarded the project, ARRI not only provided the equipment, but became responsible for the planning, consultation, construction supervision, and management of the lighting for all three studios. Andreas Fleuter, Manager Special Projects at BCE, discusses the lighting for RTL City studios and the group's decision to entrust ARRI with this important project.

Can you describe the project's goal and its given requirements?

The aim of this project was to build premium studios at our new headquarters in RTL City. This complex hosts a large technical infrastructure for the production of more than 30 TV channels and various radios.

How many studios needed to be outfitted? How big are they and what are they used for?

Three studios needed to be equipped: The news studio (around 180 sqm), the production studio (250 sqm), and the virtual studio. The production studio is used for several changing shows with individual sets. The news and virtual studios are used for the daily live production of RTL Letzebuerg, the national public program. These productions include news, magazines, and talks, as well as sport.

Why did you choose LED fixtures?

In general, we have high energy standards for the entire building; we wanted to minimize our carbon footprint. We also wanted to reduce the cooling infrastructure in order to reduce background noise during the shows. With LED fixtures, heat dissipation is low but the light output is good enough to handle most situations in the studios, even at greater distances. Another big advantage with LEDs is the possibility to adjust color temperatures via remote. With respect to these issues, LED lighting was mandatory and we wanted to use it in all the studios.

How did you decide which supplier to choose and which lights?

We tested and compared several products, not only by measuring the



Photos: RTL Eric Steichen

illuminance levels but also the quality of the Fresnel itself and its functionality. We narrowed it down to two well-known manufacturers with a good line up of Fresnels and soft boxes. However, ARRI's advanced technology and their dedication to product development made the difference in the end.

Did any other factors draw you to ARRI?

It was a given that the products from ARRI were of high quality, but it was really the expertise of the company that convinced BCE. We also had to respect the budget limitations; ARRI was able to demonstrate competitiveness here as well.

How useful is color controllability?

The ARRI lights give us a large color spectrum palette that covers all our needs for various types of productions. Standard production nowadays prefers daylight color temperature. However, the flexible color control we have for atmospheric lights as well as show lights is impressive. With ARRI lights it is even possible to use a green key on a white curtain background.

How would you rate the complete service from the ARRI Group?

Given the framework of their project management tasks, ARRI worked together

with the construction companies intensively. Efficient logistics is also an essential component in the success of a project like this; ARRI was also able to demonstrate a very special commitment to this part of the process. The integration of their material was done in a very effective manner. ARRI, RTL Letzeberg, and the BCE teams worked hand in hand.





“TRINITY HAS RENEWED MY FAITH”

Steadicam operator Ari Robbins, known for his work on “La La Land,” the film that won the 2016 Academy Award for Best Cinematography, praises ARRI’s TRINITY stabilizer.



© Wesley Knapp 2017

“I have been working TRINITY for a good amount of time now. I'm in love with it. Since doing *La La Land*, I have felt less enthusiastic about working Steadicam®, but now with TRINITY, it's like I get to start all over again. TRINITY has renewed my faith in the tools we harness. I get to feel again like the Steadicam operator I once dreamed of becoming and that feeling of returned passion for my craft is unbelievable. TRINITY has created a new chapter in the history of cinema and in the lives of the operators who make those dreams come true.

Everybody is a little fearful of change and new things, but with TRINITY, you know the tools and the resources are up to speed because they are ARRI products. We all know that ARRI is going to provide not only a good tool, they are going to provide an amazing tool; it's going to work, it's going to function, it's going to be smooth and easy. With the TRINITY, within 12 hours of having it, I already felt comfortable enough to manipulate it the

way I needed to. I can't say that's true of any other highly-technical tool that I know. I think with the TRINITY, at least for Steadicam operators, it's an immediate understanding.

Every day I've been working with my Steadicam, I've found directors asking for shots that the Steadicam can't get to, but where the TRINITY just maximizes being in the space. Directors always want to go a little higher or a little lower, or more to the left or to the right, and with the TRINITY you can just say, 'Yeah, no problem.' A lot of the DPs I've worked for have realized that there was no other way they could have gotten these shots; with TRINITY they really have a shot that is unique and one of a kind. There is nothing that pulls me away and says I cannot use the TRINITY for this. In fact, I've had nothing but the reverse—literally every day I run into situations where I think the TRINITY would have been a better solution for the job and as a Steadicam operator that is the most amazing feeling, knowing that right around the corner, everything is going to become a little bit easier and the quality of what we can do is going to become better.

It's neat to see that renewed interest in our profession, to see people excited and curious about seeing what they could do with a tool like TRINITY, and I think that is what we need in our industry, to push the envelope. It's priceless for me to know that growth can continue—that we can have new ways of looking at things. The expectations of going into a job and then exceeding those expectations, to show people we will deliver, that to me is the vital point. I love that there is a tool that eliminates some of those no-fly zones. I get to be riding the wave of the future and I think that is what you crave as an operator, to become timeless. As filmmakers we get to, in a sense, change the world for people; to have a tool that helps us do that makes me a happy guy!"



Ari Robbins
Photo: George Leon



INTRODUCING THE NEW ARRI STABILIZED REMOTE HEAD SRH-3



The well-received and sophisticated ARRI Camera Stabilizer Systems line just got bigger. The SRH-3 is a three-axis fully stabilized remote head allowing for cameras to go where no person can, with increased flexibility and ease. Whether it be on set, in a studio, or at an event, this small but high-quality stabilized remote head offers solutions that were simply not previously possible at such levels of precision.

SMART AND ADAPTIVE SYSTEM

To provide outstanding stabilization, the motors inside the ARRI Stabilized Remote Head SRH-3 can compensate for external centrifugal force by adding extra motor power. The SRH-3 can also be remote controlled with its newly designed, joystick-based ARRI SRH-3 control board with optional wheels.

HIGH PAYLOAD, LOW WEIGHT, COMPACT DESIGN

The ARRI Stabilized Remote Head SRH-3 is extremely compact and light, weighing in at 9 kg (19.8 lbs.). However, don't let its weight fool you, the SRH-3 is able to handle payloads of up to 30 kg (66 lbs.); the SRH-3 can carry three times its own weight!

BUDGET FRIENDLY

When working with high-end image capturing systems, it doesn't make sense to compromise on a stabilized remote head due to the price tag. Nevertheless, the ARRI Stabilized Remote Head SRH-3 has taken expense into consideration. Despite its premium features, the SRH-3 is very budget friendly.

FUTURE-PROOF WORKFLOWS

The ARRI Stabilized Remote Head SRH-3 is perfectly compatible with other ARRI products and workflows, but can also be used with a variety of non-ARRI brands. ARRI stands behind its products, continually offering years of service and update.



TECH-TALK, FESTIVALS, AND AWARDS WITH ARRI AT 100 YEARS

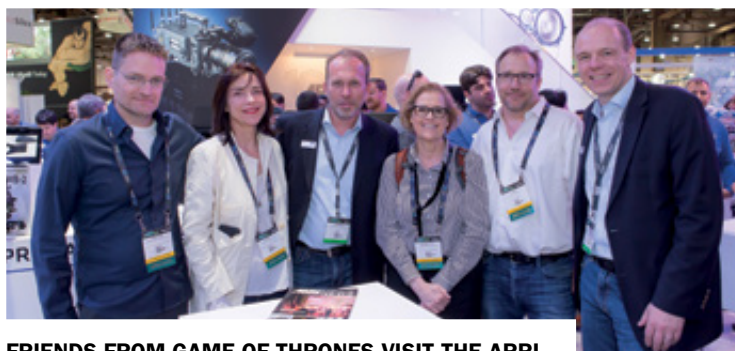
At several events ARRI took the opportunity to meet with directors, cinematographers, and producers from around the world. These are just a few impressions over the last months.

ARRI'S CENTENNIAL CELEBRATIONS BEGAN WITH TWO PARTIES IN MUNICH, GERMANY:

The hosts (l. to r.) Markus Zeiler (ARRI Lighting), Henning Raedlein (ARRI Digital Workflow Solutions), Franz Kraus, Dr. Joerg Pohlman (both Executive Board of ARRI), Angela Reedwisch, Josef Reidinger (both ARRI Media), Walter Trauningner (ARRI Cine Technik), Ute Baron (ARRI Rental), Markus Lampier (ARRI Lighting), and Thomas Loher (ARRI Rental)



LOLA AWARD IN BERLIN: Director Tom Tykwer (c.) handed over the German Film Award to ARRI's Executive Board members Franz Kraus (l.) and Dr. Joerg Pohlman



FRIENDS FROM GAME OF THRONES VISIT THE ARRI

BOOTH AT NAB IN LAS VEGAS: (from l.) DP Jonathan Freeman ASC, DP Anette Haellmigk, Stephan Ukas-Bradley (ARRI), executive producer Bernadette Caulfield, producer Greg Spence, and Stephan Schenk (ARRI)



AT ARRI'S CINEGEAR BOOTH IN LOS ANGELES:

DPs Rachel Morrison ASC, (l.), Matthew Libatique ASC, and Roman Vasyanov



CANNES WINNER: Russian DP Mikhail Krichman RGC (r.) talks with ARRI about his work on *Loveless*



COCKTAILS WITH ARRI: (from l.) Lynn Gustafson (ARRI), Joseph Sackett (filmmaker), Rosa Gilmore (actress), Jomo Fray (cinematographer), and Glenn Kennel (ARRI)



AT THE FESTIVAL DE CANNES: (from l.) Franz Kraus (ARRI), Darius Khondji ASC, AFC, Natasza Chroscicki, and Martin Cayzer (both ARRI)



GROUP PHOTO AT THE ARRI/OSRAM AWARD CEREMONY: with (from l.) the award sponsors Dr. Joerg Pohlman (ARRI) and Hans-Joachim Schwabe (OSRAM), winner Alexander Rodnyansky (producer of *Loveless*), Diana Iljine (Filmfest Munich) and jury members Nastassja Kinski (actress), Valeska Grisebach (director), and Markus Zimmer (producer)

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A VERY SPECIAL GUEST: ARRI Rental welcomed the great cinematographer Vittorio Storaro ASC, AIC in New York



DOLBY PARTNERSHIP AWARD: Dolby's Fritz Deiniger (r.) handed over the award for the First Dolby Vision color grading facility in Europe to ARRI's Franz Kraus





ARRI LAYS CORNERSTONE AT THE NEW COMPANY HEADQUARTERS IN MUNICH: (from l.) apprentice Felix Mayer (ARRI), architect Achim Hoffmann, Munich's Mayor Josef Schmid, and Dr. Joerg Pohlman (ARRI)



HANDS ON ALEXA SXT: DP Vladimir Klimov RGC during the *White Square* ceremony in Moscow



ASIA CONNECTION: (from l.) Arata Dodo (DP), Paul Ivan (ARRI), Naomi Kawase (director) with her son Mitsuki and Yasuhiro Ota (lighting technician) in Cannes



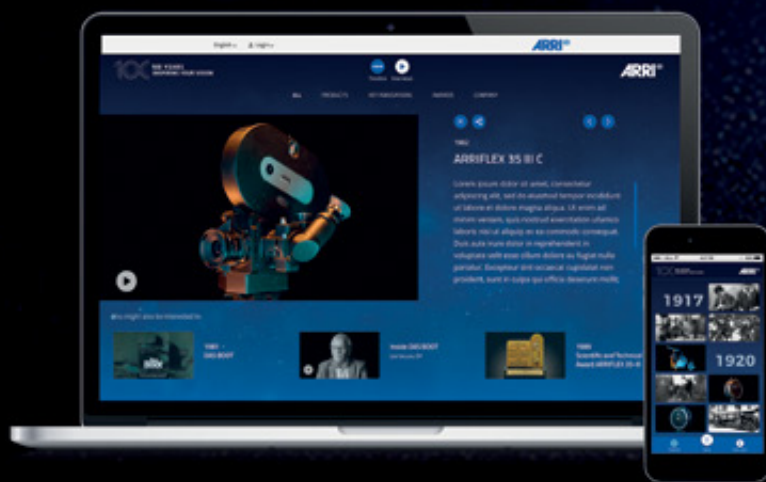
DOLBY ENTERTAINMENT DAY 2017: (from l.) Fritz Deininger (Dolby), Sebastian Becher (Red Bull), Chris Heil (producer, mixer, engineer), Florian "Utsi" Martin (ARRI), Harold Faltermeyer (Hollywood composer), and Daniel Vogl (ARRI Media)



SINO EUROPEAN NETWORKING PARTY IN SHANGHAI: (from l.) DP Luo Pan, Cristiano Bortone (Bridging the Dragon), and Forest Liu (ARRI)

Photos: ARRI (7), ARRI/Bernd Wackerbauer (2), ARRI/Vincent Diaz (2), Jon Fauer (1), Filmfest Munich/Kurt Krieger (1), API/Deutsche Filmakademie (1), Horacio Canals (1)

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