

# ARRIFLEX 16SR II E



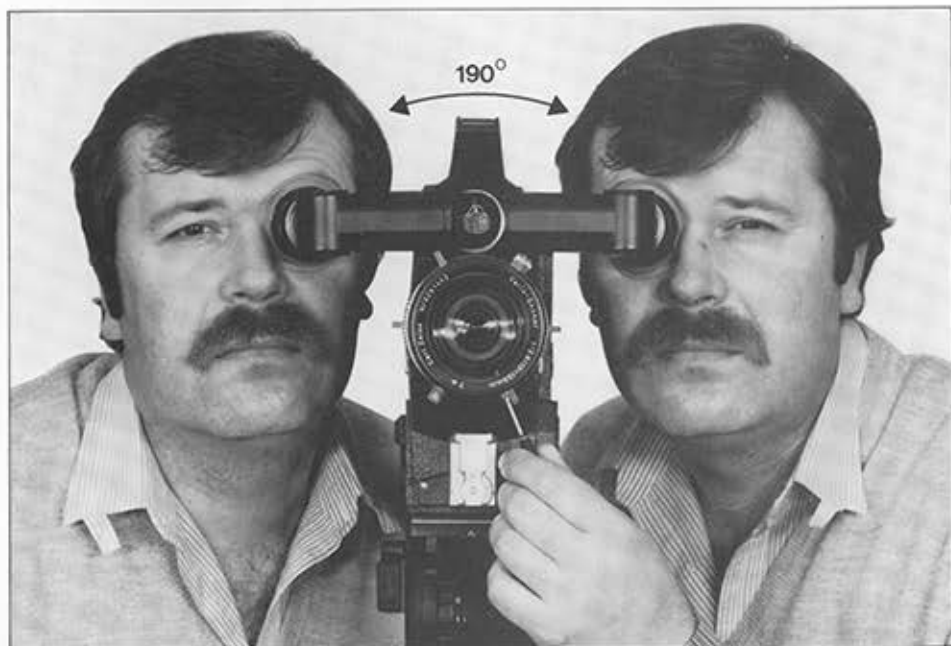
# ARRIFLEX

The ARRIFLEX 16 SR II E is a variant model in ARRI's well-known range of 16 SR cameras. Conceived for those situations which can be tackled perfectly well without a through the lens exposure meter system. A financially sound investment when a built-in exposure meter system is superfluous. The 16 SR II E offers the cameraman all that he needs for his work.



## Flexible viewfinder system

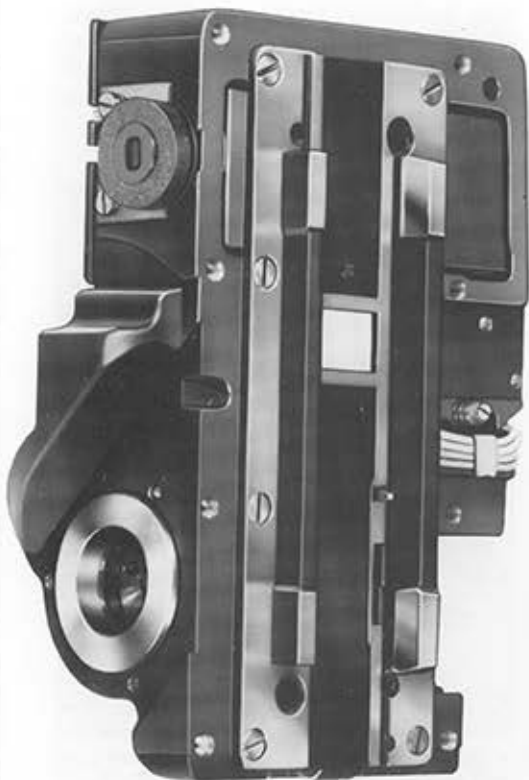
The viewfinder system can be turned and swivelled on three



planes and offers unimpeded viewing from either shoulder, with the viewfinder extension or when shooting from a worm's eye view or over obstacles. Interchangeable fibre optic screens with all the normal format markings reproduce an excellent viewfinder image.



# 16SR II E



## Image steadiness

The kinematic hinge movement with registration pin guarantees an image steadiness which deviates only by  $\leq 1\%$  of the image height — and that over a frame speed range of 5-75 fps (24 and 25 fps quartz).



## Compatible system

As well as all 16 mm ARRIFLEX lenses the entire 16 SR range of accessories can be used with the ARRIFLEX 16 SR II E.

On request, the fully electronic original 16 SR II exposure meter system with Si element as well as the automatic exposure control, spring-loaded diaphragm control and memory button can be fitted to the camera in our factory at a later date.

## Noise level

The ARRIFLEX 16 SR II E is an ultra silent camera with an upper noise level which does not exceed  $26 + 1$  dB (A) — measured 1 m from the film plane with 24/25 fps. The camera is the quietest „made in Germany“.

## In addition

180° rotary mirror shutter, quick-change coaxial magazines as well as snap-on batteries for taking approximately 6 rolls of 120 m of film.



## The Lenses

The following zoom lenses with spring loaded diaphragm and steel bayonet mount are available for use with the ARRIFLEX 16 SR II E.

10-100 mm Zeiss-Vario-Sonnar, f 2,8 T 3, T\* coated  
10-100 mm Zeiss-Vario-Sonnar, f 1,8 T 2, T\* coated  
10-150 mm Angénieux Zoom f 2/2,8 T 2,3/3,2

### Zoom Lenses without Spring-Loaded Diaphragm

9,5-57 mm Angénieux Zoom Lens f 1,6/2,2 T 1,9/2,4  
9,5-95 mm Angénieux Zoom Lens f 2,2 T 2,8  
12-120 mm Angénieux Zoom Lens f 2,2 T 2,5  
12-240 mm Angénieux Zoom Lens f 3,5/4,8 T 4,2/5,6  
16-44 mm Angénieux Zoom Lens f 1,1 T 1,3

### Fixed Focal Lengths

8 mm Zeiss Distagon f 2 T 2,4  
16 mm Zeiss Distagon f 2 T 2,4  
24 mm Zeiss Distagon f 2 T 2,2  
32 mm Zeiss Planar f 2 T 2,2  
50 mm Zeiss Planar f 2 T 2,2  
85 mm Zeiss Planar f 2 T 2,2

### Additionally, the High Speed Lenses

9,5 mm Zeiss Distagon T 1,3  
12 mm Zeiss Distagon T 1,3  
16 mm Zeiss Distagon T 1,3  
25 mm Zeiss Distagon T 1,3

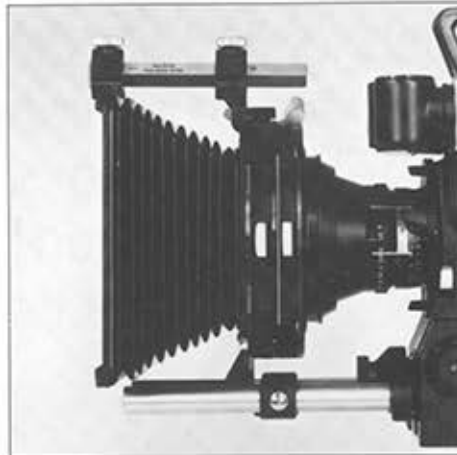
When the Zeiss high speed lenses Distagon 9,5 and 12 mm are used with the ASPHERON® super wide angle supplementary lens „5666“, a fantastic range of possibilities is made available in the wide angle area: short focal lengths of 5,6 or 6,6 mm; very large depth of focus, even with maximum aperture! The high optical quality of the supplementary lens ensures that the power of the lens is not impaired. The magnification of the angular coverage takes place without loss of light or image distortion.

Aspheron accessories: Tiffen adapter ring 122,5 mm for 138 mm filter, for which the wide angle sun shade is necessary.

\*Bolex International SA, Yverdon, Switzerland

## Bellows, Light-Weight and 4" x 4" Production Matte Boxes

The bellows matte box with a fixed slot and a rotatable stage for two 3" x 3" or 4" x 4" or 94 mm dia. filters and with adapter ring for the lens being used, is attached to the light-weight support.



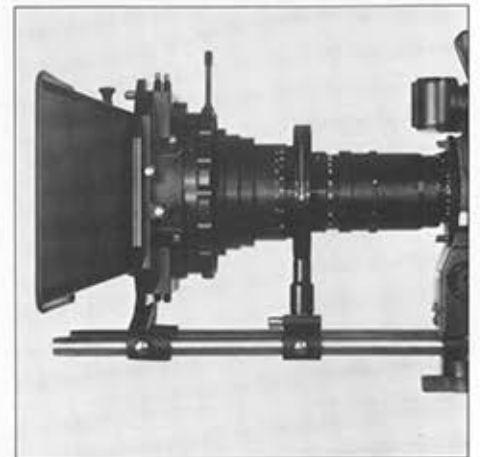
The light-weight matte box is fixed on to the front of the lens. An adapter ring corresponding to the lens diameter ensures that it is firmly seated. For zoom lenses (with the exception of the Zeiss-Vario-Sonnar f 1,8 10—100) a round rubber hood should be used as a sun shade; for fixed focal length lenses, and the before-mentioned Zeiss-Vario-Sonnar, a rectangular rubber tube should be used. As the light-weight matte



box is used mainly for news gathering, a rotatable filter stage is unnecessary. A holder takes two 3" x 3" filter frames. When using the Vario-Sonnar f 2,8 10—100, to ensure smooth focussing, the focus lever is displaced forwards by means of a detachable extension. (See also Technical Information ARRIFLEX Light-Weight Matte Box).

With fixed focal length standard lenses, which have a rotatable front ring for setting the diaphragm, we recommend the use of the additional support for attaching the light-weight matte box to the light-weight support.

The wide range of applications of the easy-to-use light-weight matte box makes it suitable for use in most situations.



The 4" x 4" production matte box, for 16 mm zoom, standard and high speed lenses, with its three filter planes, affords optimal operation versatility for motion picture productions. Two 4" x 4" filter frames are rotatable and slidable for graduated filters. The likewise rotatable filter ring which can be replaced by a reflex prevention ring, is designed to take 4 1/2" round filters. The production matte box is fastened to the support rods of the bridge plate or support plate and can be swung away through 90° to change the lens.

## The Light-Weight Support

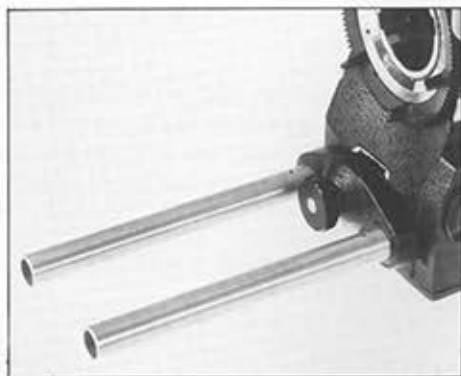
The compact and light weight support unit has been especially conceived for shoulder use of the camera (and the 35 III) with the following accessories:

- Light-weight follow focus system
- Zoom drive
- Bellows matte box
- Mount for the light-weight matte box (for standard lenses).

The older models of the bellows matte box, as well as the mount for the light-weight matte box, can be adapted for use by changing the guide rail part.

## Servo-Zoom for ARRIFLEX 16 mm Cameras

## Light-Weight and Universal Follow Focus Systems



The light-weight support has been designed as a light-weight alternative to the tripod bridge plates.

### The Bridge Plate and the Support Plate

The bridge plate enables the weight of the camera with accessories to be evenly distributed. The base plate of the bridge plate is attached to the tripod. The upper element, which is attached to the camera, can be moved backwards and forwards in a dovetail guide and clamped when the optimal balance is found. The camera can be removed from the tripod in seconds. The support rods (short and long) of the bridge plate can be adjusted and are used to support the following accessories: Universal Follow Focus System, Servo-Zoom, Lens Support, Production Matte Box.

Additionally, there is a light-weight support plate available without balance compensation which has the same rods as the bridge plate and has a Touch-and-Go connector for use with Sachtler tripods.



For motorized focussing of zoom lenses with 16 mm cameras, our design engineers have developed this new zoom drive which consists of the motor, the motor mount and the zoom hand grip.

The zoom time can be steplessly adjusted between 0,8 seconds and 6 minutes.

The zoom drive is small and light, and thus especially suited for hand held shooting.

The zoom hand grip has an anatomical form which favours shooting without tiring. The speed and direction of the focussing are set via the thumb knob. The governor and control electronics, as well as the adjustment unit and the electrical camera release, are contained in the hand grip. The ARRI 16 SR hand grip extension can be used.

The motor mount with motor can be fixed to either the support rods of the light-weight support or to the ARRIFLEX bridge plate rods.

The zoom drive is fed from the 12 V camera battery via a spiral cable. A second, plug-in cable connects the hand grip to the zoom motor.

All of the »16 mm Lenses« referred to under »Light-Weight and Universal Follow Focus Systems«, as well as the Angénieux f 2,2 9,5—95 mm and the Angénieux f 3,5—4,8 12—240 mm lenses can be used with the servo-zoom with a zoom gear ring.

These new accessories (also for the 35 III) make follow focussing easier.

The light-weight follow focus system can be used with the following 16 mm zoom lenses which must be fitted with a focus gear ring.

Angénieux f 1,6—2,4 9,5—57 mm

Angénieux f 2,2 12—120 mm

Angénieux f 2—2,8 10—150 mm

Angénieux f 1,1 16—44 mm

Vario-Sonnar f 2,8 10—100 mm

Vario-Sonnar f 1,8 10—100 mm

(for the latter no extra gear ring is necessary)

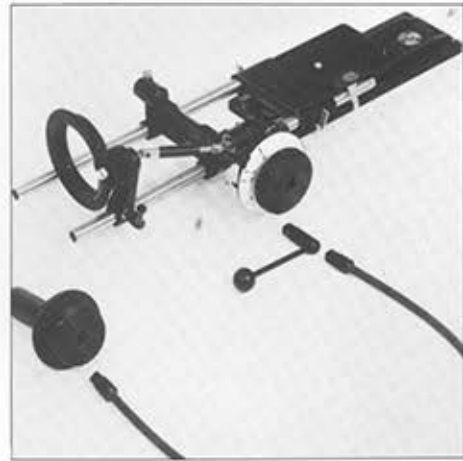
as well as with fixed focal length standard and high speed 16 mm lenses which are driven with a new geared drive ring which can also be fitted to existing lenses.

To make the unit even more easy to use, in addition to the focus lever, there is a flexible shaft available. Both the focus lever and the flexible shaft are identical to those of the universal follow focus system.

The focus marking discs from the universal follow focus system can also be used. Weighing only 470 g, this compact light-weight follow focus system is ideally suited for shooting from the shoulder.



Additionally there is a universal follow focus system available which can be fitted to the support rods of the bridge plate or the support plate. See illustration below.



## The Handy, Space-Saving, Coaxial, Fast-Change Magazine

The coaxial 16 SR fast-change magazine is a real two-compartment magazine. It has a maximum capacity of 120 m of film on a plastic bobbin. When a higher noise level can be tolerated, 30 m or 60 m daylight loading spools can also be used. Magazines can be changed within seconds.

The symmetrical pressure plate gives an extremely simple and clear-cut film channel. The feed and take-up loops can be checked from the outside before mounting the magazine. The magazine covers are hinged and of sandwich construction to prevent resonance.

A scale at the back of the magazine indicates the unexposed film reserve. When using daylight spools, the length of exposed film is shown by a counter on the side of the magazine.



## The Drive Motor and its Electric Control System, Pilot Tone and Start Marking

A quartz controlled 12 V DC motor is installed to drive the camera. Frame rates of 24 and 25 fps can be selected. Pilot frequencies of between 50 and 60 Hz, proportional to the camera motor speed, can also be selected. Synchronous double system recording is possible with this camera using the following methods:

1. Conventional pilot tone method, including start-marking (with cable).
2. Quartz pilot frequency method without start-marking, using a quartz synchronous tape recorder.
3. Quartz synchronous time-coding method.

The current load of the motor is limited to 5 A. The current load at room temperature is about 1 A. If the camera runs out-of-synch due to too low voltage input, or for any other reason, the out-of-synch diode in the viewfinder lights up.

A large range of control units can be connected to the accessories plug to allow a number of other modes of operation.



## Power Supply

The drive motor, manual exposure meter, automatic exposure control system and all other electrical components are fed by the 12 V, 1.2 Ah NC plug-in SRC 12/1.2 battery which is plugged into the back of the camera via an adaptor and needs no cable. At 20°C its capacity is sufficient to expose 6 x 120 m of film.

The NCL SR III two-output battery charger is designed for normal and accelerated charging, automatic switch off and automatic 110/220 V mains voltage selection.



The Energy Set is comprised of the NC 12/4E camera battery with a capacity of 4 Ah, with automatic cut-out and the fully insulated NCL 12/4E battery charger for accelerated charging with automatic 110/220 V mains voltage selection. The charging unit can be switched over from 50/60 Hz. The impact-resistant hard rubber housing of both units provides excellent protection under the roughest conditions. The battery has a carrying handle or can be attached to the cameraman's belt or shoulder strap.

The compact, extremely efficient PPL 12 V High-capacity Dry Battery is used mainly when battery charging is impossible. It is not rechargeable. Sufficient capacity to expose 20—30 x 120 m of film is provided. Incidentally, all 16 BL and 35 BL 12 V batteries can be used for the ARRIFLEX 16 SR II with the appropriate KCU or KDU cables.

## Electrical Accessories

## Adaptation of a Video System

## Technical Data ARRIFLEX 16 SR II E

The VSU manual control unit with built-in remote control on/off and selector switch for constant quartz-controlled operation or variable frame speeds of between 5 and 75 fps, is connected to the camera and can be fixed to the pan handle as is also possible with the following accessories.

The RCSR pan handle facilitates switching the camera on and off when used on a tripod.

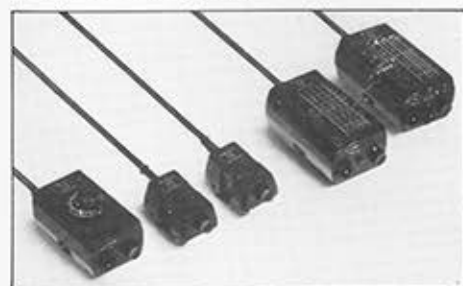
The PHU phase shifter for correcting the phase relationship of the quartz-controlled camera, is used for filming from TV monitors.

The EXS II external synchronizer with BAS signal, built-in remote on/off switch, out-of-synch indicator, camera type selection switch, and built-in phase shifter is used for synchronizing the camera with the mains, with a second camera or with the BAS signal from a monitor (signal 50/60 Hz,  $> 1 V_{SS}$ ,  $< 10 V_{SS}$ , signal form sinus or impulse BAS).

Remote control unit FSZ II fulfills all the functions of the above-described control units. Additionally, with this unit, the frame rate can be quartz synchronously set in steps from 6—75 fps. External synchronization is also possible at 25, 50 and 75 fps, permitting synchronization with the lighting supply mains.

The NSYTR 2 mains synchronizing transformer for primary 220 V, 1 V sec., is used for mains synchronization with the EXS II external synchronizer or the FSZ II.

Any two of the above-mentioned external accessories can be connected simultaneously to the camera with the ZV accessory connector board.



The video adaptation enables the director and others working on the production to view the finder image, during shooting, independently of the cameraman, on any desired number of monitors in accurately framed, true perspective during shooting. This set-up saves a substantial amount of time and costs in various fields of application, from advertising film productions to feature film applications; for example, when using a camera crane.



## Cases and tripods

For transporting and storing the ARRIFLEX 16 SR II E we supply a leather or aluminium camera case as well as a leather bag. Also available: leather or aluminium case for two 120 m magazines, the battery charger, the spare battery and lenses.

Our tripod programme is extensive and offers wide choice: panorama fluid heads, ball and socket, pan and tilt or horizontal and vertical gyro heads as well as a special friction head. Also available: leather hoods, tripod spiders, scooter and adapter plates.

Film width:  
16 mm, one-sided or double perforation, B winding

Shutter opening:  
180°

Viewfinder magnification:  
10-fold

Noise level:  
26 + 1 dB (A)

Frame speeds:  
Quartz 24/25 fps  
Variable 5—75 fps

Magazines:  
120 m coaxial double compartment daylight reels can be used up to max. 200 ft (60 m)

Drive:  
DC motor  
Supply voltage 12 V  
Quartz accuracy  $5 \times 10^{-6}$

Battery:  
12 V, 1.2 Ah NC  
Temperature range:  
-20°C to +50°C (-4°F to +122°F)

Dimensions:  
Length, measured from lens flange  
264 mm (10.4") with 120 m magazine  
Width, measured from lens flange  
100 mm (4") with 120 m magazine  
Height, measured from lens flange  
195 mm (7.7") with 120 m magazine  
Weight of camera with magazine, without film, without lens, without battery:  
approx. 5 kg (11.02 lbs)



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