LENSES FOR 16mm MOTION PICTURE AND TELEVISION CAMERAS

BOLEX
TECHNICAL INFORMATION
BULLETIN NO. 34–6/61
16mm LENSES

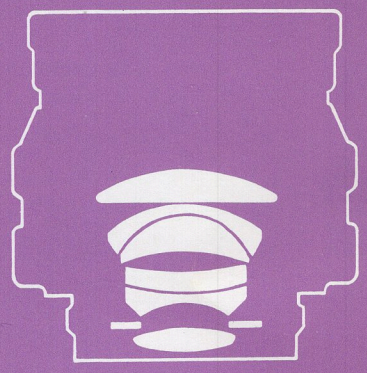
PAILLARD offers two lines of top quality lenses for 16mm motion picture and industrial television cameras. The Kern-Paillard line includes the Yvar, Pizar and Switar lenses as well as the Vario-Switar zoom lens. The Som Berthiot line is made up of the Lytar, Cinor and the various Pan Cinor zoom lenses.

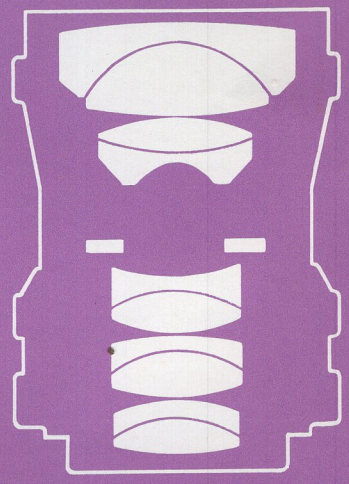
WIDE SELECTION The two lines include a total of 27 lenses. They range in focal length from a 10mm extreme Wide Angle for filming in crowded quarters to a 150mm extreme telephoto for wildlife, bird-photography and other telephoto work. The maximum apertures go from f/4 to the extreme f/0.95 for filming or television recording under the most difficult lighting conditions. With this wide selection, the 16mm filmmaker and user of industrial television cameras will have no problem of finding a lens to meet his exact requirements.

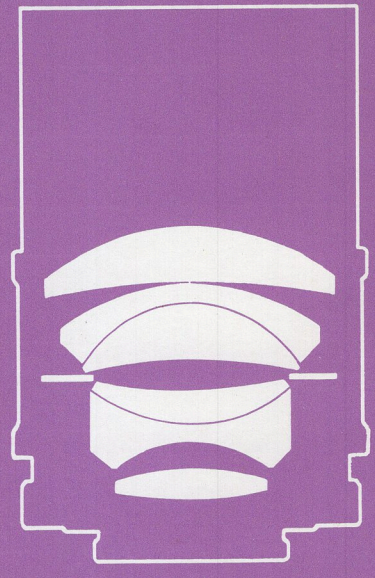
ZOOM LENSES Paillard offers the widest selection of 16mm zoom lenses. This includes three Pan Cinor lenses made by Som Berthiot and the Vario-Switar from the Kern-Paillard line, the only motion picture lens with automatic preset diaphragm. Zoom lenses include a wide range of focal lengths, and can therefore, frequently be used for general motion picture work instead of three regular, fixed focal length lenses. Since zoom lenses permit going from long shot to close-up or vice versa without stopping the camera, they are ideal for filming action, such as all types of sports, dances, as well as for studies where continuous movement is important, such as in surgical films, many research projects and for industrial work simplification studies.

ANAMORPHIC LENS The Bolex Anamorphic lens is from the famous Moeller line of professional wide screen equipment. Its expansion factor is 1.5 giving a new dimension to 16mm films. The projected picture is twice as wide as high. This picture ratio is extremely pleasing and practical for projection of nontheatrical 16mm films. The Bolex Anamorphic lens produces and projects wide screen films without distortion or loss of sharpness.

For further information on Bolex cameras, lenses and projectors write Paillard Incorporated, 100 Sixth Ave., New York 13, N.Y.







Kern-Paillard and Som Berthiot lenses have 6 important characteristics:

① *Maximum correction of lens aberrations*

In all Kern-Paillard and Som Berthiot lenses all lens aberrations are corrected to the highest degree providing pictures of excellent contrast and color fidelity, with corner to corner sharpness even at maximum lens apertures and without distortion. All lenses have the exclusive "selective lens coating," whereby the thickness and color of the coating on each individual lens element is calculated and varied to assure lenses with closely matched color rendition. Lens elements are made from carefully selected rare earth glasses which absorb ultra violet light to a great extent.

② *Careful design of the lens mount*

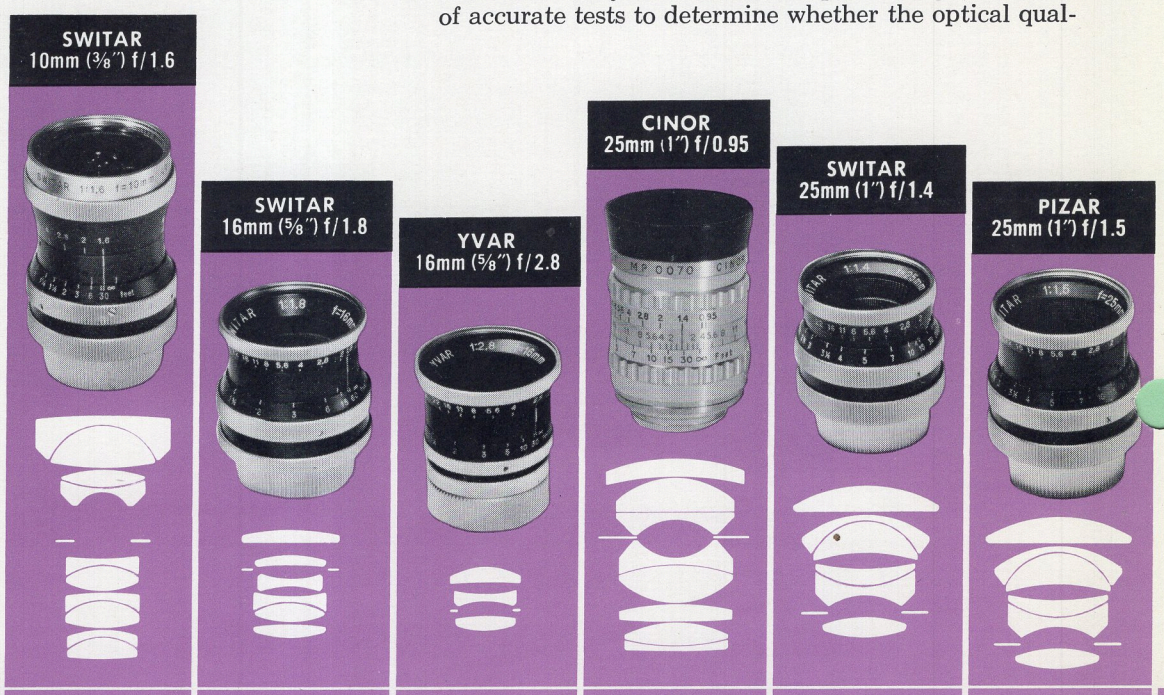
The slightest play or eccentricity in the mount disturbs the optical quality of a lens. The lens mounting, so frequently neglected, therefore, is of greatest importance. In Kern-Paillard and Som Berthiot lenses, all lens elements are positioned accurately in relation to the optical axis and each lens element is secured firmly in its lens mount.

③ *Greatest accuracy in manufacturing*

No matter how ingenious the lens design may be, the finished lens will not meet the established quality, unless each lens element and the lens mount are manufactured with greatest accuracy. Each part in Kern-Paillard and Som Berthiot lenses is made to the closest tolerances, in order that each and every lens leaving the factory gives the same sharpness and definition. Smoothest focusing and diaphragm setting is assured, because all parts are individually ground and polished to each other. The diaphragm in each lens is individually adjusted to assure matched exposures.

④ *Thoroughness of lens testing*

Each and every finished lens is put through a variety of accurate tests to determine whether the optical qual-



Catalog number	34 & 5	30 & 4	32	21	20 & 2	3
Designed for	#34 "C" & Vidicon* #5 Bolex Reflex only	#30 "C" & Vidicon #4 Bolex Reflex only	"C" & Vidicon	"C" & Vidicon	#20 "C" & Vidicon #2 Bolex Reflex only	Bolex Reflex only
Angle of view	52° x 38°	34° x 25°	34° x 25°	22° x 16°	22° x 16°	22° x 16°
Minimum foc. distance	8"	8"	1'	1¾'	1½'	1½'
Area covered at minimum foc. distance	5" x 7"	3" x 4"	4½" x 6½"	5½" x 7½"	4½" x 6"	4½" x 6"
Area covered at 20'	14' x 20'	9' x 12'	9 x 12'	5' x 7'	5' x 7'	5' x 7'
Minimum diaphragm setting	22	22	22	22	22	22
Depth of field scale	visifocus	visifocus	visifocus	engraved	compass	visifocus
Length at infinity	1⅞"	1¼"	1⅛"	2¼"	1⅛"	1⅜"
Length at infinity without shade				1¾"		
Front outside diameter	35mm	35mm	34mm	39.5mm	35mm	34mm
Maximum diameter	37mm	37mm	34mm	40.5mm	37mm	37mm
Weight	6 oz.	5 oz.	2 oz.	6 oz.	5 oz.	5 oz.
Filter adapter	#502	#500	#500	drop in arr.	#500	#500
Filtersize	VI	V	V	5.5	V	V

*Causes slight vignetting on vidicon cameras

ity, the diaphragm opening, the engravings, and all other mechanical and optical characteristics really meet the specifications. Even the spectral quality of the transmitted light is checked on every lens.

⑤ *Individual back focus adjustment*

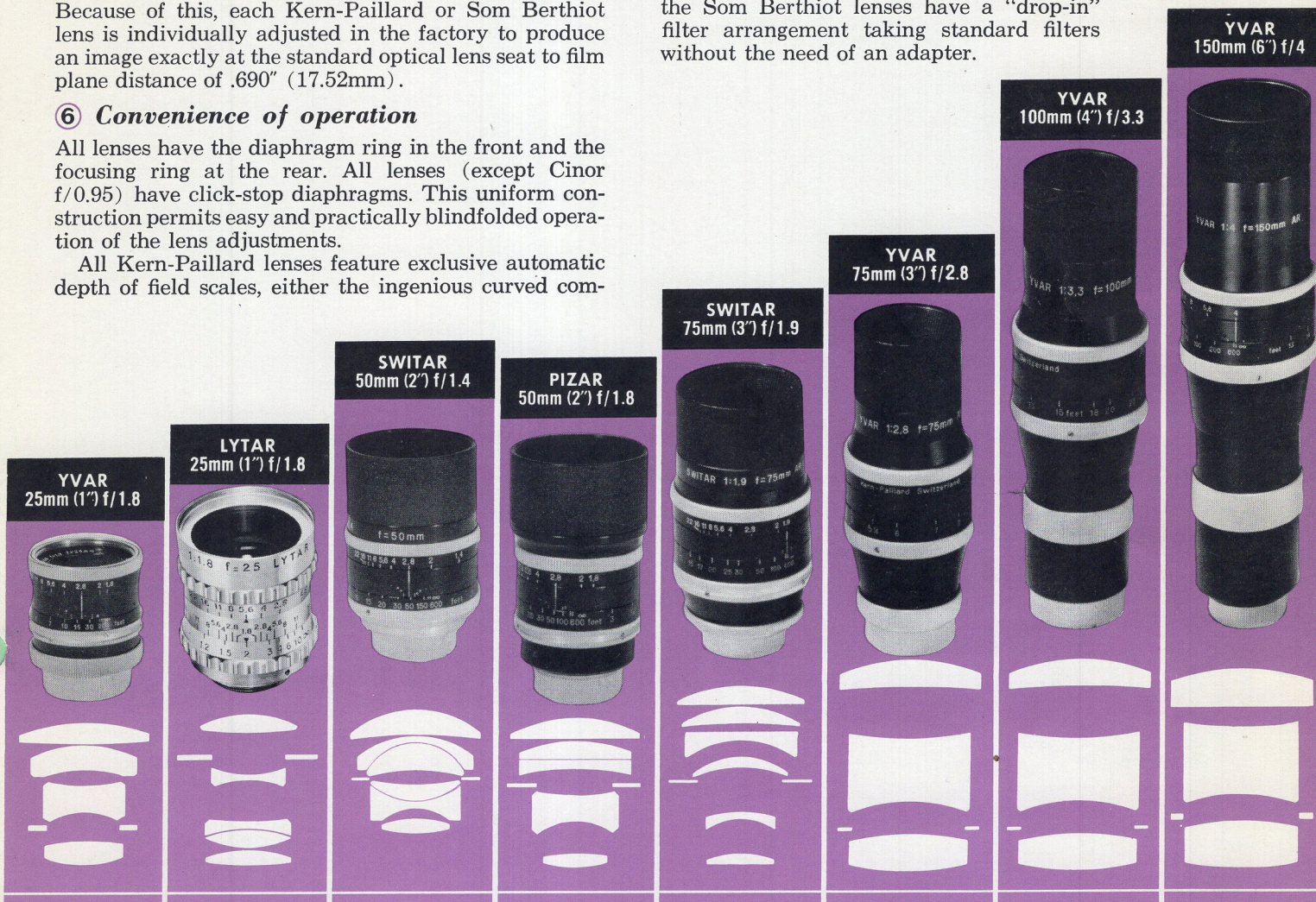
A lens can produce maximum picture sharpness only if the image is reproduced at the exact plane of the film. Because of this, each Kern-Paillard or Som Berthiot lens is individually adjusted in the factory to produce an image exactly at the standard optical lens seat to film plane distance of .690″ (17.52mm).

⑥ *Convenience of operation*

All lenses have the diaphragm ring in the front and the focusing ring at the rear. All lenses (except Cinor f/0.95) have click-stop diaphragms. This uniform construction permits easy and practically blindfolded operation of the lens adjustments.

All Kern-Paillard lenses feature exclusive automatic depth of field scales, either the ingenious curved compass scale of the Switar 1″ f/1.4 or the unique visifocus scale of the other lenses. Kern-Paillard lenses are smartly finished in black with easy to read white or orange scales; Som Berthiot lenses have a specially treated corrosion and scratch resistant finish with engraved depth of field scales.

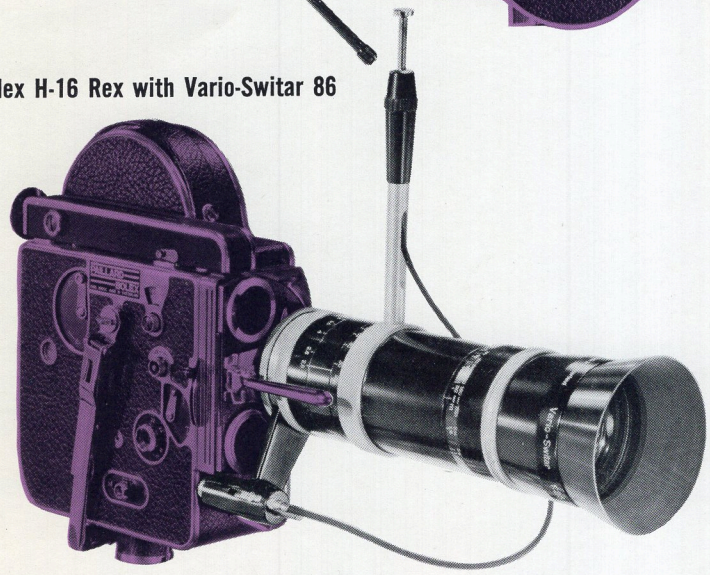
Filter adapters for standard size filters are available for all Kern-Paillard lenses, while the Som Berthiot lenses have a "drop-in" filter arrangement taking standard filters without the need of an adapter.



24	27	40 & 6	41 & 17	42	44	46	48
"C" & Vidicon	"C" Vidicon & Bolex Reflex	#40 "C" & Vidicon #6 Bolex Reflex only	#41 "C" & Vdiicon #17 Bolex Reflex only	"C" Vidicon & Bolex Reflex	"C" Vidicon & Bolex Reflex	"C" Vidicon & Bolex Reflex	"C" Vidicon & Bole Reflex
22° x 16°	22° x 16°	11° x 8°	11° x 8°	7° x 5°	7° x 5°	5½° x 4°	3½° x 2½°
1½′	1½′	3′	3′	5′	5′	8′	13′
4½″ x 6″	4½″ x 6″	4½″ x 6½″	4½″ x 6½″	5½″ x 8½″	5½″ x 8″	6½″ x 9″	7″ x 10″
5′ x 7′	5′ x 7′	33″ x 46″	33″ x 46″	22″ x 30″	22″ x 30″	17″ x 23″	11″ x 15″
22	22	22	22	22	22	22	32
visifocus	engraved	visifocus	visifocus	visifocus	visifocus	visifocus	visifocus
1⅜″	1¾″	2½″	2¾″	3½″	3¾″	5⅛″	7½″
		1⅝″	1⅞″	2½″	2⅞″	4¼″	6½″
37mm	39.5mm	43.5mm	43.5mm	43.5mm	33mm	33.5mm	43.5mm
37mm	39.5mm	45.5mm	43.5mm	48mm	41mm	41mm	48mm
6 oz.	4 oz.	5½ oz.	5 oz.	8 oz.	5 oz.	6 oz.	12 oz.
#500	drop in arr.	#508	#508	#508	#500	#500	#508
V	5.5	VI	VI	VI	V	V	VI

PAN CINOR AND VARIO-SWITAR
ZOOM LENSES

Bolex H-16M with Pan Cinor 85



Bolex H-16 Rex with Vario-Switar 86

Pan Cinor and Vario-Switar lenses are made to the same high standards as the other Kern-Paillard and Som Berthiot lenses. They are reliable in use due to the precision machining and resistance of the material, made possible by the particularly simple and original conception of the optical formula. They have constant brightness and focus while zooming, and excellent image sharpness at all focal lengths, even at maximum diaphragm opening, producing the best possible image on black and white or color films. This high definition has never been attained until now.

There are, however, no zoom lenses made which include both an extreme wide angle, such as the Switar 10mm and an extreme telephoto, such as the Yvar 150mm. Furthermore, zoom type lenses are not available with extremely large apertures, such as the Switar f/1.4 or Cinor f/0.95.

With the Vario-Switar, viewing and focusing is done with the Reflex finder of the Bolex H-16 Rex camera. An automatic, preset diaphragm arrangement permits accurate and convenient focusing on the groundglass of the H-16 Rex with the diaphragm set at a large opening. The diaphragm automatically stops down to the preset opening before camera starts running. A cable release, supplied with the lens, fits in zoom handle and permits zooming and releasing the camera with one hand.

The Pan Cinor lenses are supplied with their own reflex viewfinders permitting accurate, parallax free viewing at all distances and focal length settings. The brightness of the viewing image does not change when stopping down the lens diaphragm and, therefore, the Pan Cinor finder is ideal under all lighting conditions. The Pan Cinor 70 and 100 permit viewing only, while focusing must be done on the groundglass of the camera or by measuring the filming distance. The Pan Cinor 85 viewfinder also includes a split image rangefinder for accurate focusing at all distances. For use on vidicon cameras, the Pan Cinor lenses are available w/o finder.

	VARIO-SWITAR 86 18 to 86mm	PAN CINOR 85 17 to 85mm	PAN CINOR 70 17.5 to 70mm	PAN CINOR 100 25 to 100mm
Catalog number	49	53 & 54	51 & 52	55 & 57
Designed for	BOLEX Reflex only	#53 "C" & Vidicon* #54 "S" (Kodak)	#51 "C" & Vidicon* #52 "S" (Kodak)	#55 "C" & Vidicon #57 "S" (Kodak)
Maximum aperture Minimum aperture	f/2.5 f/22	f/2 f/16	f/2.4 f/22	f/3.4 f/22
Angle of view minimum Angle of view maximum	6½° x 5° 31° x 23°	6½° x 5° 32° x 24°	8° x 6° 32° x 24°	5½° x 4° 22° x 16°
Minimum foc. distance	5¼′	6′	7′	7′
Area covered at min. distance at longest focal length at shortest focal length	6″ x 4½″ 29″ x 20″	6½″x 5″ 33″ x 25″	9½″ x 6¾″ 38″ x 27½″	6½″ x 4¾″ 26½″ x 19″
Area covered at 20 feet at longest focal length at shortest focal length	24″ x 15″ 17″ x 84″	24″ x 15″ 120″ x 85″	30″ x 21″ 120″ x 84″	20″ x 15″ 80″ x 60″
Length at infinity w/o sunshade	8¾″ 7¾″	7¼″ 6¼″	7¾″ 6½″	8½″ 7¼″
Front diameter w/o sunshade	2⅝″	2¾″	2¾″	2¾″
Weight	2¼ lbs	2¼ lbs	2½ lbs	2½ lbs
Filtersize	VIII	VIII	VIII	VIII

*Causes slight vignetting at some focal lengths when used on Vidicon cameras.

Close-up filming

Two close-up lenses are available, and can be mounted in front of the Zoom lenses permitting filming as close as 2½′ on the Pan Cinor's and 2′ on the Vario Switar.