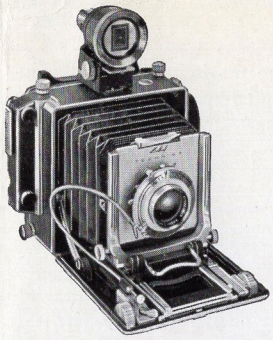


THE LINHOF TECHNIQUE

Data Sheet No. 7

How to Choose the Right Lens

Before purchasing a camera or an additional lens, it is most important for the photographer to select a type of lens which will meet his requirements and which is suited best for his particular work.

It is therefore necessary to become acquainted with the characteristics of the various lenses available as the differences in performance between the different types are very large.

In previous Data Sheets it was mentioned that those lenses which cover a large angular field are suitable for use with an adjustable camera, or for work where camera movements have to be employed. This Data Sheet is intended to be a guide for selecting the proper lens, as it briefly outlines various photographic applications, recommending the lens or the lenses which are suited best in each case. Those lenses which allow camera movements where the optical axis is shifted away from the center of the ground glass receive special attention.

Lenses having a focal length equivalent to the diagonal of the negative format but which have an angle of view that is larger than normal, and thus also covering a much larger field, are ideal for use with an adjustable camera. Their largest relative aperture is usually f/5.6 or less, as extreme speed involves a sacrifice in covering power. One of the lens types permitting extreme camera adjustments is the Schneider-Symmar f/5.6, which is available in different focal lengths. It has an angle of view of 70^0, and therefore the negative still remains in the circle of illumination even if a maximum camera-front rise is employed.

As the angular field of a lens increases with its focal length, provided of course, that the type of the lens is the same, it is only natural that camera adjustments are possible to a greater extent when using lenses the focal length of which is longer than the diagonal of the negative format. This applies to all so-called normal lenses, and not to true telephoto lenses.

If it is intended to work with a wide angle lens, it should be one for the next larger format; for example, a wide angle lens of 12 cm focal length should be used for a negative size 4 × 5", the 12 cm lens being the regular wide angle lens for the 5 × 7" format.

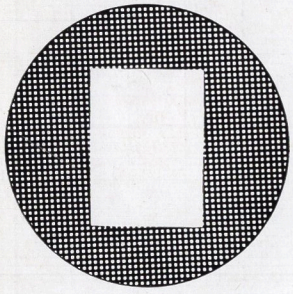
Lenses with a large aperture, so-called high speed lenses as well as true telephoto lenses (not to be mistaken for long-focus lenses), usually cover only a rather limited field and therefore do not allow any adjustments without the danger of unsharp corners or vignetting. From the above it can be seen that the photographer must be very much concerned with the problem of choosing the lens best suited for his specific work.

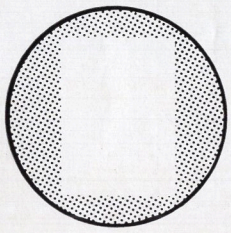
There are two basically different fields of application which have to be considered:

- **Photography where perspective has to be corrected (see Data Sheets No. 2-6), and close-ups where great depth of field is required**
- **Photography of fast moving objects where short exposure times are necessary to stop the action**

All photographs mentioned in group 1 require lenses with ample covering power. As the camera is used on a tripod exclusively if adjustments are employed, and focusing is perfomed on the ground glass, it is not necessary to have a lens with a large aperture. Moreover, stopping down usually is a must to obtain sufficient depth of field (architectural, commercial and industrial photography). The type of work described in group 2 is usually done with the camera hand-held and does not call for camera adjustments. However, short exposure times necessitate large apertures, and therefore high speed lenses are preferred for this type of photography. The photographer who has to work in both fields, and who intends to obtain superb results, should have two lenses, one for each group.

The following table will help to find the proper lens for a certain purpose:





GROUP 1	
Architectural photography (in- and outdoors), commercial, industrial, and scientific photography, as well as all fields where camera adjustments have to be employed.	**Symmar lenses of all focal lengths, long-focus lenses and wide angle lenses for the next larger negative format.**

GROUP 2	
Action photography, for example, sports- press- and news-photography, as well as candid photographs of persons.	**Zeiss Planar f/2.8, Schneider-Xenotar f/2.8, Zeiss-Tessar f/3.5, Schneider-Xenar f/3.5 and other high speed lenses.**

Further LINHOF Data Sheets will follow! Please collect them for future references. Missing copies will be supplied upon request.

When selecting a lens, the lens-to-subject distances at which it will be used also should be considered. It must be distinguished between lenses designed for close lens-to-subject distances and those which are calculated for distant scenes. It is true that lenses which are corrected for distant scenes can be used for close-up work as well and vice versa, however, the quality of the photographs will not be optimal in either case. Further, there are special lenses designed for macrophotography exclusively. They are computed to satisfy certain optical requirements, peculiar to work at extremely close lens-to-subject distances.
Below follows another table of information:

FAR AND MEDIUM DISTANCES	CLOSE LENS-TO-SUBJECT DISTANCES	MACROPHOTOGRAPHY
Landscapes, Sports, News, and Fashion Photography	**Commercial- and Scientific-Photography, Copying.**	**Photographs at a scale larger than 1 : 1 for scientific and technical purposes.**
NORMAL-LENSES **Planar, Tessar, Xenotar, Xenar, Heliar** **WIDE-ANGLE LENSES** **Biogon, Angulon, Super-Angulon** **TELEPHOTO LENSES** **Sonnar, Tele-Arton, Tele-Xenar, Telomar, Rotelar** **SPEZIAL PORTRAIT LENS** **Imagon**	**Symmar, Apo-Lanthar, Apo-Skopar, Apo-Ronar (for copying only)**	**Luminar-Lenses of 16, 25, 40, 63 and 100 mm focal length.**

THE MOST COMMONLY USED LENSES AND THEIR APPLICATIONS:

	Zeiss Tessar f/3.5	Zeiss Planar f/2.8	Zeiss Biogon f/4.5	Zeiss Sonnar f/4.8	Schneider Xenar f/3.5	Schneider Xenotar f/3.5	Schneider Xenar f/4.5	Schneider Symmar f/5.6	Schneider Xenotar f/2.8	Schneider Angulon f/6.8	Schneider Super-Angulon f/8	Schneider Tele-Arton f/5.5	Schneider Tele-Xenar f/5.5	Voigtländer Apo-Lanthar f/4.5	Voigtländer Apo-Skopar f/9	Voigtländer Heliar f/4.5	Voigtländer Telomar f/5.5	Rodenstock Rotelar f/4.5	Rodenstock Imagon f/5.8	Rodenstock Apo-Ronar f/9
Industry and Architecture		●	●	●				●		●	●	●								
Studio Work	●	●	●		●	●		●	●	●	●									
Photography at relatively close lens-to-subject distances (Commercial and Scientific)		●	●					●		●	●			●	●					
Landscapes	●	●		●	●	●	●	●	●			●	●	●		●	●	●	●	
Portraiture				●				●				●	●			●	●	●	●	
Fashion and Group Photography	●	●			●	●	●	●	●					●						
News and Sports Photography	●	●	●	●	●	●	●		●			●	●				●	●		
Wild-Life Photography				●								●	●				●	●		
Stage Photography	●	●		●	●	●			●											
Copying		●						●						●	●					●

In addition to information of this kind, you will find many interesting suggestions and tips in the new photographic magazine GROSSBILD-TECHNIK. Well-known specialists report on their experiences, and the illustrations include beautifully printed full colour pages. Enquiries may be adressed to: GROSSBILD-TECHNIK. English Edition, Rupert-Mayer-Straße 45, München 25, West-Germany, Price of single copies: DM 3.15 or 75 c or 5s. 3d., or equivalent, postpaid.