

LEICA R4s

Aperture Priority Two Exposure Measuring Methods





Leitz means precision. Worldwide.



Ur-LEICA (1913) Oskar Barnack's prototype



LEICA I (1925)
The first LEICA camera manufactured in series



LEICA II (1932) with interchangeable lenses and built-in range finder



LEICA IIIf (1950) with flash synchronization



LEICA M 3 (1954) range finder with illuminated fields of view and bayonet mount



LEICA M4-P (1980) six viewfinder frames and motor capability



LEICAFLEX (1965)
The first single lens reflex LEICA camera

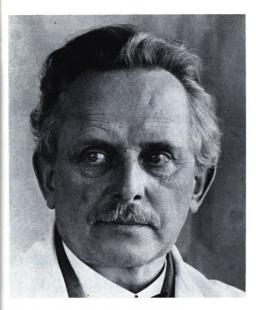


LEICAFLEX SL (1968) with selective, through the lens, exposure measuring

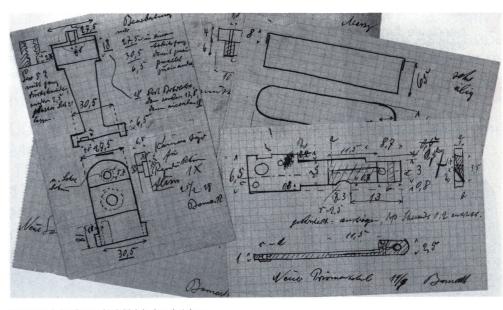


LEICA R3 (1976) with two exposure measuring methods: integrated and selective

The LEICA camera started the era of 35 mm photography.



Oskar Barnack, inventor of the LEICA camera.



These are Oskar Barnack's initial design sketches.

The original idea for the LEICA design was rather simple and logical which is so often the case with an ingenious idea. Oskar Barnack, the head of the design development department of the Ernst Leitz Optical Works Wetzlar, needed samples of film exposure for his motion picture camera. The enlarging results from his motion picture films encouraged him to continue work on the development of a pocket camera. He simply doubled the frame size to 24 x 36 mm and thus the Ur-LEICA, with the now classic miniature film format, was born.

At the Leipzig fair in 1925 the first production model was shown and caused a sensation. Reporters began to develop modern photo journalism with the LEICA camera and launching the beginnings of the photo journalism press. Amateurs discovered the ease of photography with the LEICA camera and the world of photography had been changed.

Each LEICA camera model which entered the market so far brought new advances. Today as well as in the beginning, the name LEICA is synonymous with quick and easy handling, highest

optical performance, dependability and long life. The LEICA R4s continues this tradition. The name Leitz guarantees it.



Special features of the LEICA R4s

- The LEICA name promises dependable functions and consistently high performance even under constant use.
- The dual exposure measuring methods allow for successful photography even under difficult light conditions.
- The timeless, elegant design with its well formulated proportions was conceived with a deliberate ergonomical point of view. It permits professional, fast and consistant photography under all circumstances.
- The LEICA R4s is the basis for a universal systems camera. Lenses with focal lengths from 15 to 800 mm satisfy any photographic requirement.
- Interchangeable focusing screens permit optimum performance of the LEICA R4s.
- Attachable motor winder and motore drive enhance the possibilities of dynamic photography. They improve camera readiness and often are accountable for successful pictures.
 - The large, functional LEICA R bayonet assures quick lens changes. Even in continuous, professional use the exacting flange dimensions remain constant.
 - The lamellar metal shutter is responsible for the easy film advance of the LEICA R4s and, due to its soft release feature, provides for pictures free from camera shake.
 - The world wide guarantee means quick and dependable trouble shooting, maintenance and, when necessary, repair via 120 Leitz agencies and a strong network of camera dealers.



A camera which retains its value

At Leitz there is a department called Leitz Quality Assurance. It establishes the standards which must be met by every sample of each product. The approval of Quality Assurance is required before any prototype can be put into production, and the production series is also tested at every step. Quality Assurance does not answer to the design, manufacturing, or marketing departments, but only to top management.

If a test sample shows after 100.000 shutter releases only the slightest irregularity, the entire production is retested. "Made by Leitz" has traditionally stood for

the highest quality standards. This is why the LEICA R4s camera is not simply lacquered black, instead it is black chromium plated in accordance with a special, Leitz developed, procedure. Because a LEICA camera should not only look new when new, but also after many years of use.

Quality is apparent in the small details. One hears it when the lens snaps in and locks into the hard chromed bayonet mount. One notices it when the focusing mount glides smoothly during

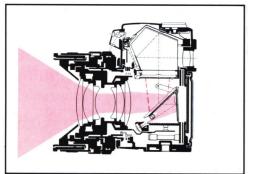
focusing and brings the picture easily and softly into sharp focus. The ultra smooth release action testifies to the quality, the precision material and the workmanship used in the LEICA R4s.

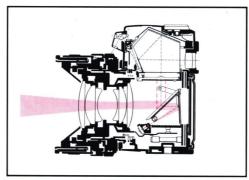
The LEICA feel is difficult to describe. One simply has to take the camera into one's hands. This will quickly prove that it is not only beautiful for its own sake, but because it was built resolutely for hard usage.



It is a tool – but a fascinating one.

Integrating and selective – a guarantee for successful exposures



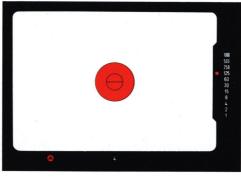




Without taking the eye from the camera, a quick change-over from one measuring method to another may be accomplished.



Schematic drawing of the Leitz largefield integrating measuring method.



Schematic drawing of the Leitz selective measuring method.

Every photographer knows the problems "What would be the correct exposure?"

A never to be repeated event, against the light, showing dramatic shadows in the left foreground, one must react in a fraction of a second and measure the exposure accurately... and yet the question remains: should the automatic setting expose at will? Or is it neces-

sary to expose one or even two steps above or below normal?... or, was not there something else to consider? In this way many a picture is lost.

Automatic exposure determination is nothing new anymore. That is as it should be. The less the photographer is involved in technical details, the more he can concentrate in the scene. However, a simple automatic system

cannot deal successfully with every lighting condition; special conditions require special measuring methods. Therefore, the LEICA R4s camera has two exposure measuring methods: A center weighted large field integrating method for all scenes with normal lighting conditions.

And, as something extra, the Leitz selective measuring method, which allows measuring a specific, important portion of the scene, and is thus able to deal with even difficult lighting conditions.

Photography with ease using the largefield integrating measuring method



In many cases the integrating method is the correct and dependable one. True in all cases if there are no extreme light-and color contrasts, no heavy shadows and when the bright and dark portions in the image plane are about even. The exposure meter now registers the result of the entire image area.

Since usually the important detail is in the center, the measurement is centerweighted.

Measuring range:

0,25 cd/m 2 to 63.000 cd/m 2 at f/1.4 and ISO 100/21 $^\circ$. Exposure values of +1 EV to +19 EV or opening f 1.4/1 sec. to f 22/ 1 /1000 sec.

Even difficult lighting conditions can be mastered with the selective measuring method



Unusual photos are generally made under uncommon and difficult lighting conditions - against the light scenes. side light, spotlighted scenes - etc. This is the strong point of the Leitz selective measurement method. Scenes before a bright or very dark background, a portrait against the light, the view through an arched gate, open light sources these are no problems for the LEICA R4s. The measurement area corresponds to the central circle in the viewfinder. Use this circle to aim for the important image portion and release the shutter. The exposure time will consider in its exposure determination only that portion which lies within the circle, regardless of what occurs within the rest of the viewfinder area.

Measuring range:

 $1 \text{ cd/m}^2 \text{ to } 63.000 \text{ cd/m}^2 \text{ at } f1.4 \text{ and } ISO$ 100/21°. Exposure values from + 3 EV to 19 EV or opening f 1.4/1/4 sec. to f 22/1/1000 sec.

Optimum picture framing with measured value storage





The selective measurement method, per se, is an excellent feature, but this is not all. Frequently, the selectively measured detail does not really belong in the middle. It is for this reason that the measured value can be stored for 30 seconds by depressing the shutter release button until the mode symbol at the lower left is extinguished. Thereafter the desired picture frame may be chosen in good time and the shutter released under the predetermined exposure value.

Measuring selectively, value storage, determination of the desired picture area and shutter release are done so quickly and easily with the LEICA R4s that the photographer can carry out these functions after a short time almost unconsciously. Obviously, this is the best prerequisite for optimum picture composition and perfect exposure without technical problems.

The viewfinder as a composition and control center

The viewfinder of the LEICA R4 shows all that is necessary to compose and focus the scene.

Even when lighting is poor the finder image is brilliant and bright. Interchangeable focusing screens are available for quick and accurate framing to suit different tasks. A prerequisite for using the LEICA lenses to their maximum potential.

The camera functions are shown at the borders of the viewfinder image.

Below, left an illuminated **a** signals that the LEICA R4s is set on automatic shutter speed control and selective exposure measurement.

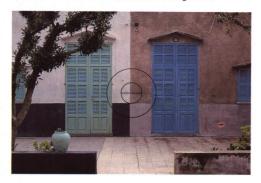
The preselected diaphragm setting is displayed in the center below.

On the right hand side of the viewfinder border an illuminated diode shows the exposure time, formed automatically based on the preselected diaphragm.

This operates continuously and so accurately, that it may even turn out to be 1/69th of a second. In this case two diodes will light up, the one for 1/60 and the one for 1/125 sec.

Should it be too dark or too bright for the chosen diaphragm setting, a triangular symbol shows above or below the shutter speed scale indicating over – or under-exposure. The lens opening is then either opened or closed further.

The illustrations show the universal focusing screen



Split wedge

When the image is out of focus, the edges and horizontal lines of the object are actually displaced.



Ring with rectangular prism screen

The central split-wedge is surrounded by a rectangular prism screen. Flickering clearly indicates the out of focus position.



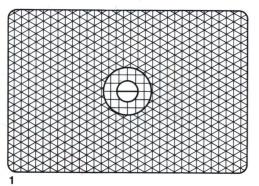
Matte triangular prism surroundings

The surrounding area consists of matte triangular prisms which produce a groundglass screen effect. Here the image is best focused with long focal length lenses and in the near-focusing range.



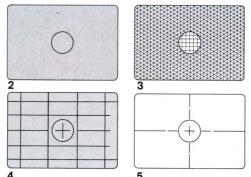
Interchangeable focusing screens for every task

Technical details



The LEICA R4s is normally supplied with a **universal focusing screen** (1). It contains three focus aids: Triangular micro-prisms over the entire finder area, a 7 mm diameter ring with rectangular microprisms and a centrally located split-wedge rangefinder 3 mm in diameter. The 7 mm ring shows at the same time the measuring field for the Leitz selective measurement mode.

The universal focusing screen is best suited for most photographic tasks. Special applications require individualized systems for quick and exacting work. Therefore, four additional focusing screens are available as accessories. Special tweezers are supplied to interchange screens quickly and easily.



- (2) If one uses the camera in the extreme near focusing range or with long focal length lenses the **ground glass screen** is ideal. Sharpness can be evaluated exactly over the entire field. The circle in the center shows the measurement field for the selective measuring mode.
- (3) Without the split-wedge rangefinder of the universal focusing screen, the **micro-prism screen** allows for easy evaluation and composition of the scene. The micro-prisms show clearly the sharpness or unsharpness range and provide a brilliant, contrasty and clear viewfinder image.
- (4) For panorama pictures, architectural photography and reproductions, the camera ought to be perfectly aligned. The **uniform ground glass screen** with grid lines is particularly suited for this purpose. The vertical grid lines, exactly 10 mm apart, allow the easy determination of the reproduction ratio for close-up work.
- (5) For photomicrography or astronomical pictures the clear glass screen is best. When the LEICA R4s is employed with optical instruments which magnify images, as for instance with microscopes or astronomical telescopes, this type of focusing screen is ideal.

Electronically controlled, 35 mm single lens reflex camera with through the lens dual measurement method: Leitz selective measurement or Leitz large field, integrating measurement.

Solid metal housing with removable back, 138.5 mm long, 88.1 mm high, 60 mm deep, weighing 630 grams. Tripod thread 1/4" x 20. LEICA R quick change bayonet mount.

Built-in pentaprism, interchangeable focusing screens, viewfinder displays via LED, viewfinder magnification appr. 0.85 x with 50 mm lens, the viewfinder image corresponds to 92% of the film image area. (= Image area of a framed slide).

Metal multi-blade, vertical, focal plane shutter; stepless, electronically controlled exposure times from ½1000 sec. to approximately 8 sec. when operated automatically. Manual settings: ½1000, ½500, ½500, ½50, ½50, ½50, ½60, ⅓00, ⅓15, ⅓8, ¼4, ½ and 1 sec. Mechanically controlled speeds: x (⅓100 sec.), 100 (⅓100 sec.) and B. 100 and B will funktion even without batteries. Electronic flash synchronization ⅓100 sec. Automatic switch-over when using dedicated flash units.

Current supply for the exposure meter and the shutter from two 1.55 v silver oxide button cells or one 3 v lithium battery.

Special technical details of the LEICA R4s







Electronic Self Timer

Running time is approximately 8 sec. A blinking LED signals its operation, changing to a constant signal 2 sec. before the shutter is tripped.

Multiple Exposures

Depressing the rewind button disengages the film transport. The shutter can now be wound by operating the rapid winding lever without transporting the film forward. At the end of the travel the rewind button will re-set automatically. If more than two exposures are to be made on the same film frame, the rewind button must be depressed anew before winding the shutter.

Data Back DB LEICA R4

The data back enables the user to record data directly on the film. Negatives or transparencies may be given letter or numerical codes; a valuable feature when one wishes to serialize a group of pictures. Such data may also be valuable to reconstruct specific phases or events in effect at the time the pictures were taken. The opportunities are many: Wheter taking family pictures or one wishes to record various stages during the building of a home, or for experimental photography in the laboratory, the data back allows the identification of the photograph positively and conveniently. Data back DBR4 can be inserted in place of the back of the LEICA R4s and connected by means of a cable to the flash contact of the camera.

Film and Battery Test

A window in the camera back shows clearly if and with what film the camera is loaded. For testing the battery condition, simply depress the test button. If the red control lamp lights up, the batteries are o.k.



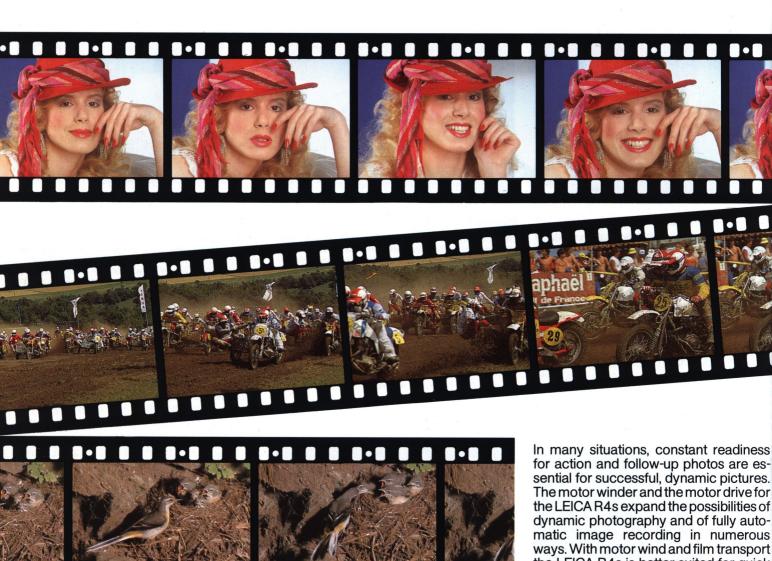


Depth of Field Preview Lever

To check the depth of field for a certain f-value, the depth of field preview lever, easily accessible, is used.



The motorized LEICA R4s for instant action readiness, sequence, and remote release photos



the LEICA R4s is better suited for guick single and sequence photos, exposure by remote electronic control, cable or radio releases (wireless releases).

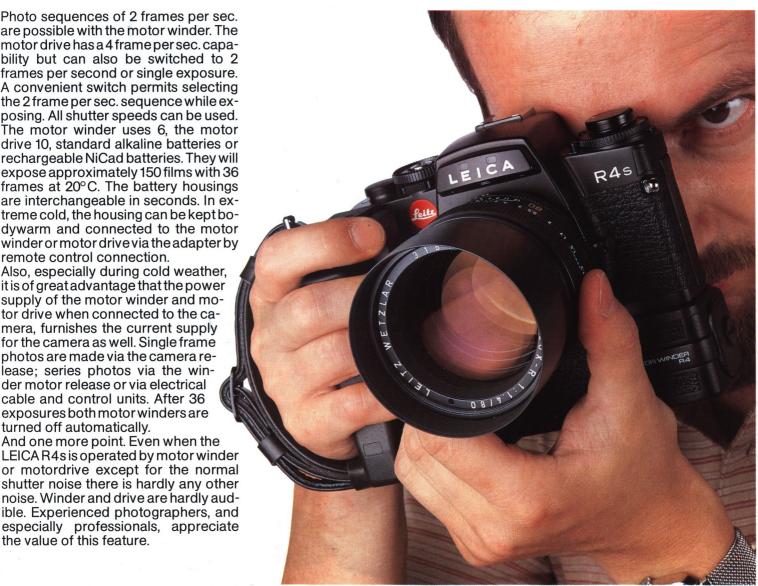
Photo sequences of 2 frames per sec. are possible with the motor winder. The motor drive has a 4 frame per sec. capability but can also be switched to 2 frames per second or single exposure. A convenient switch permits selecting the 2 frame per sec. sequence while exposing. All shutter speeds can be used. The motor winder uses 6, the motor drive 10, standard alkaline batteries or rechargeable NiCad batteries. They will expose approximately 150 films with 36 frames at 20°C. The battery housings are interchangeable in seconds. In extreme cold, the housing can be kept bodywarm and connected to the motor winder or motor drive via the adapter by remote control connection. Also, especially during cold weather, it is of great advantage that the power supply of the motor winder and mo-

lease; series photos via the winder motor release or via electrical cable and control units. After 36 exposures both motor winders are turned off automatically. And one more point. Even when the LEICA R4s is operated by motor winder or motordrive except for the normal shutter noise there is hardly any other

tor drive when connected to the camera, furnishes the current supply for the camera as well. Single frame photos are made via the camera re-

ible. Experienced photographers, and especially professionals, appreciate

the value of this feature.



MOTOR-WINDER R4 and MOTOR-DRIVE R4. Robust mechanism, easy handling





MOTOR-WINDER R4:

Motorized film transport and shutter wind. Single picture and series photos up to two shots per sec.

140 mm long, 40 mm high, 50 mm depth, weight: 225 g without batteries.



MOTOR-DRIVE R4:

Motorized film transport and shutter wind. Single picture and series photos up to 4 shots per second, switch over from 2 pictures per sec. to single photos.

140 mm long, 45 mm high, 61 mm depth, weight 320 g without batteries.

Handgrip for hand-held photos

The handgrip may be screwed onto the LEICA R4s with motor drive or motor winder attached. The release button is conveniently located for series photos with the motor winder and for series and single shots with the motor drive. The leather strap is individually adjustable. Accidental tripping of the shutter is eliminated by means of a release switch.



Tripod Holder

Used for holding the LEICA R4s with long lenses and motor winder steady on a tripod. Rigid design with two convenient connecting screws.





Adapter for external supply

When it is very cold the current supply for the motor winder, motor drive and the camera may take place "out of the pocket" via adapter, where batteries/ NC are kept under body-warm temperature.

The battery/NC housings of motor winder or motor drive are interchangeable in seconds. A replacement housing with batteries provides additional security when used constantly. (In continuous use, in the cold, for expeditions etc.)

MOTOR-WINDER R4 and MOTOR-DRIVE R4 in combination with the RC LEICA R

The electronic remote control unit RC LEICA R with motor winder and motor drive offers a number of delightful possibilities. It serves as remote release in conjunction with the automation of the LEICA R4s and opens up new dimensions of photography. Many of these intriguing possibilities will be covered in the following pages.

The control unit fits comfortably in one hand. It can be operated either with the left hand or the right hand. All functional elements are arranged on top.

Using the remote control unit, the camera may be released either manually or automatically. After release, a luminous digital display provides the feedback from the camera. The double digit 9 mm display clearly indicates when the exposure is completed; furthermore, the number of completed exposures can be verified from the same display. If exposures have previously been made without the control unit, an in-put button is provided to set the unit correctly. If, for instance, 12 exposures have previously been made, the control unit will show a reading of 13 after adjustment. On the automatic mode the range of release intervals is from one frame every 0.5 sec. to a frame every 10 minutes. The interval may be adjusted continuously. With the setting at "test" the desired time intervals may be determined exactly without tripping the camera shutter. The release impulse then becomes visible when the right hand decimal point in the display lights up.

The current supply of the remote control unit comes from the batteries/ NC of the motor winder or motor drive.



The many facets of the LEICA R-system



Remote release

with electric cable release.

A 5 meter long cable, in combination with extension cables is the simplest remote release device and is recommended when no function control of the camera is necessary. It has a threaded plug and can be extended via a cable of 25 meters up to a maximum length of 100 meters. The various remote release accessories of the motor winder and motor drive can be used in this manner.

Remote release

via Remote Control LEICA R4.
The electronic remote release with simultaneous function control and digital feedback display from the camera is the best solution for controlled remote release.

Automatic Interval Control

For pre-programmed shutter release, the RC LEICAR control unit offers interval variations between 0.5 to approx. 600 sec.; this is a useful exposure range: every ½ sec. or up to every 10 min. Applications: growth studies, blossoming sequence of flowers, seed germination, root development, documentation as for instance determining traffic densities at different times, escalator capacity in department stores, train terminals etc., security surveillance at exhibits, traffic flow in department stores, monitoring of machines and their controls.







Multiple exposures

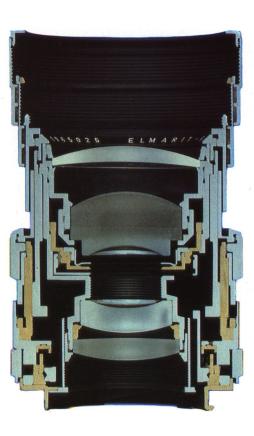
Using the LEICA R4s with remote control unit simplifies multiple exposures. It is easy to show the various stages of the moon on the same frame. All moving sequences which appear against a dark background, offer good opportunities, not to mention the interesting effects of double or multiple exposures of persons. Really something for the creative photographer.







LEICA R-lenses



The design and development of a lens is an intriguing science. Large main frame computers have opened ways to optimize all properties of optical glass so that the limits of physical possibilities are now achievable. Careful "timing" of anti-reflection coatings to particular glass-types assures almost 100% light transmission within the entire visible spectral range. Special "Absorban" cement layers used in Leitz lenses causes

an effective cut-off of the ultraviolet rays of light. This also assures that all Leitz lenses maintain the same color balance.

What does the photographer gain from this extra effort?

Keep the sun at your back, set the lens to f/8 and the exposure time to 1/125 is an old recipe which is sometimes quite correct. But unusual photos are created differently. Shooting against the light, for instance, and with the lens fully open, so as to locate the area of sharpness accurately within millimeters. And now you will see what Leitz lenses are capable of. Sharpness "to the point", high contrast and great resolving power are the strengths of LEICA photos. The largest lens opening can be chosen without reservation, it is a fully useable working aperture.

The mechanical features of the lens do not trail behind the optics. The helical focusing mount, for instance, brass to aluminium, is individually grouped to one another. Therefore, a light, specially developed, grease, spread thinly, is sufficient to allow smooth, jerkfree focusing even under unusual temperatures and hard daily use. Leitz lenses retain their efficiency and sure-function dependability for decades.

Common, outstanding features of all LEICA R-lenses:

- 1. The rotation direction of the helical focusing mount of the lens and diaphragm click-stops are matched and adjusted for optimum control at extremely high or low temperatures.
- 2. Positioning is the same for all lenses.
- 3. All lens parts are protected against corrosion so as to function perfectly in all climatic conditions.
- **4.** LEICA R-lenses can be used at temperatures between -25 and +60 degrees C without restriction.
- 5. To resist blows or impact, the lenses are designed to withstand up to 100 x their gravitational force. This is equally important for blows which may occur as a result of the various methods of transportation.
- **6.** The auto diaphragm runs on ball bearings. The closing time from full aperture to it's smallest setting is maximum 40 milliseconds.
- 7. The auto diaphragm will show no noticeable wear after more than 50,000 releases.
- 8. The large LEICA bayonet is mechanically robust and guarantees instant and reliable seating of the lens.
- **9.** All lenses may be placed upright without lens cover. There are no protruding control levers which could be bent out of shape.
- **10.** All LEICA R-lenses are supplied routinely with front and back covers together with a lens hood made to fit individually.



The Leitz glass-research laboratory melts special glasses using rare earths, and is largely responsible for the excellent characteristics of LEICA lenses.



Ultra-purity is a prerequisite for melting superior optical glass. This melting crucible might well be one of the most valuable of its type. It is made of pure platinum.

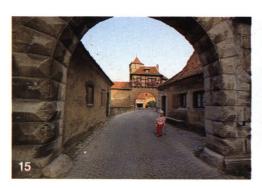


Of the 600 world known types of glass for lenses, prisms and filters Leitz maintains 350 permanently in stock.



The carefully matched anti-reflection coatings for each of the highly refractive glasses used assures almost 100% light transmission within the entire visible spectral range.

Pictorial composition made easy with the comprehensive LEICA R-system







The range of LEICA R-lenses extends from the 15 mm ultra wide-angle to the 800 mm telephoto lens.

With these lenses the photographer can select any segment of his subject using a given camera position, or, by altering his position achieve variation in perspective. These are two important criteria for creative pictorial composition.













Comparison of focal lengths

When photographing from a given point only the subject field and image size are changed by changing the focal length, but not the perspective.

Theoretically, it might be possible to enlarge a super wide-angle picture to any desired image size, but this would bring reduction in picture quality as a consequence.

When taking slides it is always desirable to fill the frame, because subsequent, sectional, enlargements are usually not possible.



Perspective comparison

With the 15 mm lens the background recedes further into the distance. Using a 400 mm one can bring it forward right up to the object in the foreground. Perspective changes are particularly noticeable when extremely short or extremely long focal length lenses are used.



The photographer's position was not changed; note the perspective relationship of the subject within the picture area.

The bottom row of pictures shows the comparison of perspective.

The photographer's position was changed so that the primary subject shows up always in the same size, while its relationship to the background changes with the focal length of the lens used.





The extreme wide-angle range



15 mm SUPER-ELMAR-R f/3.5

Especially suited for landscapes, architectural and fashion photography, with unusual effects and for pictures of models which are to transmit an impression of realism.



16 mm FISHEYE-ELMARIT-R f/2.8

For unusual image formation. Straight lines will be straight only as long as they run through the image center. The barrel distortion becomes the more pronounced the more the lines are located toward the edge. The entire picture frame is filled within the oblong camera format.



19 mm ELMARIT®-R f/2.8

Using this high speed super wide-angle lens appreciably improves the picture content. The short focus distance of 30 cm for close up pictures favors striking perspective conditions.



21 mm SUPER-ANGULON®-R f/4

This lens exhibits excellent definition and even illumination over the entire picture area. It offers dramatic effects of composition with a prominent foreground, receding background and a broad horizon.



24 mm ELMARIT-R f/2.8

Ideal for photo journalistic purposes within limited space and for pictures with unusual perspective. Its "floating elements" assure excellent image quality over the entire focusing range, especially close-up.



The conventional wide-angle range







28 mm ELMARIT®-R f/2.8

Exceptionally compact design in spite of its fast speed is a characteristic of this lens. Only 40 mm long it weighs 275 g. The angle of view of 76° permits favorable picture composition without the ultra wide-angle perspective.



This lens belongs to the top of the line of fast wide-angle lenses: it is ideal for the candid shot under poor light conditions. It's correction range extends from ∞ to 1.40 m.





35 mm ELMARIT-R f/2.8

Superior optical performance with compact design; it offers the Leica Photographer those special advantages which he appreciates most. Already fully open, this lens delivers excellent flatness of field, high contrast and excellent resolution.



35 mm PA-CURTAGON®-R f/4

This is a special wide-angle lens for architectural and landscape photography. To compensate for the converging of vertical lines, the optical system can be displaced by 7 mm to either side, or top or bottom. By means of this perspective compensation the camera need not be inclined.

Standard focal lengths



50 mm SUMMILUX®-R f/1.4

High speed lens for the photo journalist. Extra good and contrasty image rendition – for such a high speed lens – is admired over the entire focusing range.



50 mm SUMMICRON-R f/2

A universal lens with excellent overall definition including the close-up range. Already fully open, it exhibits maximum sharpness, high contrast and good detail rendition.



60 mm MACRO-ELMARIT-R f/2.8

A universal lens with the great advantage of a focusing range from ∞ to 27 cm (1:2). Using the Macro-Adapter-R permits operating within the additional macro-range from 1:2 to 1:1.







The versatile short- and medium telephoto range



80 mm SUMMICRON-R f/1.4

Under extremely contrasty light, whether in the theater or at the circus, during indoor sports or photo journalism, the special advantage of this lens are freedom from reflexes and rendition of finely tuned nuances in tonal values, when taking "available light" photos.





90 mm SUMMICRON-R f/2

The ideal lens for the candid shot when a discreet distance must be maintained. The high speed of this lens is doubly advantageous because it allows for short exposures and, when left wide open, with limited depth of field, the principal subject will "detach" itself with plasticity from the background.



100 mm MACRO-ELMAR-R f/4

Equally well suited for landscapes, portraiture or close-up work. It shows its optimum quality within the range of 1:5 to 1:10. The Macro-Adapter-R opens up the macro-range to 1:1.6.



90 mm ELMARIT-R f/2.8

A remarkably compact, very handy tele lens with high contrast and definition over the entire picture area while fully open. Image quality reaches its maximum at f/4 which is retained including the close focusing range when the auxiliary lens ELPRO 3 is in use.



135 mm ELMARIT-R f/2.8

In spite of its focal length this lens is built strikingly short, therefore easy to use. It is ideal when rendering assertive detail in concentrated form.

The extended telephoto range





Many photographers don't want to be without this lens. Using newly developed optical glass it remains light and compact yet superior in its optical performance. Even under poor light conditions focusing sharply is sure and quick and the exposure times may remain relatively short.



180 mm APO-TELYT-R f/3.4

A special lens, developed to include the secondary spectrum into the lens correction in order to achieve ultra high contrast. The pictures show detail-richness and vibrant image brilliance not heretofore known for long focal lengths lenses. The superior performance begins at full aperture and hardly increases as the lens is stopped down.



180 mm ELMAR®-R f/4

A lens for the travelling photographer, who can get along without high speed but wants to travel light. Only 100 mm long, the lens fits easily into a camera bag and adds only 540 g to its weight. The close focusing range of 1.8 m surpasses even that of a 50 mm lens when used at its shortest focus distance.







The classic telephoto range

250 mm TELYT®-R f/4 350 mm TELYT-R f/4.8

High resolution and excellent contrast together with short focusing travel support quick focusing even when light conditions are poor or during fast action required for wildlife and sports pictures.

As an accessory, a universal hand-grip with shoulder harness is available which supports these lenses without fatigue and allows the camera to be released without vibration even when the exposure times are long. An ideal combination is the use of the motor winder or motor drive. Both lenses have a tripod support, which can be switched from horizontal to vertical formats.









Reaching into the distance



500 mm MR-TELYT-R f/8

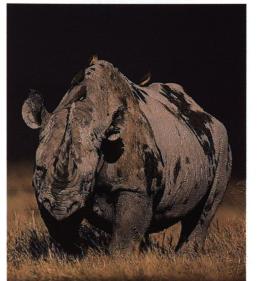
A small and light mirror lens. One can take pictures at a safe distance and nonetheless seem to be in the middle of the action. Inherent in the design is outstanding chromatic correction. Contrast and definition are extraordinary.



The rapid focus lenses

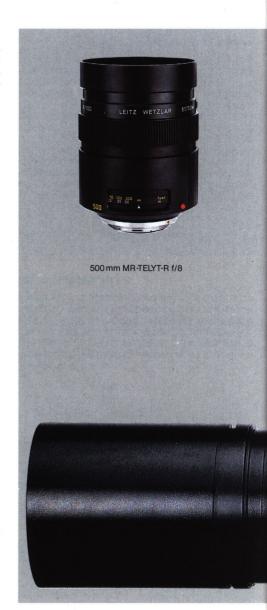
Highly corrected achromats make extremely vibrant photos possible. To achieve rapid focus, the front barrel slides precisely in a parallel guide mount. Of particular advantage for close-up shots of small animals under the proper escape distance is the wide focus range with a small object area of approx. 16x24cm for the 400mm lens and approx. 22x33cm with the 560 mm lens which may be further reduced by means of an intermediate adaptor.

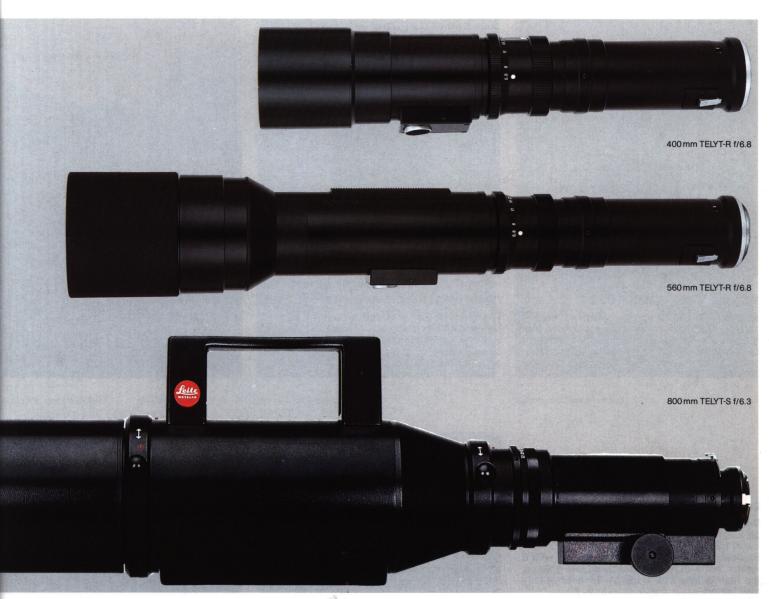
Both lenses are supplied with handgrip and shoulder harness and both have carriers for tripod mounting, switchable from horizontal to vertical formats.



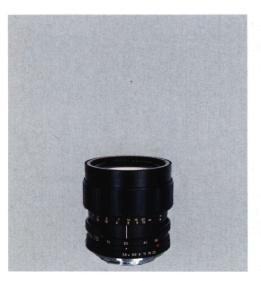
800 mm TELYT-S f/6.3

Due to its 16x magnification when compared to the 50 mm standard lens, very large distances can be bridged and the object of interest brought in close. The optical performance as to contrast, resolution and color differentiation excels through the use of specially computed and melted Leitz glasses.





Zoom lenses / Extender



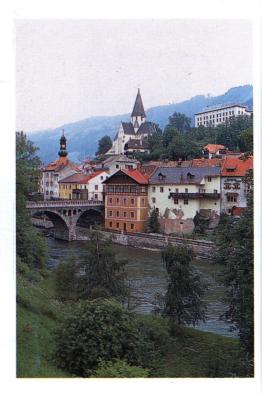
35-70 mm VARIO-ELMAR-R f/3.5

A small, light and handy lens which covers the normal wide angle up to the small telephoto. Fully open this zoom lens already offers excellent contrast and reproduction of detail. Two different rings are used for focusing and for focal length change.

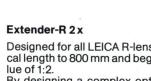


75-200 mm VARIO-ELMAR-R f/4.5

The image quality of this zoom lens is superior. The lens may be used with ELPRO front lenses and the excellent quality remains intact for close-up photography. In that case the smallest object field is 4 x 6 cm.



35 mm focal length setting

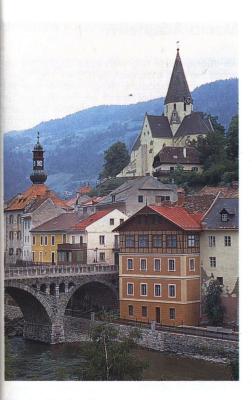


Designed for all LEICA R-lenses from 50 mm focal length to 800 mm and beginning with an f-va-

By designing a complex optical system with 5 lenses made of highly refractive Leitz-glasses, the high quality of the LEICA R-lenses is fully maintained.









70 mm focal length setting

75 mm focal length setting

200 mm focal length setting



The Extender-R 2x doubles the focal length of the lens used and reduces the diaphragm opening by two stops. A 180 mm f/2.8 lens becomes one of 360 mm f/5.6.

Accessories for close-ups

ELPRO auxiliary close-up lenses

The ELPRO auxiliary close-up lenses are achromats and, as such, increase the optical image quality in the near focusing range. Medium lens openings provide for excellent sharpness. Camera technique including exposure determination are the same as in the normal range. ELPRO auxiliary near focusing lenses are supplied for 50 mm SUMMICRON-R f/2, all 90 mm lenses, the 100 mm MACRO-ELMAR-R f/4, the 135 mm ELMARIT-R f/2.8, and the 75–200 mm VARIO-ELMAR-R f/4.5.

Ring combinations for the close-up range

A three-part ring combination is used mainly in conjunction with the 50 mm SUMMICRON-R f/2 standard lens and permits photographs within the ratio of reproduction of 1:2 to 1:1. Its range can be extended at will by means of inserting additional rings. Also applicable in connection with focal lengths 90/135/180/250 mm.

A twin cable release serves to semiautomatically close the lens diaphragm.

Macro-Adapter-R

An intermediate ring with auto-diaphragm extends the lens extension by 30 mm. The "opendiaphragm" exposure determination and the auto-diaphragm feature of all R-lenses are retained. Aperture priority or manual exposure modes are preferred. Close-up photography with the Macro-Adapter-R is as easy as photography within the normal range.

Detailed information is contained in Cat. No. 160-023: The LEICA-R in the near focusing range.





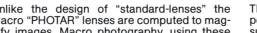


Bellows focusing device-R

The Bellows focusing device-R is highly popular for continuous focusing from infinity to macro. Rigid, vibration-free design is its structural feature. For fast work the pre-set diaphragm of the LEICA-R lenses is closed to the desired value by means of a twin cable release. Exposure is determined through the working aperture. A rotating scale on the side of the bellows focusing device shows the reproduction ratios for lenses of 90/100 and 135 mm focal length and it contains a scale in millimeter graduations. All LEICA-R lenses from 50mm to 250mm may be used without intermediate rings. The 100mm MACRO-ELMAR f/4 for the bellows focusing device is highly recommended.

Special macro lenses

Unlike the design of "standard-lenses" the Macro "PHOTAR" lenses are computed to magnify images. Macro photography, using these lenses, can achieve a magnification ratio of 16x on the film. This represents an object area of only 1.5 x 2.3 mm. PHOTAR lenses, when used on the bellows device R, open an interesting field of stepless close-up photography to an extreme.







REPROVIT-R

The REPROVIT-R provides accurate rightangle positioning of camera film plane in relation to the subject to be photographed, such as documents, drawings, etc.

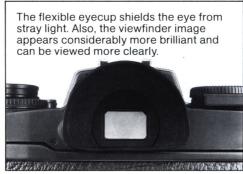
The vertical height adjustment offers quick and precise focus of the camera for different object

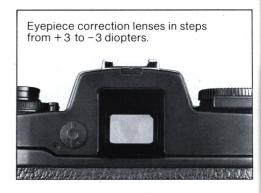
sizes.



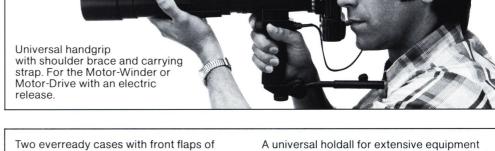
Useful accessories for the LEICA R4s











The Leitz table top tripod is always a handy aid. It can be folded and supplied with a small or a large ball-and-socket head.

The cable release is a practical aid in avoiding camera shake with photography from a tripod.



Photographic technical service

The Leitz Information Service

The Leitz Information Service is available from 8 to 12 a.m. and 1 to 4 p.m. from Monday to Friday, telephone (06441) 292436 and will answer all questions connected with 35mm photography, projection, enlarging techniques and binoculars. Letters should be addressed to:

Ernst Leitz Wetzlar GmbH Information-Service P.O. Box 20 20 D-6330 Wetzlar, Germany

Books on photography

The books of the series "Color Photography for Everybody" are addressed to beginners and advanced amateurs. All problems of photographic exposure and reproduction technique, questions of pictorial composition in film and color are dealt with. So far four volumes, "The Landscape", "The Portrait", "The Animal", and "The close-up range" have appeared.

The series is published by Umschau-Verlag, Stuttgarter Str. 18–24, D-6000 Frankfurt/Main.



LEICA-Fotografie

This magazine is essential if you want to be fully informed about 35mm photography and seek advice about the extension of your own photographic equipment. It is published eight times per year in German, English, and French, by Umschau-Verlag, Stuttgarter Str. 88–24, D-6000 Frankfurt/Main, Germany.

Recommended outfits

Many roads lead to Rome... with many interchangeable lenses of the LEICA R-system, hundreds of combinations are possible. We are limiting ourselves here to outfits which have been proven useful in practice.

1. Standard outfit

For many photographers this outfit is still the beginning of a fascinating hobby. The selection is between the 50 mm SUMMICRON-R f/2 or the high-speed 50 mm SUMMILUX-R f/1.4 or the Universal Iens capable of pictures from ∞ to the close-up range, the 60 mm MACRO-ELMARIT-R f/2.8.

Code No.	Price
LEICA R4s body, black-chromium finish 10 045	
50 mm SUMMICRON-R f/2	
or	
50 mm SUMMILUX-R f/1.4	
or	
60 mm MACRO-ELMARIT-R f/2.8	
Ever-ready case with normal front flap 14 569	-
Ever-ready case with large front flap necessary for the MACRO-ELMARIT	

2. Maximum Usefulness at Minimum Cost

It you want quickly to obtain a versatile outfit select a wide-angle lens together with a small tele lens while ignoring the 50 mm focal length. For landscape photos on hikes etc. the 35mm ELMARIT-R f/2.8 plus the 90 mm ELMARIT-R f/2.8 ought to be your choice. The same focal lengths combination, however, with faster speed seems predestined for photo journalism and portraiture, namely: 35mm SUMMICRON-R f/2 and 90 mm SUMMICRON-R f/2.

3. The Flexible Travel Outfit

With this outfit the photographer can exhaust many opportunities of pictorial composition. It offers a broad spectrum of practical possibilities. The 21 mm SUPER-ANGULON-R f/4 and the 35 mm SUMMICRON-R f/2 as wide angle lenses for general overall photography plus the universal lens for close-up or standard renditions, the 60 mm MACRO-ELMARIT-R f/2.8,

and as a practical addition for portraiture and landscapes a medium range tele-lens: the 135 mm ELMARIT-R f/2.8. The outfit becomes still more universal when in addition to the 28 mm and 60 mm lens a tele-lens 180 mm with Extender-R is chosen. It doubles the focal length of the macro lens from 60 to 120 mm. When used with the unsurpassed 180 mm APO-TELYT-R f/3.4 it becomes 360 mm focal length at an opening of f/6.8.

LEICA R4s body, black-chromium finish	Price
MOTOR-DRIVE R4	
Handgrip R4	
21 mm SUPER-ANGULON-R f/4	
35mm SUMMICRON-R f/2	
or instead of both above lenses:	
28 mm ELMARIT-R f/2.8	
60 mm MACRO-ELMARIT-R f/2.8	
135 mm ELMARIT-R f/2.8	
or	
180 mm APO-TELYT-R f/3.4	
Extender-R 2x	
Table-top tripod	
Large ball-and-socket head	
Combination carrying case	
for a second camera body	
or for camera with three	
lenses and extender only	
lenses and extender only 14 000	

4. The Compact Travelling Outfit

When travelling light is most important many choose the two zoom lenses. For wide-angle pictures the 24 mm ELMARIT-R f/2.8 is usually added:

LEICA R4s body, black-chromium finish 1	
MOTOR-WINDER R4	4 282
24 mm ELMARIT-R f/2.8	
35-70 mm VARIO-ELMAR-R f/3.5	1 244
75-200 mm VARIO-ELMAR-R f/4.5 1	1 226
Extender-R 2x	1 236
Safari Case	4 837

5. The Outfit for the Nature Photographer

To capture a broad landscape, a lens can hardly be too much of a wideangle. The 15 mm SUPER-ELMAR-R f/3.5 or the 19 mm ELMARIT-R f/2.8 are ideal for this purpose. The 100 mm MACRO-ELMAR-R f/4 together with the bellows focusing device-R offers wide ranging applications: its stepless focusing range is from ∞ to macro-photography; on the one hand it may be used as a small telephoto lens; on the other it can focus on nature's small world at a reproduction ratio of 1:1. When using "PHOTAR" macro lenses on the bellows device-R, macro-photos are possible up a ratio of reproduction of 16:1.

The 350mm TELYT-R f/4.8 and 560mm TELYT-R f/6.8 lenses bridge large distances. For remote releases and automatic data registration as for instance photographing the slow blossoming process of a flower, the remote control unit LEICA R is indispensable.

							Code No.	Price
LEICA R4s body, black chron	miι	ım	fin	ish			10 045	
15mm SUPER-ELMAR-R f/3	3.5						11 213	
19mm ELMARIT-R f/2.8 .								
50 mm SUMMICRON-R f/2							11 216	
Bellows Focusing device-R							16 860	
100 mm MACRO-ELMAR-R 1	1/4			. 3			11 230	
Double cable release						7.	16 494	
350 mm TELYT-R f/4.8							11 915	
560 mm TELYT-R f/6.8							11 865	
Extender-R 2x		٠.					11 236	
Remote control unit LEICAR							14 277	
Table-top tripod							14 100	
Large ball-and-socket head							14 121	
Reporter case							14 830	

6. For the Photo Safari

The 35 mm SUMMICRON-R f/2 is first recommended as a fast universal lens. In addition a small telephoto for close-ups or distance shots namely the 100 mm MACRO-ELMAR-R f/4 and for the quick action photo the high-speed 80 mm SUMMILUX-R f/1.4. Longer distances, for wildlife pictures or portraits, are easily bridged with the 250 mm TELYT-R f/4. When it comes to the longest focal length, a lens which is compact and easily portable, the mirror lens 500 mm MR-TELYT-R f/8 fits this slot best. The 16 mm Fisheye-ELMARIT-R f/2.8 produces landscapes with unusual effects.

	-			٠	 	-	•••	arraoaar (
LEICA R4s body, black chro	mi	um	fin	ish				10 045	
MOTOR-DRIVE R4								14 292	
35mm SUMMICRON-R f/2								11 115	
100 mm MACRO-ELMAR-R	f/4	١.						11 232	
Macro-Adapter R								11 256	
80 mm SUMMILUX-R f/1.4.								11 880	
250 mm TELYT-R f/4								11 925	
500 mm MR-TELYT-R f/8 .								11 243	
16mm FISHEYE-ELMARIT-F	R f/	2.8						11 222	
Table-top tripod								14 100	
Large ball-and-socket head								14 121	
Reporter case								14 830	

7. Light Giants for Available Light

Whether one chooses the 50 mm SUMMILUX-R f/1.4, 80 mm SUMMILUX-R f/1.4 or the 180 mm ELMARIT-R f/2.8 for specific photographic tasks – the lenses offer something special. When combined into one outfit, these lenses are the non-plus-ultra for all who must frequently photograph under poor light conditions or who prefer available light as a part of their media of composition.

							Code No.	Price
LEICA R4s body, black chro	mi	um	fin	ish			10 045	
MOTOR-WINDER R4							14 282	
50 mm SUMMILUX-R f/1.4.								
80 mm SUMMILUX-R f/1.4.							11 880	
180 mm ELMARIT-R f/2.8 .							11 923	5
Table-top tripod								
Large ball-and-socket head								
Combination case								

8. The Long Focal Length Bridge

The ambitious amateur and professional photographer must be ready for all situations. The creative spirit must be given full rein. Impressive possibilities are provided by the 15 mm SUPER-ELMAR-R f/3.5. As a universal wide-angle the 24 mm ELMARIT-R f/2.8 is recommended in addition. Close-ups and repro-photos are handled easily with the 60 mm MACRO-ELMARIT-R f/2.8. As a high-speed, flexible, small telephoto lens choose the 80 mm SUMMILUX-R f/1.4 together with the 180 mm ELMARIT-R f/2.8; the latter lets you take the unnoticed candid photo and portraits at a distance at fast speeds. The 400 mm TELYT-R f/6.8 bridges distances and is ideal for sports photography or at conventions. For wildlife and bird photography still larger distances must be bridged. Here the 800 mm TELYT-S f/6.3 becomes indispensable.

The Extender-R 2x brings the far away objects even closer.

	_					-						
LEICA R4s body, bla	ck ch	ror	niu	ım	fini	ish					10 045	
Second camera boo	. vb										10 045	
MOTOR-DRIVE R4						•					14 292	
Handgrip R4												
15 mm SUPER-ELM	AR-R	f/3	.5								11 213	
24 mm ELMARIT-R f	/2.8										11 221	
35 mm PA-CURTAGO											11 202	
60 mm MACRO-ELM											11 212	
80 mm SUMMILUX-F											11 880	
180 mm ELMARIT-R	f/2.8							ì			11 923	
400 mm TELYT-R f/6	.8 .										11 960	
800 mm TELYT-R f/6	.3 .										11 921	
Extender-R 2x												
Table-top tripod .					Ċ						14 100	
Large ball-and-sock	et he	ad									14 121	
Reporter case											14 830	
		•	•	•			•		•	•	500	

Lenses for the LEICA R-system

Lens	maximum aperture Focal length in mm	Angle of view	Number of elements / components	Smallest aperture	Focusing range in m	Smallest object area in mm	Filter size series	Length in mm	Diameter in mm	Weight in g	Code No.
SUPER-ELMAR-R	f/3.5/15	110°	13/12	22	∞-0.16	70 x 106	Built-in	92.5	83.5	815	11 213
Fisheye-ELMARIT-R	f/2.8/16	180°	11/ 8	16	∞-0.30	401 x 601	Built-in	60	71	470	11 222
ELMARIT-R	f/2.8/19	95.7°	9/ 7	16	∞-0.30	261 x 392		60	88	500	11 225
SUPER-ANGULON-R	f/4/21	92°	10/ 8	22	∞-0.20	148 x 221	8.5/E 72	43.5	78	410	11 813
ELMARIT-R	f/2.8/24	84°	9/ 7	22	∞-0.30	250 x 374	8/E 60	48.5	67	420	11 221
ELMARIT-R	f/2.8/28	76°	8/8	22	∞-0.30	188 x 282	7/E 48	40	63	275	11 204
SUMMICRON-R	f/2/35	64°	6/ 6	16	∞-0.30	140 x 210	E 55	54	66	422	11 115
ELMARIT-R	f/2.8/35	64°	7/ 6	22	∞-0.30	140 x 210	E 55	41.5	66	305	11 231
PA-CURTAGON-R	f/4/35	64/78°	7/6	22	∞-0.30	140 x 210	8/E 60	51	70	290	11 202
SUMMILUX-R	f/1.4/50	45°	7/ 6/	16	∞-0.50	180 x 270	E 55	50.6	66.5	395	11 776
SUMMICRON-R	f/2/50	45°	6/ 4	16	∞-0.50	180 x 270	E 55	41	66	250	11 216*
MACRO-ELMARIT-R	f/2.8/60	39°	6/ 5	22	∞-0.27 (with adapter to 1:1)	48 x 72 (24 x 36)	E 55	62.3 (92.3)	67.5	390 (520)	11 212
SUMMILUX-R	f/1.4/80	30°	7/ 5	16	∞-0.80	192 x 288	E 67	69	75	625	11 880
SUMMICRON-R	f/2/90	27°	5/ 4	16	∞-0.70	140 x 210	E 55	62.5	70	560	11 219
ELMARIT-R	f/2.8/90	27°	4/ 4	22	∞-0.70	140 x 210	E 55	57	63	475	11 806
MACRO-ELMAR-R	f/4/100	25°	4/ 3	22	∞-0.60 (with adapter to 1:1.6)	72 x 108 (38 x 57)	E 55	90 (120)	67.5	540 (670)	11 232
MACRO-ELMAR	f/4/100	25°	4/ 3	22	in the focusing bellows-R only ∞-1:1	24 x 36	E 55	62.5	68	365	11 230
ELMARIT-R	f/2.8/135	18°	5/ 4	22	∞-1.50	220 x 330	E 55	93	67	730	11 211
ELMARIT-R	f/2.8/180	14°	5/ 4	22	∞-1.80	193 x 290	E 67	121	75	825	11 923
APO-TELYT-R	f/3.4/180	14°	7/ 4	22	∞-2.50	276 x 414	E 60	135	68	750	11 242
ELMAR-R	f/4/180	14°	5/ 4	22	∞-1.80	175 x 262	E 55	100	65.5	540	11 922
TELYT-R	f/4/250	10°	7/ 6	22	∞-1.70	124 x 186	E 67	195	75	1230	11 925
TELYT-R	f/4.8/350	7°	7/ 5	22	∞-3.00	171 x 257	E 77	286	83.5	1820	11 915
TELYT-R	f/6.8/400	6°	2/ 1	32	∞-3.60	158 x 236	7	384	78	1830	11 960
MR-TELYT-R	f/8/500	5°	5/ 5	8	∞-4.00	180 x 270	(E 77) 5 filters available	121	87	750	11 243
TELYT-R	f/6.8/560	4.3°	2/ 1	32	∞-6.40	224 x 336	7	530	98	2330	11 865
TELYT-S	f/6.3/800	3°	3/ 1	32	∞-12.50	320 x 480	7	790	152	6860	11 921
VARIO-ELMAR-R	f/3.5/35-70	64-35°	8/ 7	22	∞-1.00	632 x 947 338 x 507	7.5/E 60	64.5	72	420	11 244
VARIO-ELMAR-R	f/4.5/75-200	32-12.5°	15/11	22	∞-1.20	270 x 405 107 x 160	E 55	157	70	725	11 226

The complete LEICA R4s-system

Code No. Price LEICA R4s black chromium finish 10 045	Accessories for the near-focusing range: Code No. PricELPRO, auxiliary lenses:	ce
Accessories for the camera: Eyesight correction lenses:	1 for R f 2/50 mm	
Spherical + or - 0.5, 1, 1.5, 2, 3		
Interchangeable focusing screens: in container, with brush and forceps Universal focusing screen (replacement) 14 303	f 4.5/75–200 mm	
Groundglass screen	Combination ring for the close focusing range 14 159	
Groundglass screen with grid	Universal focusing bellows 16 860	
Eyecup	REPROVIT-R with 220-250 v/300 W halogen lamps 16 717 REPROVIT-R with	
Motorized winders: MOTOR-WINDER R4	115–120 v/650 W halogen lamps 16 718 90° angle viewfinder	
Adapter for external power source MW-R	Leitz "PHOTAR" lenses: used with universal focusing bellows R via Intermediate_rings	-
MOTOR-DRIVE R4		
Accessories for MOTOR-WINDER/MOTOR-DRIVE: Electronic remote control unit RC LEICA R . 14 277 Hand grip R4	Carrying Cases: Ever-ready case, genuine-leather, for LEICA R4s without winder/drive: with standard flap (for 50 mm lenses) 14 569	
Electronic cable release 5 m	with large flap (for R f 2.8/60 mm, R f 1.4/80 mm and 90 mm lenses)	
Lens Accessories: Lens extender R 2x for LEICA R	Combination case genuine-leather for LEICA R4s without winder/drive	
Filters: E 55 E 60 E 67 E 77 Series 7 Series 8 UVA 13 373 13 381 13 386 13 337 13 009 13 018	for use with up to four lenses	
Yellow 13 391 13 392 13 393 13 333 13 007 13 021 Orange 13 312 13 383 13 388 13 332 13 008 13 017	for use with up to four lenses	
Circular-Pol. 13 357 13 376 13 377 13 334 13 370 13 372 Cable release, 25 cm	Safari combination case in canvas for LEICA R4s winder/drive for use with up to four lenses	
Carrying strap for heavy equipment 14 130 Table top tripod	Universal hold-all case, genuine-leather, for LEICA R4s with or without winder-drive,	
Large ball-and-socket head	for up to two cameras and up to six lenses 14 834 Reporter case	
41		



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