

Camera Lenses

for the professional photographer



Rodenstock
Objective Perfection

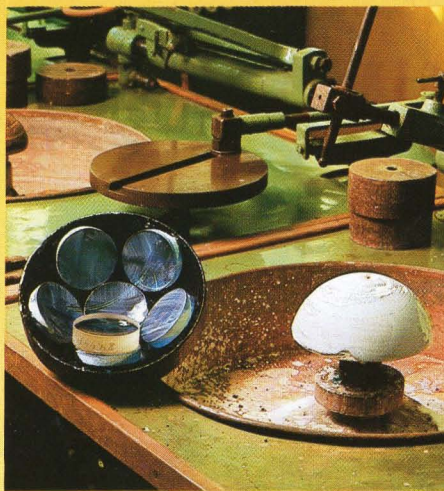
Rodenstock camera lenses

for today's most fastidious photographers

Top performance results from concentrating on the special requirements of the expert professional user, rather than from aiming merely at acceptable solutions for the widest range of photographic problems. Rodenstock has always based its camera lens production on this principle of matching standards to the highest demands to provide outstanding performance for professional photography.

That is what made Rodenstock a leading brand name for professional camera lenses – the creative tools in the hands of today's most fastidious photographers.

Present-day large-format photography depends extensively on securing finest subject detail and resolution in the picture. This may have to convey delicately grained wood texture, scintillating precious metals and stones or a multicoloured variety of selected fabrics; it may involve representing lofty arches in architectural photography, or the play of light and shade in skillfully sculpted facades. A high-class lens in each case bears irrefutable witness by preserving every finest detail on the film. And even when a lens is needed to flatter the subject almost like a paint brush, there is a Rodenstock lens available for the purpose: the IMAGON.



Thus the Rodenstock lens range for view cameras offers the ideal tool for the creative photographer: lenses of a famous make, in a quality combining exceptional standards of traditional workmanship with modern industrial perfection.

Rodenstock camera lenses for professional photography

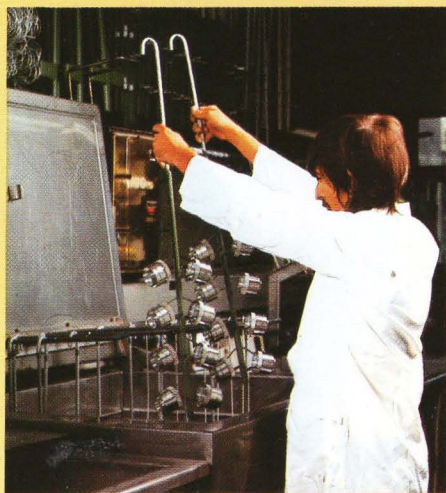
Each lens a unique specialist
A range for unlimited photographic scope

Modern high-vacuum engineering can coat multiple layers on glass surfaces at reasonable cost. That significantly reduces light scatter and increases light transmission. Such coating also virtually eliminates flare and ghost images of the lens diaphragm that are liable to arise in extreme backlit shots.

The gain in light transmission makes the picture brighter; reduced light scatter makes them more brilliant and contrasty.

Most Rodenstock lenses are multi-coated where this offers additional benefits with the glass types and lens arrangement employed. Such lenses carry the "MC" designation.

All other lenses receive our traditional



wipe and scratch-resistant magnesium fluoride coating.

The matt black lens finish, a high-quality anodised aluminium coating, suppresses light reflections. For the same reason all data and figures are engraved on the outer mount surfaces.

- Rodenstock camera lenses are available in mechanical or electronic shutters by Compur and Copal.
- The SIRONAR-N, APO-RONAR and GRANDAGON lenses are also available in special Sinar auto-aperture mounts for Sinar view cameras.

Rodenstock know-how

Designing and producing the optical system of a camera lens calls for immense expert knowledge and experience in many fields: the science of optical glass: its characteristics and fabrication from fusing to coating. And it involves precise definition and computation of optical system performance, from the radii of curvature of the individual elements to determining inter-lens separations. Modern computers can work out these values faster and more reliably than before. But with the large number of parameters involved, today's lenses are still the result of laborious effort rather than instant inspiration.



At Rodenstock we not only calculate optical quality and performance but also show it in precisely recorded measurements: the modulation transfer function (MTF) curve. This method of evaluation yields much more exact and significant lens quality and performance data than traditional but inadequate resolving power values (line pairs per mm). MTF measurements eliminate subjective factors both of the human eye and of the film material and processing. With typical Rodenstock thoroughness we therefore rely on this objective performance evaluation.

Despite computer technology and

incontrovertible instrumentation, less measurable skills also play their part in the design and production of top class lenses. At Rodenstock we are intimately acquainted with our raw material – optical glass – which is not as brittle as it is often made out to be.

Rodenstock quality control

Quality control can secure fully consistent performance only if it covers all manufacturing steps from the raw glass block to the finished lens. That is an equally important aspect of Rodenstock production. Rodenstock is Europe's only lens maker to mass produce its own pressed blanks. We procure more than a hundred kinds of raw glass, many of them literally worth their weight in gold. This glass is cut into blocks, heated and pressed to form lens blanks.

Homogeneity and further fabrication of the lens blanks greatly depend also on correct cooling in the annealing stages. At Rodenstock this process – which may often take weeks – is electronically controlled and monitored. This precision cooling ensures consistent refractive index values accurate to five decimal places. The operating precision in lens grinding and polishing involves tolerances of the order of 0.0001 mm or a few millionths of an inch. All particularly critical production stages at Rodenstock involve precision machine tools specifically developed or adapted for these jobs at our own plants.

The final fabrication steps of surface polishing call for extreme cleanliness. At Rodenstock, lenses are cleaned in ultrasonic baths. Assembly rooms are not only air conditioned but kept dustfree by air filter systems that eliminate dust particles down to less than 1/1,000 mm in diameter. The final quality control step is a test projection. This is the last and decisive test among the 79 checks and monitoring procedures in the course of the 214 production steps of for instance a 480 mm APO-RONAR f/9. To meet Rodenstock's ultimate quality standards, the image projected by the lens under test must precisely match the image of a reference lens.

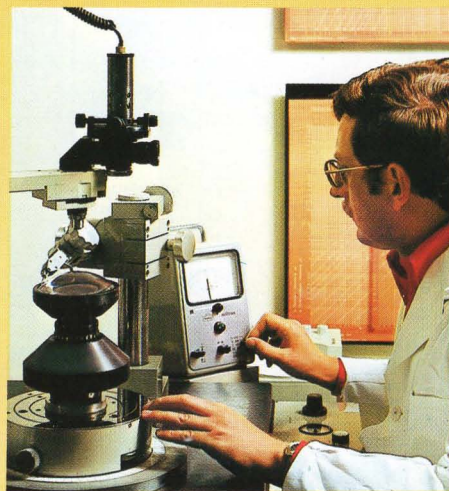
Rodenstock standards

Users measure the quality and performance of camera lenses by the most stringent standard known: the human eye. Rodenstock uses its immense experience, its traditional concern for quality and the most advanced methods and systems in all fields

of industrial optical manufacture to design and produce camera lenses.

Rodenstock camera lenses therefore meet the high standards we set ourselves for optimum optical reproduction. Whatever the requirements of contrast transfer, colour correction and definition –

Rodenstock has a lens range that ideally fulfills every need.



Rodenstock means supreme camera lens performance

SIRONAR-N

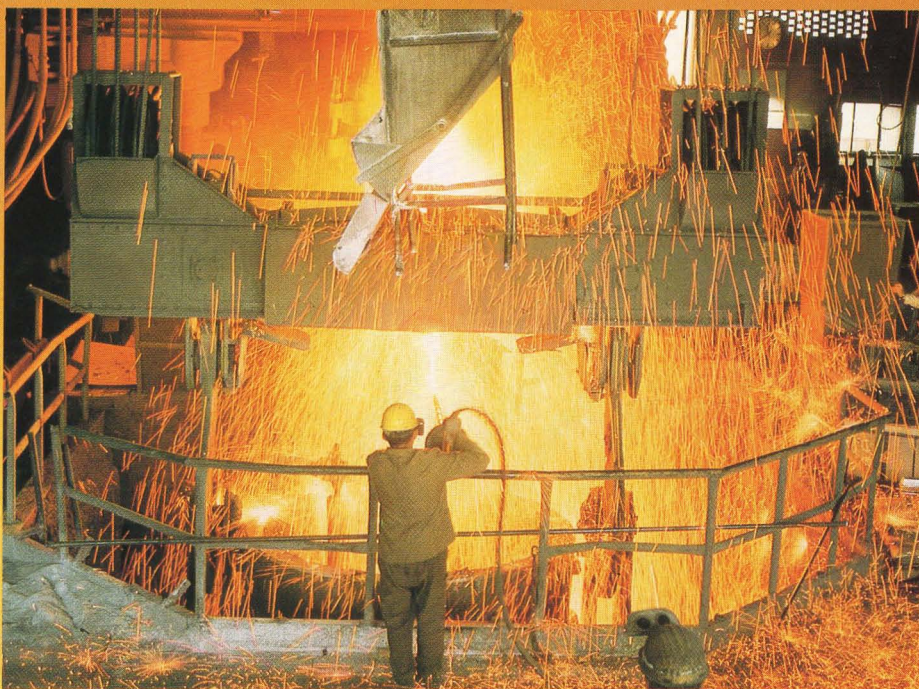
When the SIRONAR range was first introduced for professionals in the late 1960's, it created new performance levels that rapidly made it the favorite lens of leading photographers.

With the SIRONAR-N we now present a new generation – a lens range that incorporates the latest advances in computation techniques and the wealth of experience accumulated with this particular design over some ten years. It thus proved possible to reach significant image quality improvements over the whole field and to increase contrast transfer to a level of perfect fine detail resolution even in the margins of the field. At the same time the angle of field was increased to 72°.

To meet current design trends we at the same time reduced the size to produce sufficiently compact lenses for easy accommodation even in folding cameras.

The SIRONAR-N lenses show their exceptional performance especially where difficult camera viewpoints call for perspective control and special taking techniques. With the SIRONAR-N, the professional photographer can fully utilise the entire movement range of his modern medium and large-format cameras.

Thanks to their exceptional performance range – and also a colour rendering normally achieved only with an apo-

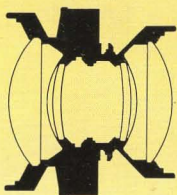


chromatic system – the Rodenstock SIRONAR-N is part of the basic outfit of professionals covering every field. Designed as an almost symmetrical six-element system, the SIRONAR-N is truly a universal new camera lens.

Till now the SIRONAR lenses were designed to allow the use of the front element on its own, approximately tripling the focal length with specially soft definition. Extensive market studies however showed that such convertibility is rarely utilised. On

the other hand, interchangeable front components always involve a risk of damage to the screw threads and hence faulty lens alignment, lowering performance. To achieve even higher overall lens quality the SIRONAR-N is therefore no longer convertible.

Even with the most modern manufacturing facilities and thorough production checks of all components at each stage, every single Rodenstock lens still undergoes a complete final test.



Lens type	Relative aperture	Focal length
Sironar-N	1: 5,6	100 mm
Sironar-N	1: 5,6	135 mm
Sironar-N	1: 5,6	150 mm
Sironar-N	1: 5,6	180 mm
Sironar-N	1: 5,6	210 mm
Sironar-N	1: 5,6	240 mm
Sironar-N	1: 5,6	300 mm
Sironar-N	1: 6,8	360 mm



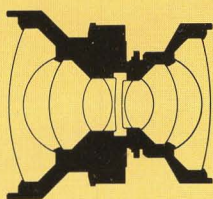
GRANDAGON

For wide-angle photography Rodenstock offers two superwide-angle lens ranges. Depending on the specific lens design, image angles reach 100–105°.

The 8-element series of maximum aperture $f/4.5$ is primarily intended for interiors in poor light conditions. A less expensive range with an only slightly smaller angle of field has a maximum aperture of $f/6.8$.

Both lens ranges offer outstanding colour correction even in extreme wide-angle shots, are free from distortion, yield a flat field and high image brilliance – particularly important in pictorial photography. Uniform illumination to the edges of the field makes the use of Ektalite field lenses unnecessary.

At medium apertures both lens types fully utilise the scope of the camera movements in modern medium and large-format view cameras.



Lens type	Relative aperture	Focal length
Grandagon	1: 4,5	65 mm
Grandagon	1: 4,5	75 mm
Grandagon	1: 6,8	75 mm
Grandagon	1: 4,5	90 mm
Grandagon	1: 6,8	90 mm
Grandagon	1: 6,8	115 mm
Grandagon	1: 6,8	155 mm



APO-RONAR

The Rodenstock APO-RONAR is the standard lens of the majority of the world's process cameras. This apochromatically corrected lens range, specially intended for colour separation work, ensures faithful reproduction of originals in black-and-white and colour. It yields unsurpassed colour rendering, definition, contrast and freedom from distortion.

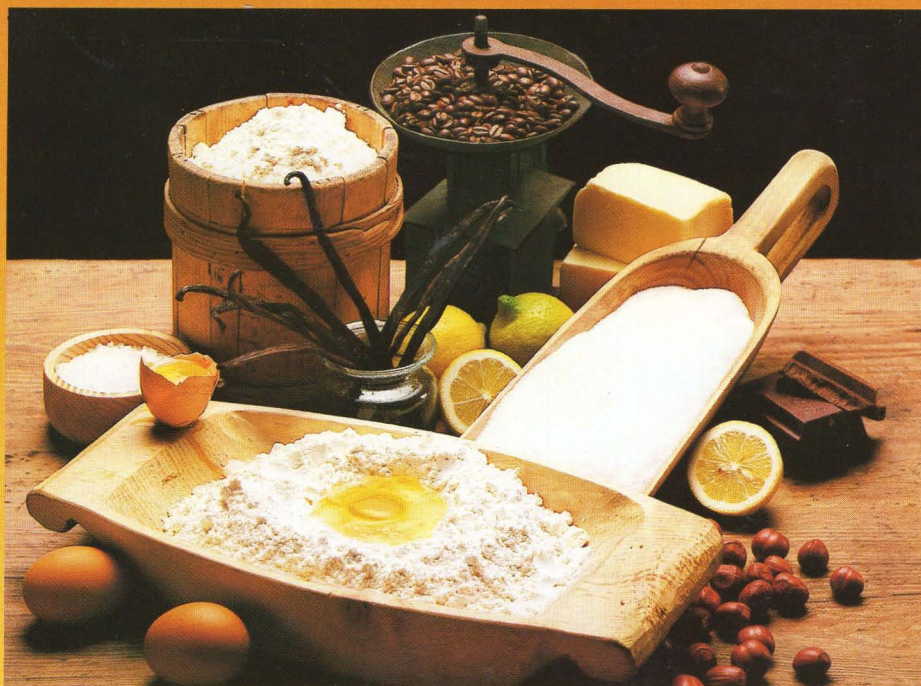
With the APO-RONAR the professional photographer gains almost secret skills with facilities that process operators have found indispensable.

The stable image scale of the APO-RONAR deserves special mention. The lens yields consistent quality in shots from same-size reproduction to subjects at infinity.

The relatively restricted 45° angle of field with a slightly lower than usual maximum aperture permits outstanding correction of aberrations with virtually no astigmatism. The result is absolutely uniform quality over the whole image field.

In view of the moderate price possible with the small size and four-element system, it is hardly surprising that the APO-RONAR is becoming more and more an essential part of the progressive photographer's outfit.

With a far above-average correction of all aberrations and hence high contrast transfer, the APO-RONAR yields outstanding pictures also in landscape photography. Yet the APO-



RONAR is versatile enough as a universal lens for commercial work where the photographer must make fullest use of his camera's scope. Needless to say, resolution, contrast and freedom from distortion are equally maintained over the whole usable image field with all the camera movements offered by modern medium and large-format instruments.

APO-RONAR lenses are part of the basic outfit of every commercial photographer.

GERONAR GERONAR-WA

These lenses have been specially developed for beginners in large-format photography such as students, as well as for the ambitious amateur seeking access to the possibilities of large-format photography without incurring too much of a financial burden initially. The GERONAR 1 : 6.3/f = 150 mm and 1 : 6.8/f = 210 mm has been designed as a standard long-focal lens for the 9 x 12 cm or 4" x 5" format, the GERONAR 1 : 9/f = 300 mm for the 13 x 18 cm or 5" x 7" format.

Both lenses allow for ample camera movement.

The GERONAR-WA 1 : 8/f = 90 mm, a wide-angle lens for the 9 x 12 cm or 4" x 5" format, yields a field angle of 85° when stopped down to f/22, thus permitting adequate camera movement. Within this field angle the performance of the lens is almost equal to the more sophisticated GRANDAGON.

The GERONAR series illustrates how the skillful use of modern methods of computation combined with the practical choice of highly efficient glass types can produce high-performance lenses at a modest price.



Lens type	Relative aperture	Focal length
Apo-Ronar	1 : 9	150 mm
Apo-Ronar	1 : 9	240 mm
Apo-Ronar	1 : 9	300 mm
Apo-Ronar	1 : 9	360 mm
Apo-Ronar	1 : 9	420 mm
Apo-Ronar	1 : 9	480 mm
Apo-Ronar	1 : 9	600 mm
Apo-Ronar	1 : 16	1000 mm
Apo-Ronar	1 : 16	1200 mm



IMAGON

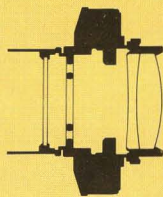
Originally intended as a portrait lens, the IMAGON has proved supremely useful also in commercial and landscape photography. The interchangeable perforated diaphragms with their varying degrees of softness offer the photographer exceptional range of creative control.

That covers pictorial results ranging from soft luminous impressions to precise and realistic sharpness.

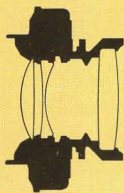
This versatility of the IMAGON, from faithful reproduction to artistic emphasis, is not only a valuable pictorial aid but often does the work of the retoucher already during the exposure.

Primarily the IMAGON – in focal lengths of 200, 250 and 300 mm – is designed for the large-format view camera. It has been a valuable optical tool for nearly half a century and is now also available for the 4.5 x 6, 6 x 6 and 6 x 7 cm (1 1/4 x 2 1/4 to 2 1/4 x 2 3/4 inch) medium formats. Special adapters and helical focusing mounts are available for this purpose or are in preparation.

The IMAGON is more than a technique of a past age – its extensive scope makes it an indispensable creative tool of the ambitious professional photographer.



Lens type	Relative aperture	Focal length
Imagon	H 5,8	200 mm
Imagon	H 5,8	250 mm
Imagon	H 6,8	300 mm



Lens type	Relative aperture	Focal length
Geronar	1 : 6,3	150 mm
Geronar	1 : 6,8	210 mm
Geronar	1 : 9	300 mm
Geronar-WA	1 : 8	90 mm



Rodenstock sets objective standards — for camera, enlarging and process lenses.

For further information on camera lenses or our complete line of optical products, contact:

Optische Werke G. Rodenstock
P.O.Box 140440
D-8000 München 5
West-Germany

