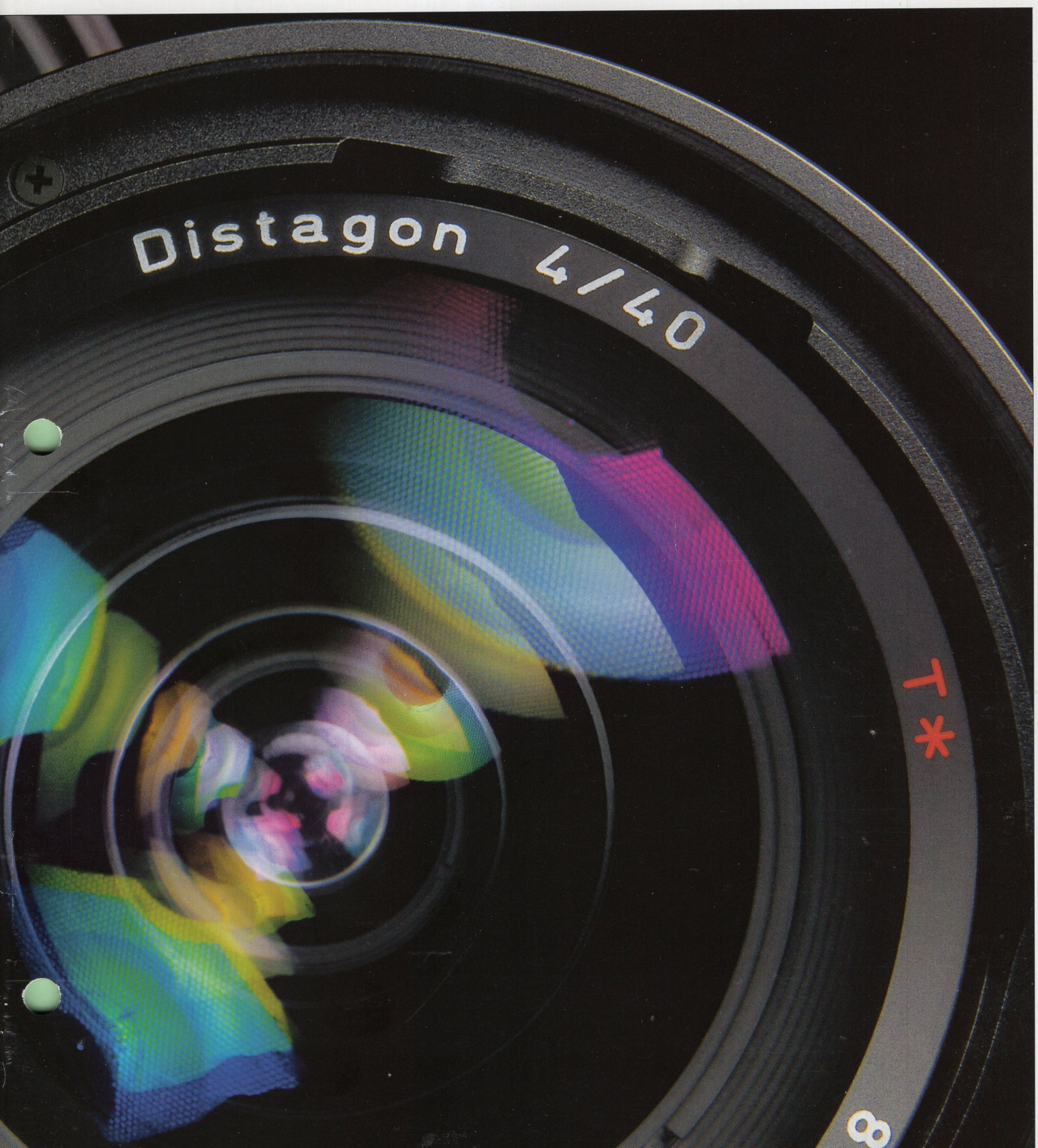
HASSELBLAD

LENSES

The sharpest edge in professional photography



Quality

In photography one thing is for sure: the image of perfection seldom occurs by pure coincidence. Especially not repeatedly.

Instead, you must rely on your ideas and visions, skills and ways of working. And, of equal importance, your careful choice of equipment.

Our contribution is the Hasselblad camera system with its extensive range of high quality lenses. They are all designed with only one objective in mind – to give you every opportunity to turn your ideas into technically perfect images.

There is no shortcut to achieving this goal, nor the slightest room for error. It is simply a question of the highest possible quality from start to finish.

That is why we have chosen to co-operate with the world's leading lens manufacturers, such as Carl Zeiss in Germany, when producing the lenses for our camera system.

The wide range of high quality lenses will not only satisfy your current needs but may also inspire new ideas and directions for the future. Exactly as we hope this brochure will.

HASSELBLAD

Your freedom of choice

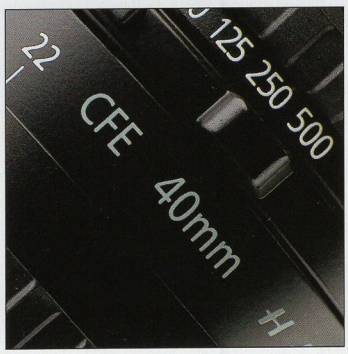
No other medium format system offers a more comprehensive range of high quality lenses than Hasselblad. Furthermore, it is a lens system constantly progressing through growth and refinement.

Irrespective of which Hasselblad camera you use today – or will use tomorrow – you will always have a wide choice of lenses perfectly matching your requirements and style, bringing out the very best of your photography.

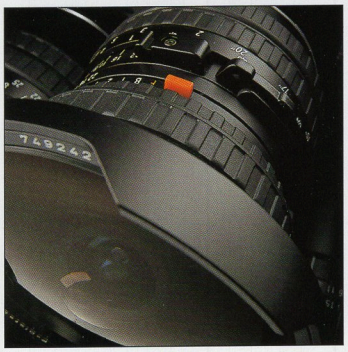

HASSELBLAD
Carl Zeiss
Planar 2.8/80
8123408
Distagon 4/40
Distagon 2.8/50
Distagon 4/50
8152595
Carl Zeiss
Superachromat
5,6/250
Carl Zeiss
Tessar 4,8/160
Carl Zeiss
Schneider - KREUZNACH

Four lens series cover all your needs

The Hasselblad lens system consists of four distinct series. They represent lenses with fixed focal lengths from 30 mm fish-eye to 500 mm telephoto and two zoom lenses, the FE 60-120 mm and CF 140-280 mm. The system also includes four different converters making it possible to extend the range of focal lengths up to 1000 mm. One converter even features a shift function for perspective control.



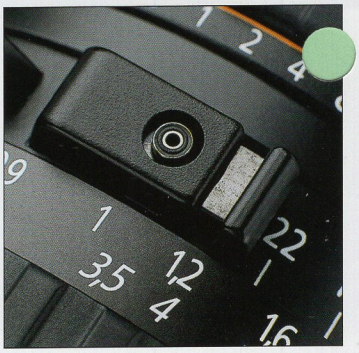
CF LENS SERIES



CF lenses constitute the main series with focal lengths from 30 mm to 500 mm and can be used on both the 500 and the 200 series cameras as well as on the FlexBody. They have built-in leaf shutters with shutter speeds up to 1/500 s and flash sync on all speeds.

All but one lens in this series are manufactured by Carl Zeiss to Hasselblad's high standards. The zoom lens Variogon CF 5.6/140-280 mm, is made by Schneider, Germany.

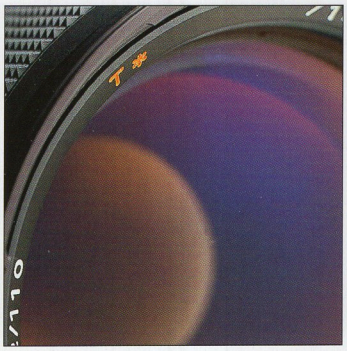
Three different designations separate the CF lenses. The designation CF stands for the basic version, while CFi and CFE indicate that the lens design is further improved to provide even higher image quality, long-lasting reliability and convenient operation.



The improvements include:

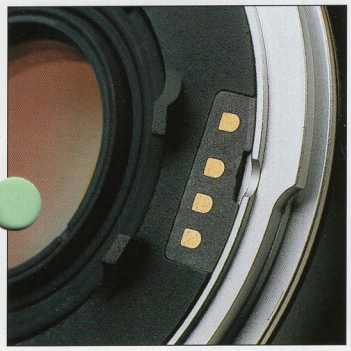
- New internal design and new anti-reflection materials enhancing the image contrast even more.
- Improved design and a new main spring made of NIVAROX, which prolongs the life expectancy and increases the lasting precision of the leaf shutter.
- The new PC-socket with a positive lock, which secures the flash contact even better.
- The redesigned focusing mechanism, which runs even smoother.
- The new reinforced and integrated rear bayonet plate providing even more rigidity.
- The new front bayonet in a durable non-metallic material, which withstands wear substantially better than previous designs.
- The new external design providing increased handling comfort and is styled to fit the Hasselblad cameras even more pleasingly.

In addition to all these improvements, the CFE lenses also feature databus connections which transmit lens data to the metering systems of the 200 series cameras.



CB LENS SERIES

A lens series with three Zeiss lenses of 60, 80 and 160 mm focal lengths, all offering superb image quality. The CB lenses are similar to the CFi and CFE lenses as to the built-in leaf shutter and the improvements over the basic CF lenses. They can be used with all Hasselblad cameras except the 202FA and ArcBody models.

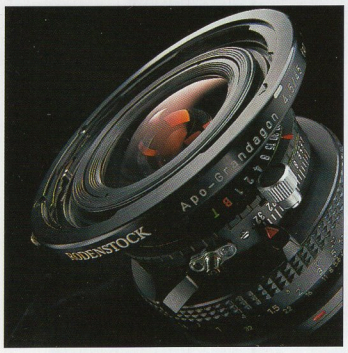


FE LENS SERIES

The FE lenses ranging from 50 to 350 mm are exclusively designed for the 200 series cameras. Because these models have a built-in focal plane shutter there is no need for a shutter in the lens. Instead the maximum aperture – with the only exception of the FE 2.8/80 mm – has been made a full f/stop larger than the corresponding CF lens.

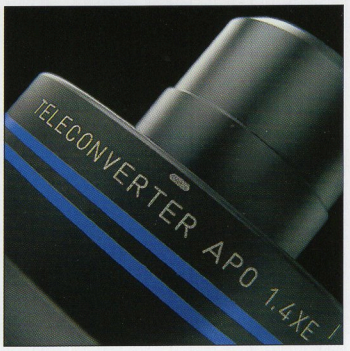
Designed to communicate with the metering systems of the 200 series cameras, all FE lenses are equipped with databus connections.

The fixed focal length FE lenses are produced for Hasselblad by Carl Zeiss, while the zoom lens FE 4.8/60-120 mm is designed by Hasselblad and produced in Japan.



ARCBODY LENS SERIES

To allow the generous shift capability, the Hasselblad ArcBody utilizes its own series of specially designed Rodenstock lenses. This series consists of three lenses of 35, 45 and 75 mm focal lengths, characterized by large image circles. Though they share the same sturdy bayonet mount as the other Hasselblad lenses, they can only be used on the ArcBody.



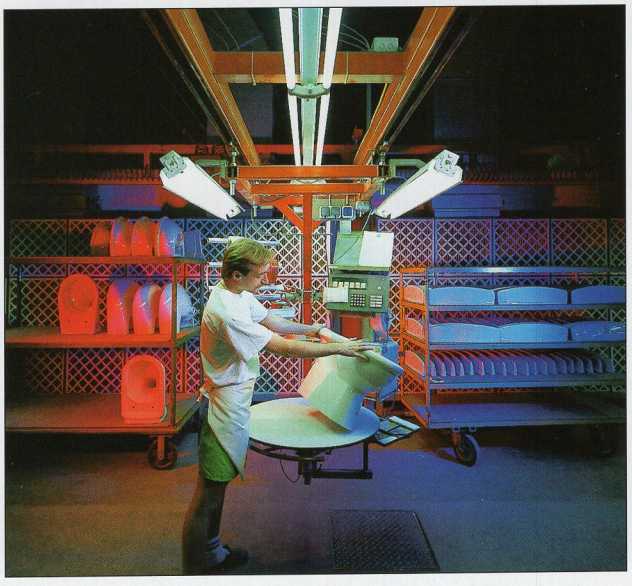
CONVERTERS

The focal lengths of all Hasselblad SLR camera lenses can be extended 1.4 or 2 times by using converters. They feature the same outstanding optical and mechanical quality as the Hasselblad lenses and do not affect the closest focusing distance of the lens.

Wide-angle 30-60

30 mm / Photo: David A. Ziser

30 mm / Photo: Patrick Harbron



Biogon 38 mm - SWC / Photo: Friedrun Reinhold

Biogon 38 mm - SWC / Photo: Kristján Fridriksson

The expansive views of the wide-angle lenses open up the most cramped room and allow even a broad landscape to be captured in one picture. And by stopping down the lens to minimum aperture, the depth-of-field can be stretched from less than a meter to infinity, giving an enormous mass of detailed information to explore.

The Distagon CFi 3.5/30 mm, with 180 degrees diagonal angle of view, has the shortest focal length in the Hasselblad lens system, as well as in medium format in its entirety. The distinctive fish-eye distortion can be used in your creative work, either exaggerated to extremes, or reduced down to levels where it is hardly visible at all.

The other Hasselblad wide-angle lenses, from the Biogon 38 mm to the Distagon 60 mm, are all fully corrected for distortion, so all straight lines will remain straight over the entire image field. In this respect the Biogon CF 4.5/38 mm holds an exceptional position with its 91 degrees diagonal angle of view and virtually distortion-free image reproduction.

40 mm / Photo: Larry Pao

Wide-angle 30-60

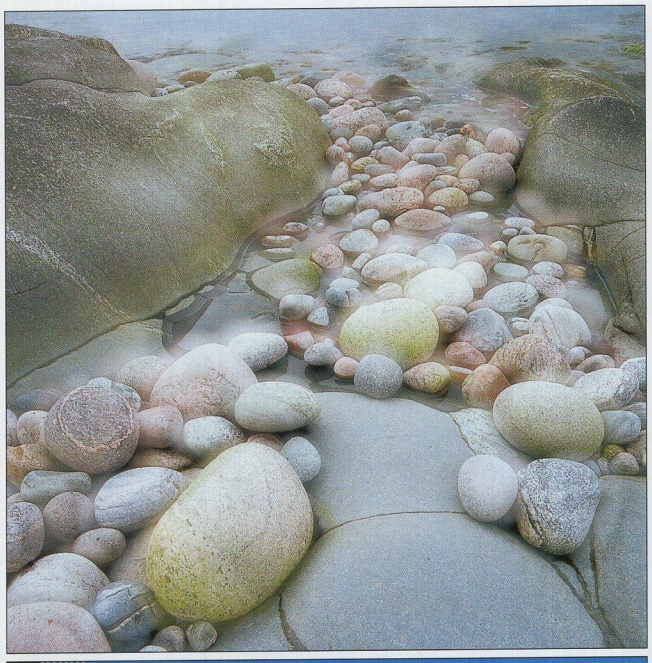
The Biogon design decrees that the distance between the lens and the film plane is so short that it does not give enough space for a reflex viewing system. The lens is therefore permanently attached to a camera body of its own – the 903SWC, which has an optical viewfinder.

A lens of similar focal length to fit the Hasselblad SLR cameras is the high-performing Distagon CFE 4/40 mm.

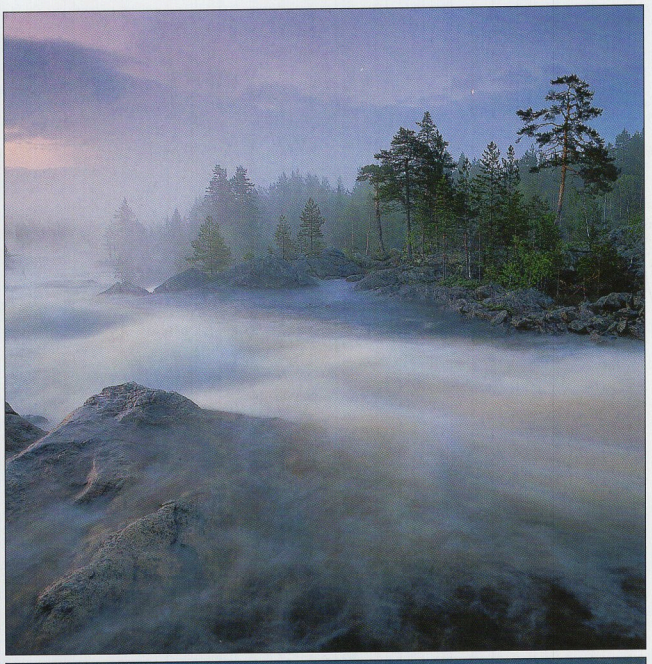
The lenses of 50 and 60 mm focal length provide a moderate wide-angle effect. Many photographers use them as standard lenses, appreciating their shorter closest focusing distance and wider depth-of-field.

50 mm / Photo: Jonathan Exley

50 mm / Photo: Tore Hagman



50 mm / Photo: Hans Strand

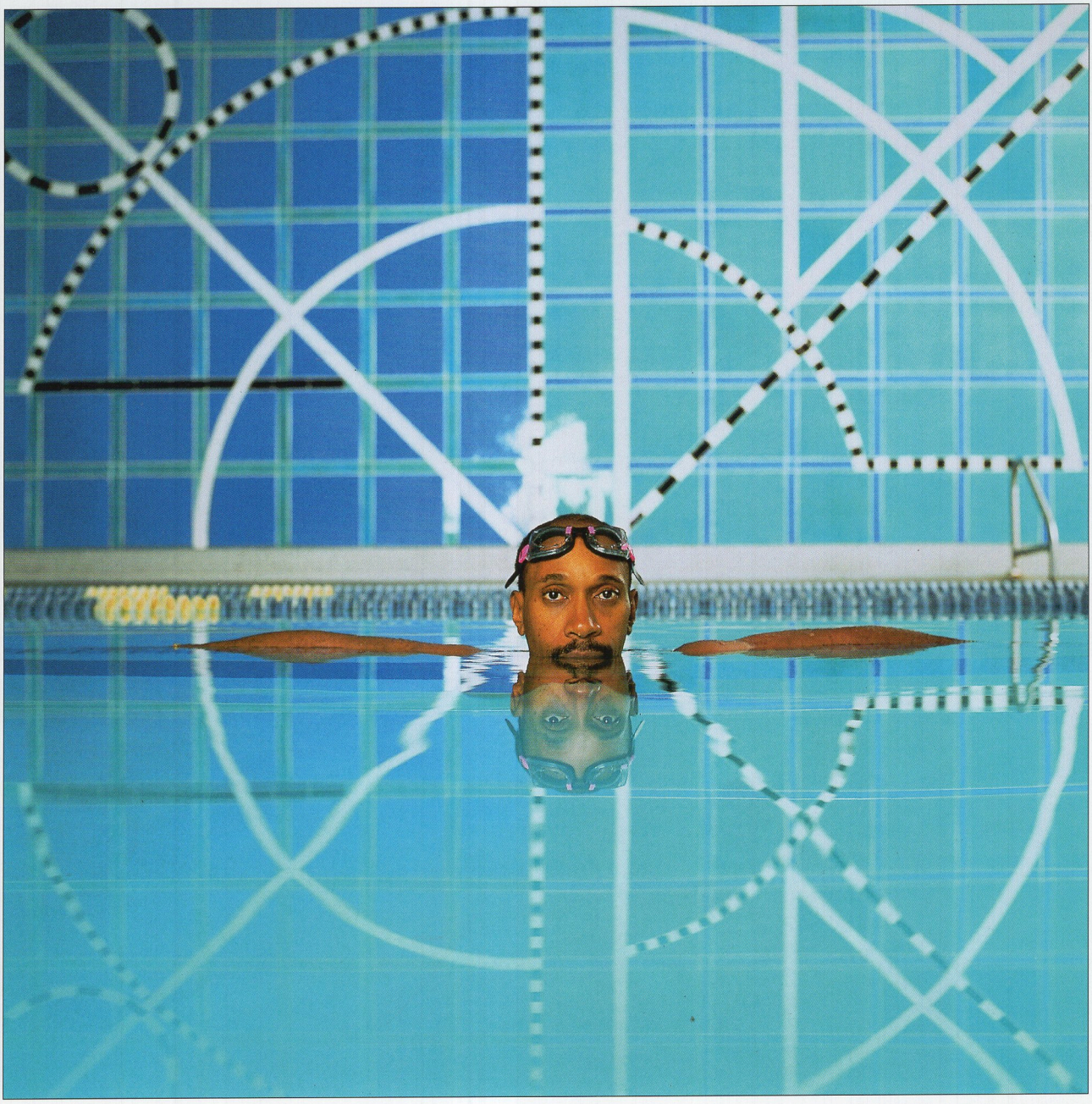


50 mm / Photo: Jørgen Bausager

50 mm / Photo: Ola Högberg

50 mm / Photo: Janusz Szpakowski

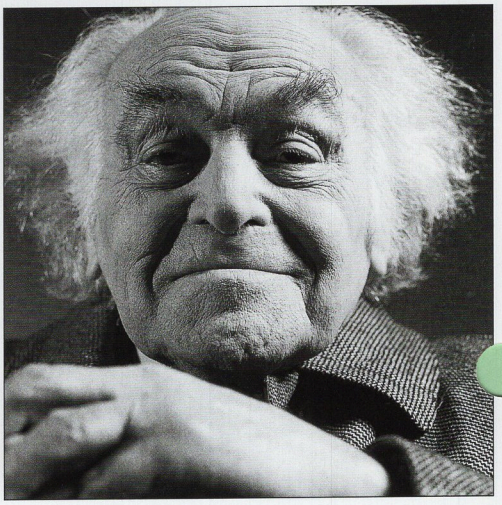
50 mm / Photo: Hideaki Seno



60 mm / Photo: Patrick Harbron

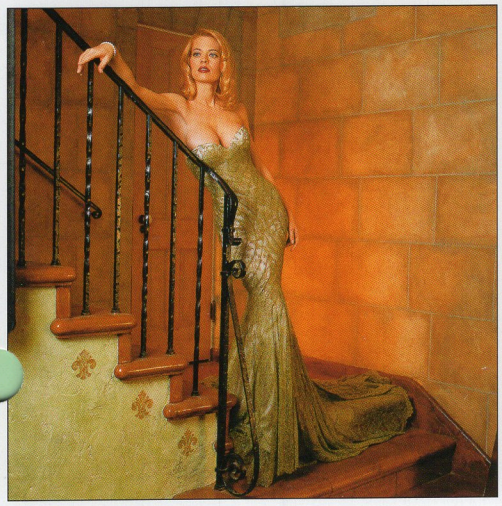
80 mm / Photo: Jonathan Exley

80 mm / Photo: Björn Röhsman

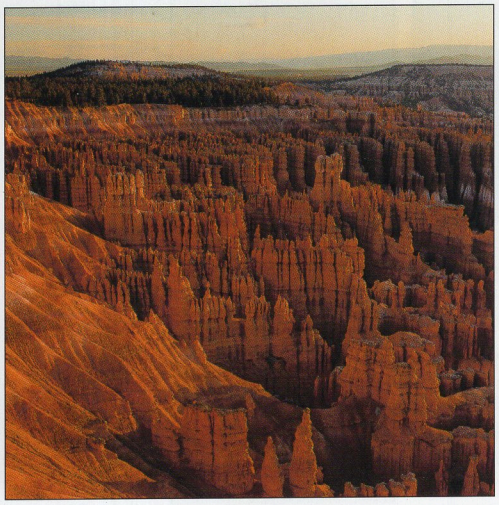


80 mm / Photo: Friedrun Reinhold

80 mm / Photo: Janusz Szpakowski



80 mm / Photo: Jonathan Exley



80 mm / Photo: Hans Strand

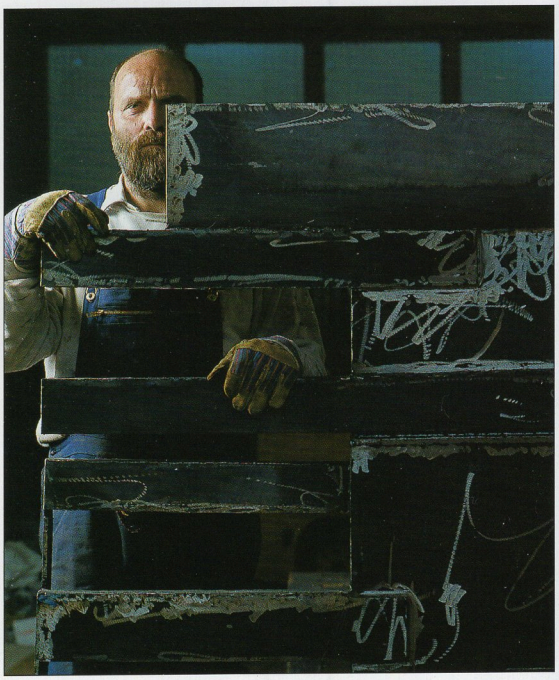
Standard 80

Standard lenses reproduce the reality in a similar way to the human eye. Images taken with lenses of 80 mm, 100 mm and 110 mm focal length, therefore appear natural to us.

Standard 100 - 110

110 mm / Photo: Sven Svensson

110 mm / Photo: Kate Kärrberg



110 mm / Photo: Friedrun Reinhold

100 mm / Photo: Mary Ellen Mark

110 mm / Photo: Friedrun Reinhold

In the standard range all fixed focal length lenses are Planar designs characterized by extraordinary well corrected aberrations. The distortion is remarkably low, the sharpness and image field flatness are extremely uniform from corner-to-corner and so is the colour correction. In other words, they are fullfilling the highest demands on the versatile all-round tools that the standard lenses are meant to be.

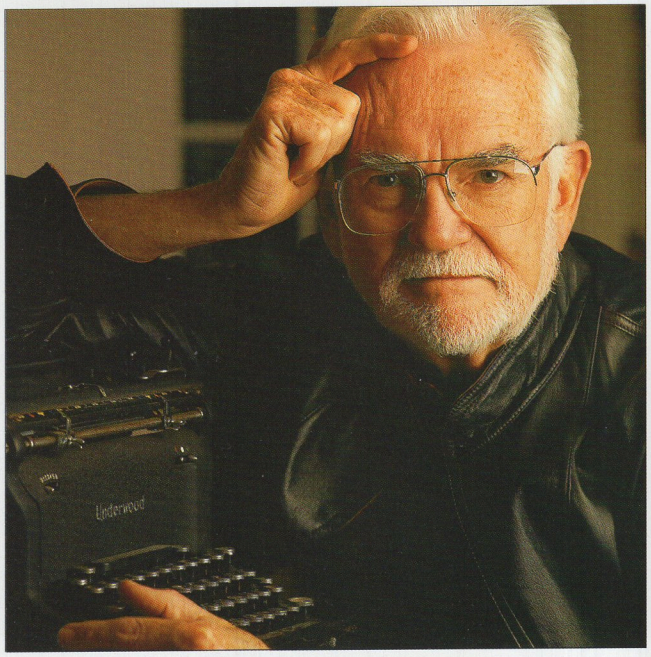
Also due to the Planar design, the standard lenses are generally faster than lenses with longer or shorter focal lengths, which facilitates work in poor lighting conditions. An illustrative example is the Planar FE 110 mm for the Hasselblad 200 series cameras. It is the fastest lens in medium format, providing a maximum aperture of f/2.

Another option for the 200 series cameras is the Hasselblad FE 4.8/60-120 mm zoom lens, which covers the entire standard lens range.

110 mm / Photo: Luis Castañeda

120 mm / Photo: Michiharu Baba

120 mm / Photo: Michael Halsband



120 mm / Photo: Jonathan Exley

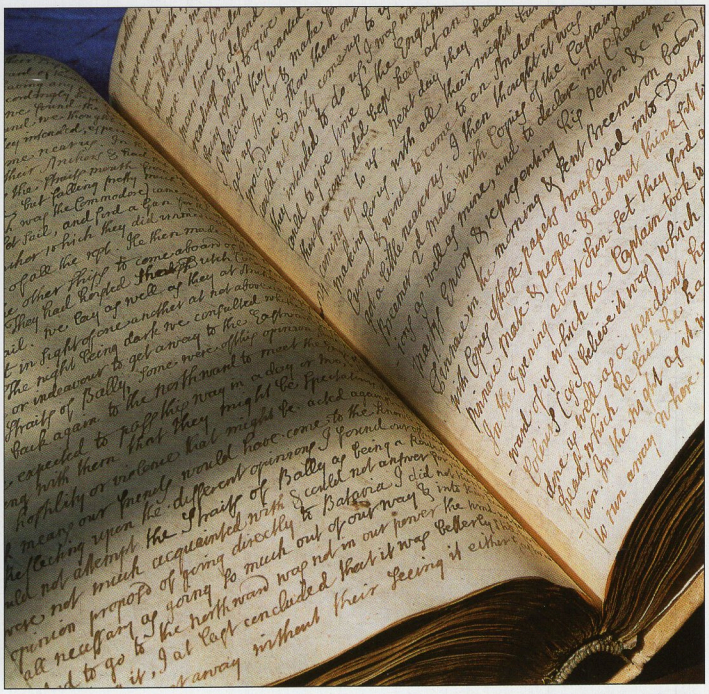
120 mm / Photo: Jan Grahn

Makro-Planar 120 and 135

Most lenses provide their maximum image quality when focused at longer distances, which is the normal case in general photography. So if your line of work frequently calls for large reproduction scales, implying short range focusing, you should choose the Zeiss Makro-Planar lenses. The Planar design of these lenses is optimized for close focusing distances and maintains its superb image field flatness and high resolution over the entire focusing range. This makes them ideal for close-up documentation and copying work, as well as for all kinds of medium range photography.

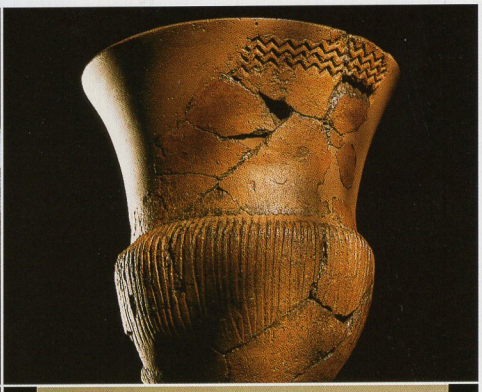
As the 135 mm Makro-Planar is designed to be used together with the Hasselblad Automatic bellows extension, it has no focusing mechanism of its own. Using this set-up the lens can quickly be focused from infinity down to life size reproduction without any further accessories.

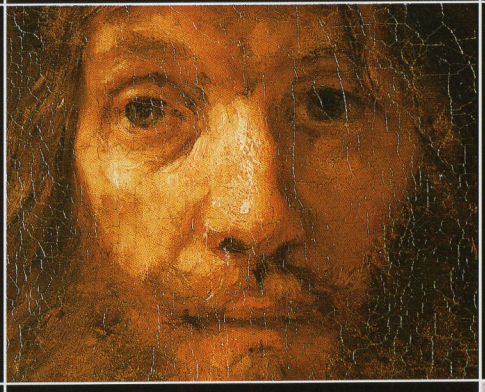
120 mm / Photo: Ola Högberg

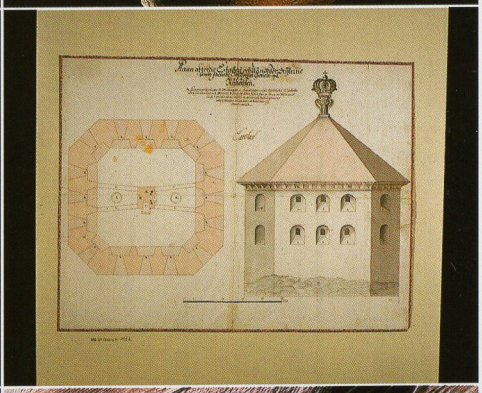


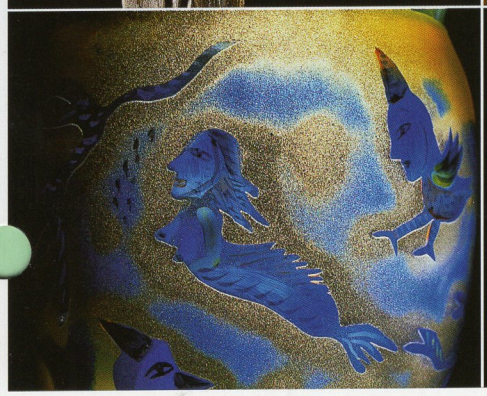
135 mm / Photo: Håkan Berg

135 mm / Photo: Håkan Berg









Tele 150 - 180

The stronger magnifying power, the tighter angle of view and the shorter depth-of-field provided by the telephoto lenses, are all valuable assets in your photography. You can get in close contact with distant subjects, cut down background areas and blur out distracting elements in the background or foreground.

150 mm
Photo: Bernhard Edmaier

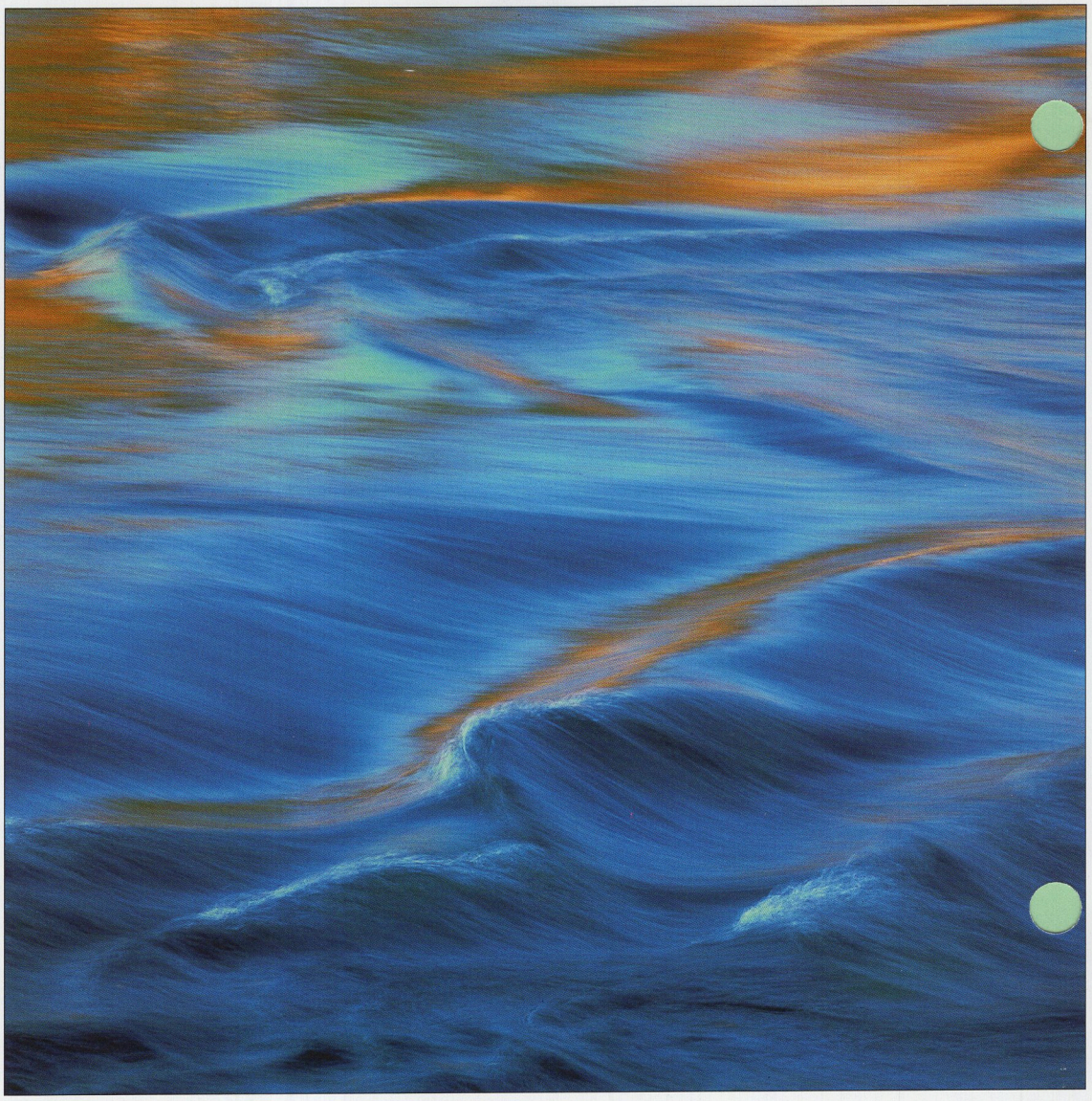
150 mm
Photo: Michael Halsband

180 mm / Photo: Michael Nischke

150 mm
Photo: Nicholas Pavloff

Tele 250

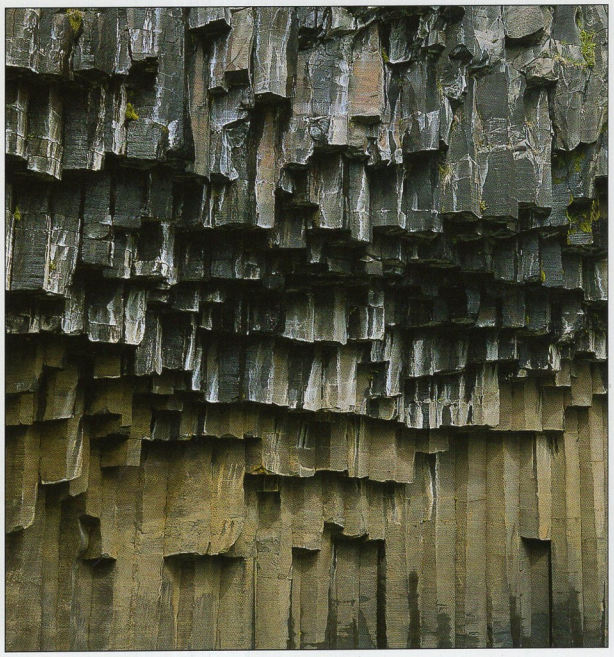
Combined with Proxar close-up lenses, extension tubes or a bellows extension the telephoto lenses can successfully be used for close-up and close range shots when a longer lens-to-subject distance is required or a distant perspective is preferred.



250 mm / Photo: Hans Strand

250 mm / Photo: Friedrun Reinhold

250 mm / Photo: Ola Högberg

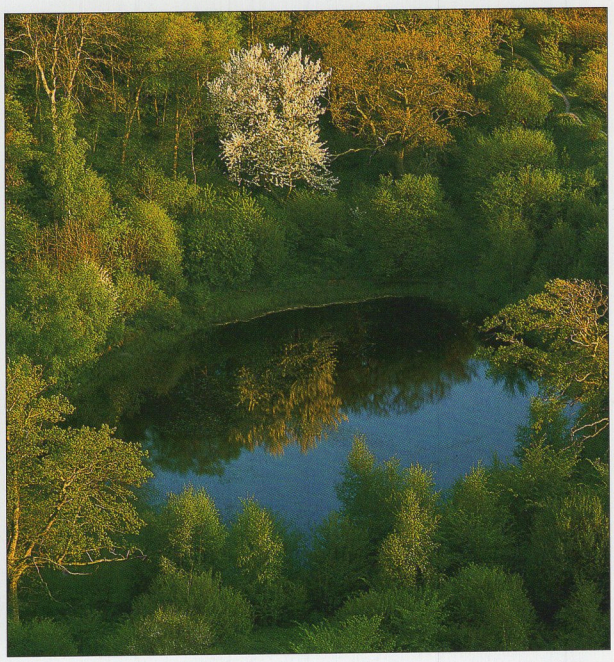


250 mm / Photo: Jan Grahn

250 mm / Photo: Tore Hagman

250 mm / Photo: Jonathan Exley

250 mm / Photo: Tore Hagman

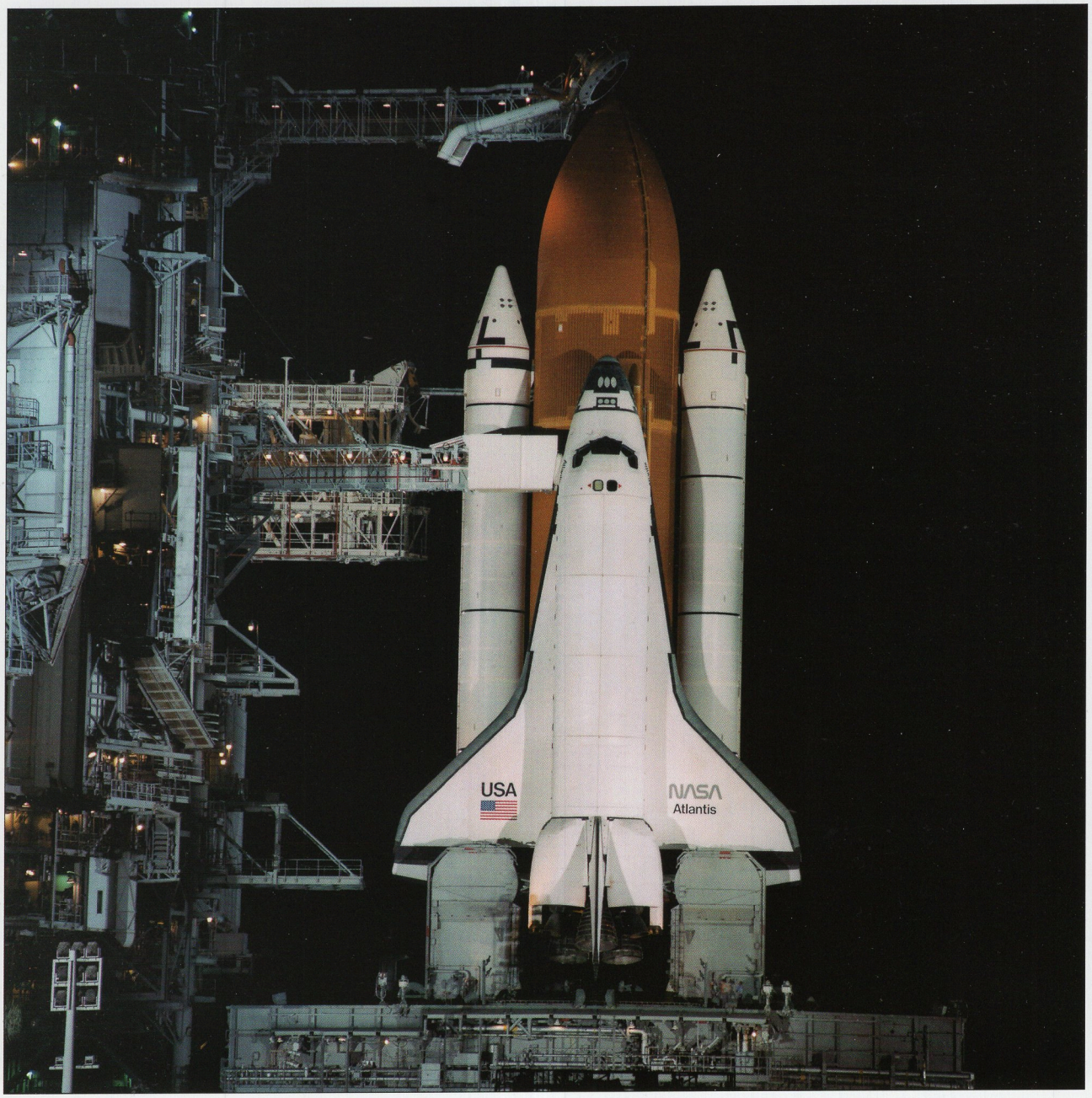


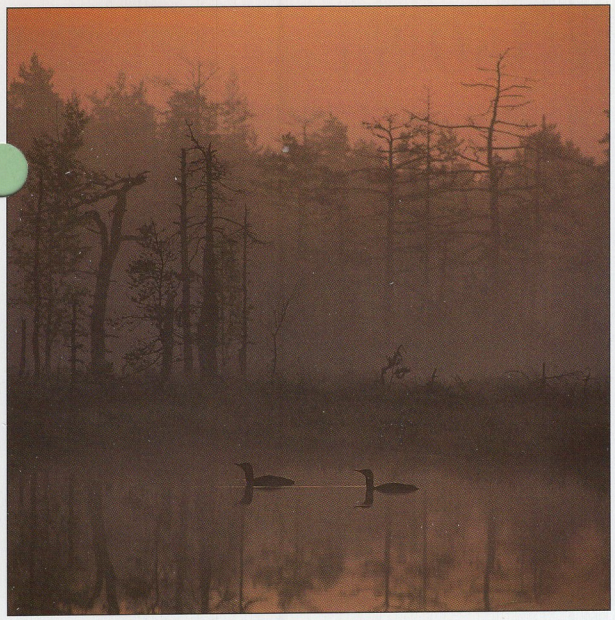
Tele 250 - 500

The telephoto lens range consists of 11 lenses with focal lengths from 150 to 500 mm, which also includes the two top-of-the-line superachromatic lenses that are described on page 24-25. By using converters the range of Hasselblad long focal length lenses is extended to 1000 mm telephoto.

250 mm / Photo: Climpson Photographics

500 mm / Photo: Luis Castañeda

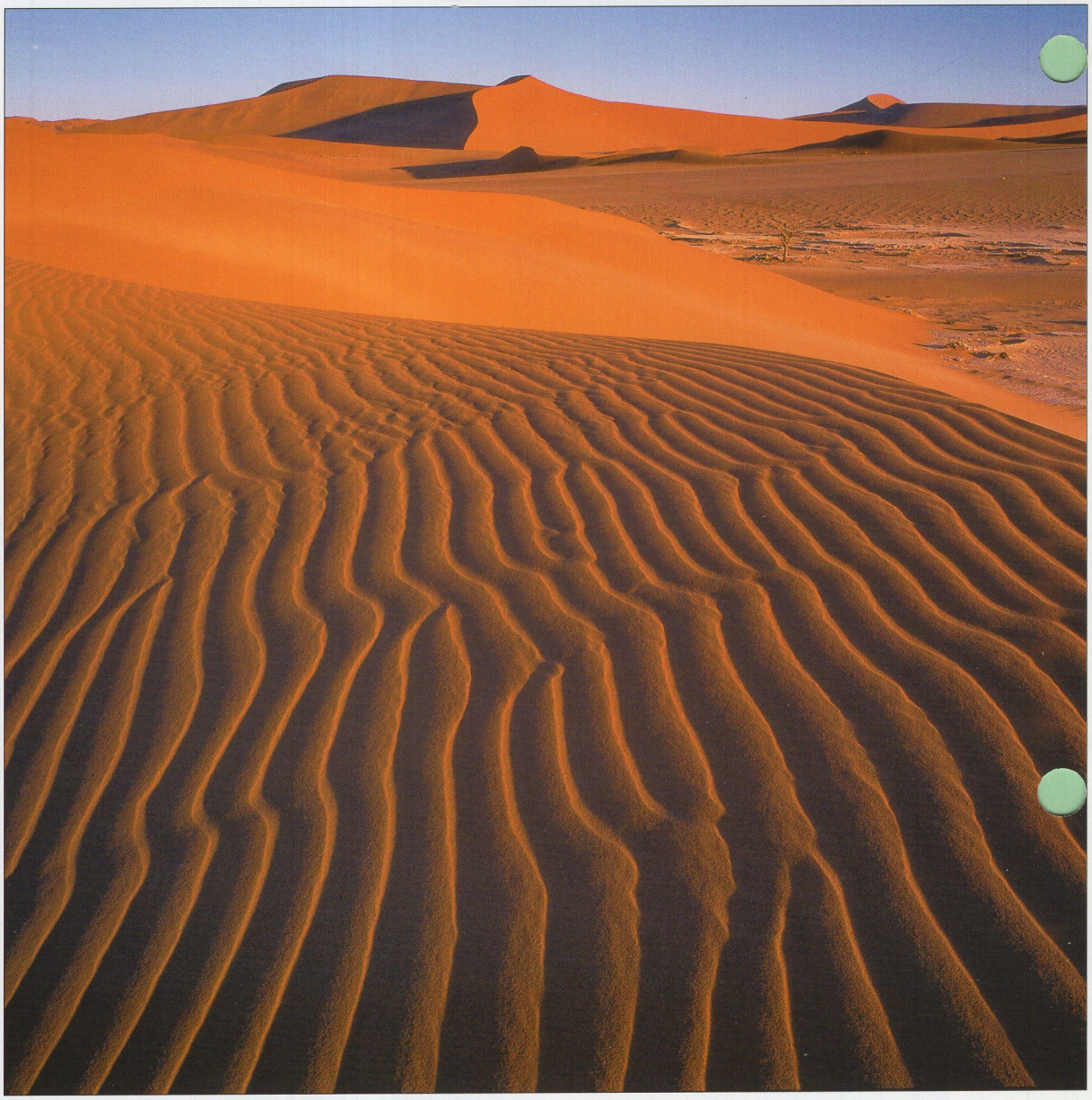




250 mm / Photo: Hans Strand

350 mm + Converter 2XE / Photo: Björn Röhsman

Superachromat 250 Sa and 350 Sa



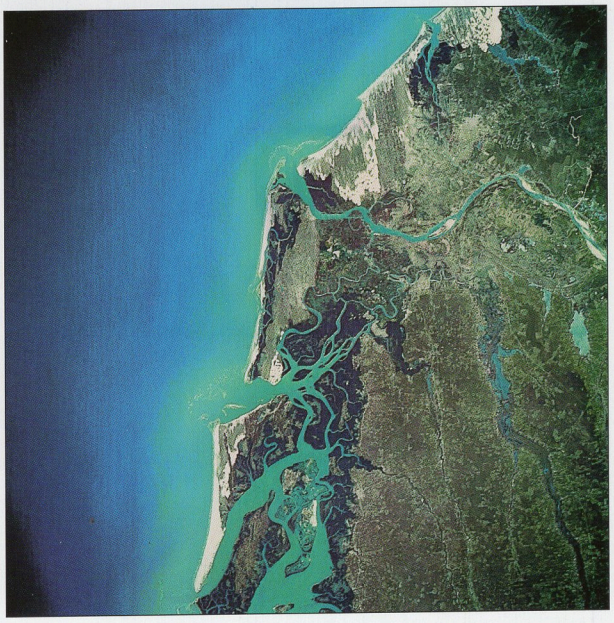
350 mm
Photo: Hans Strand

350 mm / Photo: Hans Strand

When aiming for ultimate image quality in the telephoto range, the Sonnar Superachromat CFi 5.6/250 mm and Sonnar Tele-Superachromat CFE 5.6/350 mm from Carl Zeiss should be your prime choice. Especially when you take pictures intended for extreme blow-ups, these lenses are indispensable. The perfect chromatic correction means unsurpassed image sharpness over the entire film area. There will be no detectable signs of colour fringing or loss of contrast even at the image corners.

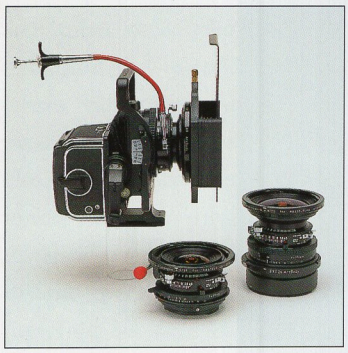
350 mm
Photo: Guido Puttkammer

Due to their outstanding chromatic correction and light transmission within the spectral range of 400-1000 nanometers, the superachromatic lenses are ideal for scientific and industrial applications such as IR and multi-spectral photography, on earth and in space.



250 mm / Photo: NASA, IR

ArcBody 35, 45, 75

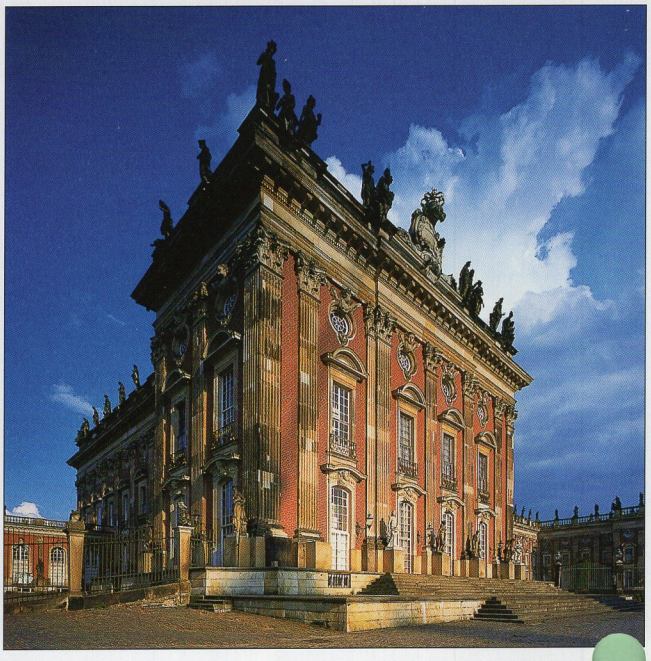


Architectural photography in particular is critical when it comes to perspective. Big buildings and cramped interiors often have to be captured with wide-angle lenses at short focusing distances and it is not always possible to choose the right camera position to avoid converging vertical or horizontal lines. In such situations the Hasselblad ArcBody offers a convenient solution.

45 mm / Photo: Guido Puttkammer

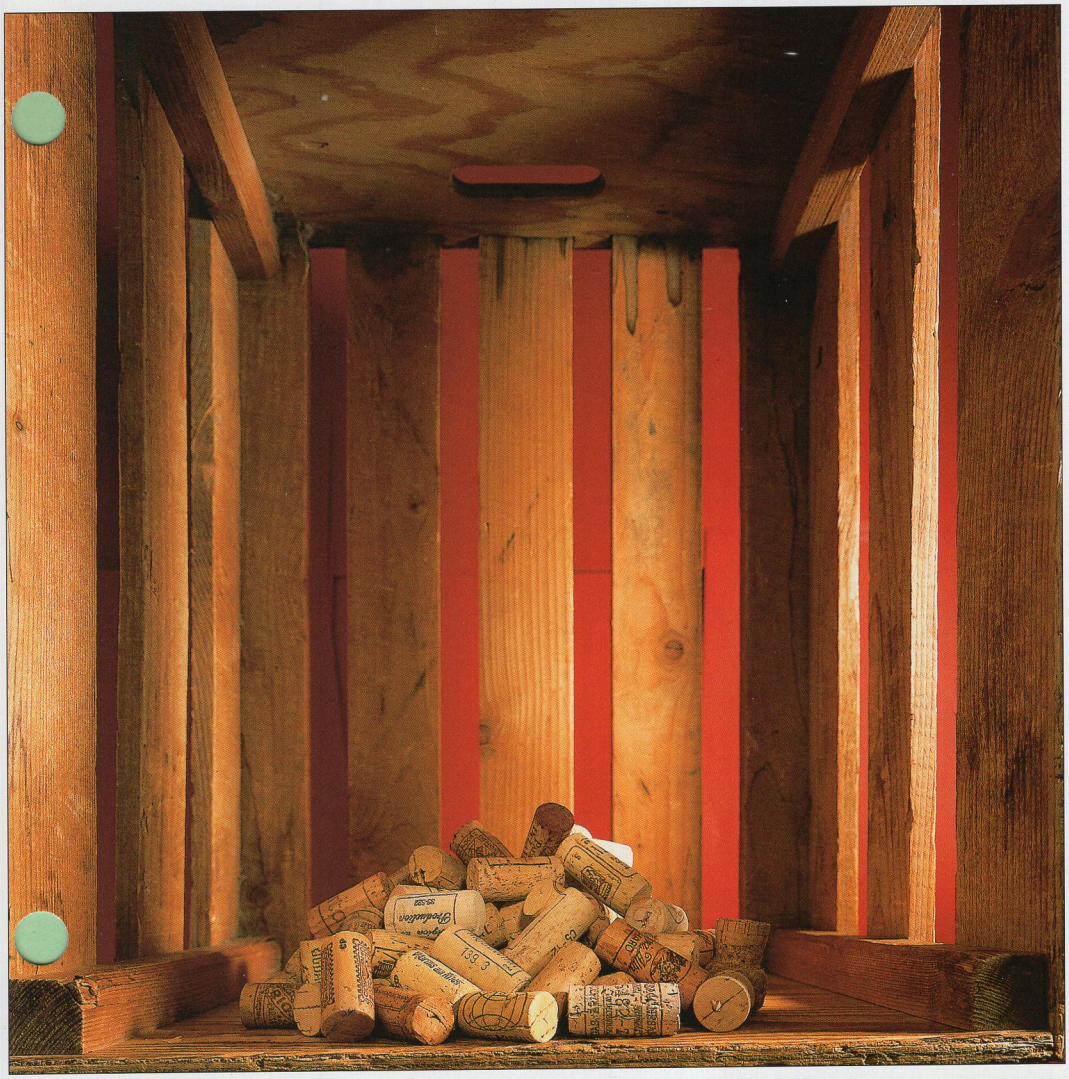
35 mm (not shifted)

Photo: Guido Puttkammer



35 mm (25 mm s

45 mm / Photo: Hans Wretling



Using this medium format technical camera with its own series of Rodenstock lenses, you can easily adjust the perspective by shifting the film magazine vertically or horizontally. The large image circle of the lenses enables a shift range of up to 28 mm. And should you need to adjust the sharpness zone as well, the ArcBody also features a tilt facility.

m (max. tilt 15°)

Photo: Chris Callis for Proctor & Gamble/Bounty

45 mm (max. tilt 15°)

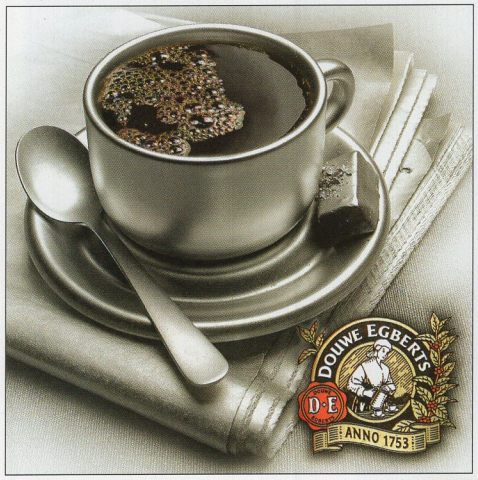
Digital

Hasselblad cameras are ideal platforms for digital photography. One obvious reason is the rigid magazine mount that makes it easy to fit a digital back to the camera body. Another one is the SLR viewing system for precise focusing and image composition, giving freedom of movement when shooting live subjects with single-shot digital backs. But, there is still another determining reason; the wide range of high performing lenses with sturdy mounts assuring vibration-free exposures – an utmost critical factor when using multi-shot and scanning digital backs.

So it is quite natural that leading manufacturers have adapted their digital systems to Hasselblad, and that their new product innovations are designed with Hasselblad first and foremost in mind.

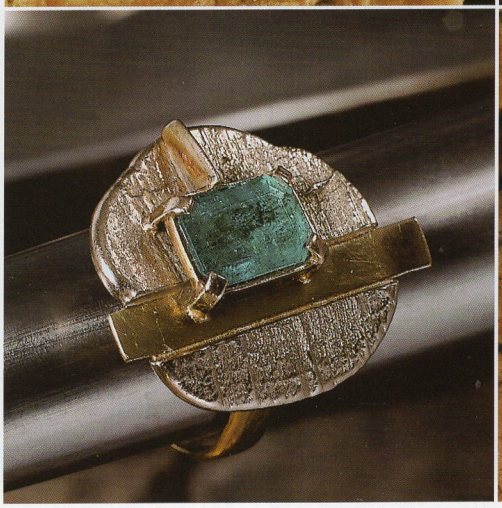
120 mm / Photo: Ulrik Södergren

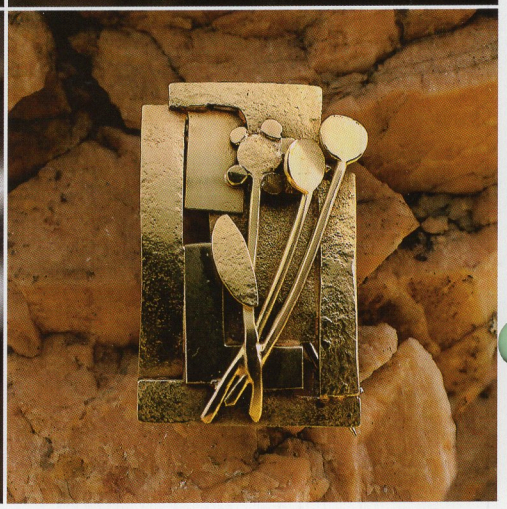
80 mm / Photo: Digitalfotografen



←← 80, 50 mm + extension tubes
Photo: Kristoffer Börjesson

80, 100 mm + extension tubes
Photo: Carl Henrikson





The right lens for your Hasselblad camera

The table shows which lenses you can use on each of the nine different Hasselblad camera models.

- ○ indicates that the lens features databus connections which transmit lens data to the exposure metering systems of the 200 series camera models.

Which converter suits the lens?

All converters, except the Converter 2XE, are designed and optimized for certain lenses and focal lengths. If used with other lenses they will deteriorate the image quality or may physically damage the lens.

- □ indicates that the lens/converter combination features databus connections which transmit lens data to the exposure metering systems of the 200 series camera models.

Choose the right lens for the purpose

Not only the lens series, focal lengths and maximum apertures separate the lenses from each other. Some lenses are also designed to serve a specific purpose, for example the Makro-Planar lenses, which are optimized for the close focusing range, and the Biogon CF 38 mm with virtually no distortion, making it the excellent lens for architectural as well as for copying work.

On the following pages you will find a brief description and the main technical data on each lens. And under the rear cover flap we present the MTF-curves for the entire lens system, showing the ability of each individual lens to render details clearly and sharply from corner-to-corner, at maximum aperture and stopped down. Should you need more information for choosing the lenses that perfectly match your requirements, do not hesitate to contact us.

CF, CFi, CFE lenses

Zeiss Distagon CFi 3.5/30 mm

Ultra wide-angle "fish-eye" lens with large image circle that covers the entire 6x6 cm format. Designed for scientific and technical documentation under cramped conditions, it offers outstanding corner-to-corner sharpness and even illumination. The optical performance is so high that today's highest resolving colour films can be utilized to their very limit.

Zeiss Biogon CF 4.5/38 mm

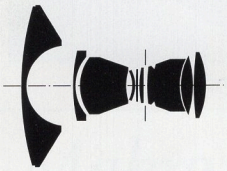
91 degrees diagonal angle of view, high resolution, virtually eliminated distortion, and extremely well controlled colour correction even at its closest focusing distance. Due to its optical design, this lens cannot be used on an SLR camera and is permanently attached to the 903SWC, forming a state-of-the-art wide-angle camera. Ideal for critical architectural, industrial, aerial and documentary photography.

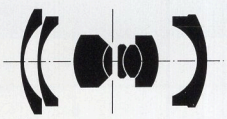
Zeiss Distagon CFE 4/40 mm

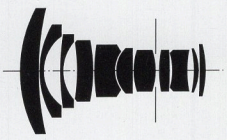
An extreme retrofocus lens with 88° diagonal angle of view. The design incorporates floating lens elements (FLE) providing superb image quality at all focusing distances. The correction of all aberrations is elaborate and distortion is particularly well controlled. The lens is equipped with databus connections. Suitable applications are advertising, interior, industrial, aerial, landscape and wedding photography.

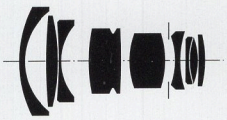
Zeiss Distagon CFi 4/50 mm

Modern optical design with floating lens elements (FLE) ensuring high performance within the close focusing range. Corner-to-corner illumination is very even at all aperture settings, and distortion and stray light are extremely well controlled. With its moderate wide-angle effect the Distagon CFi 50 mm is a versatile all-purpose lens.









Tech. spec.	**CFi 3.5/30**	**CF 4.5/38**	**CFE 4/40**	**CFi 4/50**
Focal length	30 mm	38 mm	40 mm	50 mm
Aperture range	3.5-22	4.5-22	4-22	4-32
Focusing range	0.3 m-∞ (1')	0.3 m-∞ (1')	0.5 m-∞ (1' 7")	0.5 m-∞ (1' 7")
Angle of view diagonal/horizontal	180°/112°	91°/72°	88°/67°	75°/57°
No. of elements	8 T*	8 T*	11 T*	9 T*
Filters	Ø26	Ø60	Ø93	Ø70
Weight	1365 g (3 lb 14 oz)	875 g (1 lb 15 oz)*	915 g (2 lb 0.25 oz)	800 g (1 lb 12 oz)
Length	117.5 mm (4.6")	126 mm (5")*	102 mm (4")	95 mm (3.75")
Code	20178	–	20038	20047

** Incl. 903SWC camera body*

Zeiss Planar CFE 2.8/80 mm

The standard lens for the 500 as well as the 200 series camera models for which it is equipped with databus connections. The planar design has ensured great colour correction, flat image plane and low distortion. The wide aperture facilitates photography in poor light and provides a bright viewfinder image. A lens suited for almost any task in general photography.

Zeiss Planar CFi 3.5/100 mm

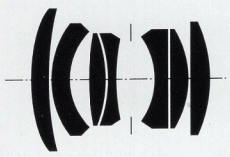
A lens designed to deliver virtually zero distortion and extremely well defined image details irrespective of aperture setting. Therefore, it is the first choice when demands on exact reproduction of the geometry of the subject and the resolution are extremely high, for example in architectural, aerial surveying, copying, industrial and scientific photography.

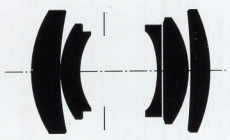
Zeiss Makro-Planar CFi 4/120 mm

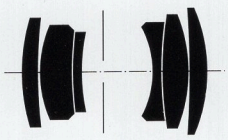
Being a Makro-Planar design this lens is optimized for close-up photography, which means that the image quality and light distribution in the close focusing range are extremely good even at maximum aperture. The lens focusing mechanism allows a scale of reproduction of 1:4.5, which can be further increased by using close-up accessories.

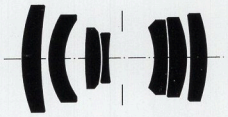
Zeiss Makro-Planar CF 5.6/135 mm

A macro lens which has no focusing mechanism of its own and therefore cannot be attached directly to any camera model. Instead it is designed to be used together with the Hasselblad Automatic bellows extension. Using this set-up the lens can quickly be focused from infinity down to a 1:1 scale of reproduction without any further accessories.









Tech. spec.	CFE 2.8/80	CFi 3.5/100	CFi 4/120	CF 5.6/135
Focal length	80 mm	100 mm	120 mm	135 mm
Aperture range	2.8-22	3.5-22	4-32	5.6-45
Focusing range	0.9 m-∞ (3')	0.9 m-∞ (3')	0.8 m-∞ (2'72")	uses bellows extension
Angle of view, diagonal/horizontal	52°/38°	42°/30°	37°/25°	32°/23°
No. of elements	7 T*	5 T*	6 T*	7 T*
Filters	Ø60	Ø60	Ø60	Ø60
Weight	510 g (1 lb 2 oz)	605 g (1 lb 5.25 oz)	695 g (1 lb 8.5 oz)	625 g (1 lb 6 oz)
Length	65 mm (2.55")	75 mm (2.99")	99 mm (3.89")	87 mm (3.42")
Code	20034	20127	20054	20118

Zeiss Sonnar CFi 4/150 mm

The classical portrait lens which provides the ideal perspective for head and shoulder portraits. The 150 mm focal length offers a moderate but clearly visible telephoto effect and the shallow depth-of-field can be used to place distracting backgrounds off-focus. Fashion and landscape photography are other suitable applications for this versatile lens.

Zeiss Sonnar CFi 4/180 mm

Although optimized for infinity, this lens is designed with special attention to close range performance. In general photography it is specially well suited for portrait, fashion, wedding, product and industrial work. The optical materials of the lens are relatively unsusceptible to thermal fluctuations making it ideal in extreme environments.

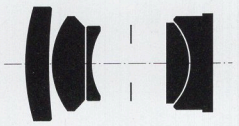
Zeiss Sonnar CFi 5.6/250 mm

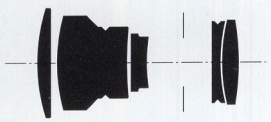
A lens with optical characteristics similar to the Sonnar CFi 180 mm. The longer focal length is excellent for tightly framed shots with the option to use the shallow depth-of-field to make the main subject stand out impressively. The compact design is ideal for hand-held location work in portrait, fashion, advertising, nature and industrial photography.

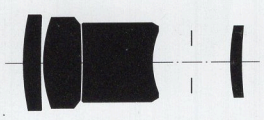
NOTE: Picture in reduced scale.

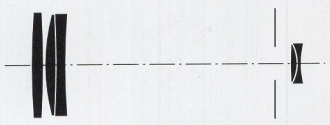
Zeiss Tele-Apotessar CF 8/500 mm

The longest telephoto lens in the Hasselblad system, which can be extended to 1000 mm by using the Converter 2XE. Due to the apochromatic correction, the optical performance is excellent. The internal focusing system allows the lens to focus down to 5 m (16'5") without the centre of gravity changing. A powerful lens for editorial, documentation, nature and wildlife photography.









Tech. spec.	CFi 4/150	CFi 4/180	CFi 5.6/250	CF 8/500
Focal length	150 mm	180 mm	250 mm	500
Aperture range	4-32	4-32	5.6-45	8-64
Focusing range	1.4 m-∞ (4'6")	1.55 m-∞ (5')	2.5 m-∞ (8'6")	5 m-∞ (16'5")
Angle of view, diagonal/horizontal	30°/21°	24°/17°	17°/12°	9°/6.4°
No. of elements	5 T*	5 T*	4 T*	5 T*
Filters	Ø60	Ø60	Ø60	Ø93
Weight	785 g (1 lb 11.25 oz)	1075 g (2 lb 5.75 oz)	1000 g (2 lb 3.25 oz)	1810 g (3 lb 15.75 oz)
Length	101 mm (4")	128 mm (5.03")	164 mm (6.45")	329 mm (12.95")
Code	20062	20073	20081	20088

Schneider Variogon CF 5.6/140 - 280 mm

With its zoom range of 140-280 mm the Variogon covers five of the system's leaf shutter lenses with fixed focal lengths. A useful feature is the macro setting capability, making close-up photography possible without need of extra accessories. Particularly suited for fashion and portraits, the lens has a large potential for all types of creative photography.

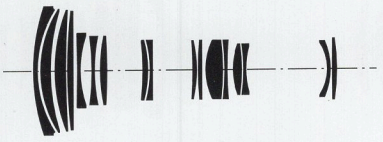
Zeiss Sonnar Superachromat (Sa) CFi 5.6/250 mm

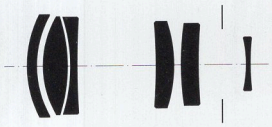
A superachromatic lens designed for technical and scientific IR and multi-spectral photography as well as for demanding general photography. Its extreme sharpness makes it especially suited for taking pictures which are to be considerably enlarged. When working with infrared-sensitive film, focusing can be done on the viewfinder screen. Spectral range 400-1000 nm.

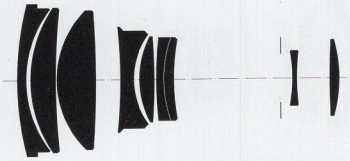
Zeiss Tele-Superachromat (Sa) CFE 5.6/350 mm

High performance superachromatic lens with long focal length, especially suited for fashion, sports and wildlife photography. The lens is specifically designed to deliver maximum performance at widest aperture, to enable blurring-out of unwanted backgrounds. By using the Teleconverter APO 1.4XE, optimized for this lens, the focal length is extended to 490 mm without loss of quality. Spectral range 400-1000 nm.

The lens is equipped with databus connections.







Tech. spec.	CF 5.6/140-280	CFi 5.6/250	CFE 5.6/350
Focal length	140-280 mm	250 mm	350 mm
Aperture range	5.6-45	5.6-45	5.6-45
Focusing range	2.5 m - ∞ (8'3") + Macro	3 m - ∞ (10')	3.75 m - ∞ (12'6")
Angle of view, diagonal/horizontal	16-30°/11-22°	17°/12°	13°/9°
No. of elements	17 (multicoated)	6	9 T*
Filters	Ø93	Ø60	Ø93
Weight	1850 g (4 lb 1.25 oz)	985 g (2 lb 2.25 oz)	1800 g (3 lb 15 oz)
Length	240 mm (9.44")	164 mm (6.45")	235 mm (9.25")
Code	20215	20194	20186

FE lenses

Zeiss Distagon FE 2.8/50 mm

A fast wide-angle lens with floating lens elements (FLE) giving outstanding performance and colour correction across its entire focusing range even at maximum aperture. Its large aperture and closest focusing distance of only 0.32 m (12.8") make it especially suited for industrial, editorial and advertising work under low light conditions in cramped surroundings.

Zeiss Planar FE 2.8/80 mm

The standard lens for the 200 series camera models, providing the unique image plane flatness and low distortion that the Planar designs are renowned for. The FE version of this 80 mm Planar design is characterized by its closest focusing distance of only 0.6 m (2').

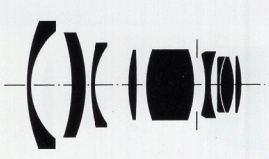
To be discontinued during 1999.

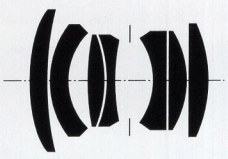
Zeiss Planar FE 2/110 mm

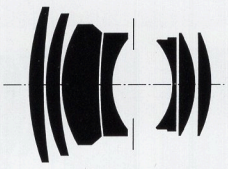
The fastest lens within medium format. With its maximum aperture of f/2 and slightly longer focal length it offers an excellent alternative to the standard lens. The large aperture allows fast shutter speeds and can be used to blur out distracting backgrounds. A perfect lens for portrait, wedding, editorial, travel and stage photography in available light.

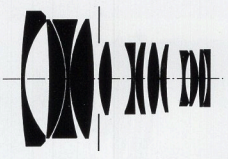
Hasselblad FE 4.8/60-120 mm

Zoom range from moderate wide-angle to short telephoto. At all focal length settings the image quality is high and comparable with corresponding fixed focal length lenses. It is also easy to use with previous 200 and 2000 series camera models without metering systems as the set aperture does not change when zooming. A very useful lens for fast action outdoor photography.





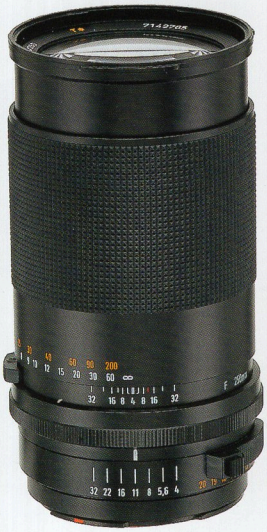




Tech. spec.	FE 2.8/50	FE 2.8/80	FE 2/110	FE 4.8/60-120
Focal length	50 mm	80 mm	110 mm	60-120 mm
Aperture range	2.8-22	2.8-22	2-16	4.8-32
Focusing range	0.32 m-∞ (12.8")	0.6 m-∞ (2')	0.8 m-∞ (2' 6")	1.2 m-∞ (4')
Angle of view, diagonal/horizontal	75°/56°	52°/38°	39°/28°	36-66°/26-49°
No. of elements	9 T*	7 T*	7 T*	13 (multicoated)
Filters	Ø93	Ø60	Ø70	Ø93
Weight	1240 g (2 lb 11.75 oz)	430 g (15.16 oz)	760 g (1 lb 10.75 oz)	1520 g (3 lb 6 oz)
Length	112 mm (4.4")	64 mm (2.5")	87 mm (3.42")	150 mm (5.91")
Code	20516	20508	20524	20583

Zeiss Sonnar FE 2.8/150 mm

Fast, lightweight and very compact short telephoto lens. Compared with the Planar FE 110 mm it offers visibly more focal length, thus covering significantly less background area and giving a more shallow depth-of-field. A lens well suited for portraits in the studio or on location, travel, landscape, sports and stage photography.

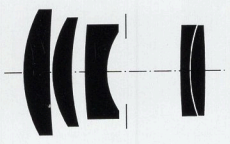


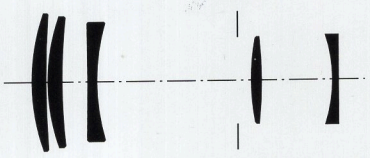
Zeiss Tele-Tessar FE 4/250 mm

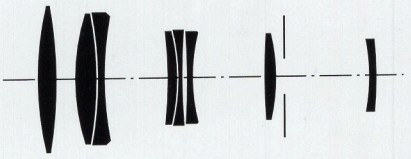
A medium long telephoto lens with a maximum aperture of f/4. Due to the Tele-Tessar design the FE 250 mm is lightweight and easy to use hand-held. The large aperture provides a bright viewfinder image and allows operation with faster shutter speeds. An ideal lens for fashion, wedding, portrait, sports and nature photography.

Zeiss Tele-Tessar FE 4/350 mm

A telephoto lens that is very fast for its focal length. Other great advantages are the smooth and precise internal focusing and the ability to focus down to 1.9 m (6' 3"), framing an object the size of a human face. Obvious applications for this high-performance lens are close-up portraits, glamour, fashion, sports and nature photography.







Tech. spec.

	FE 2.8/150	FE 4/250	FE 4/350
Focal length	150 mm	250 mm	350 mm
Aperture range	2.8-22	4-32	4-32
Focusing range	1.4 m-∞ (4'6")	2.5 m-∞ (8'3")	1.9 m-∞ (6'3")
Angle of view, diagonal/horizontal	29°/21°	18°/13°	13°/9°
No. of elements	5 T*	5 T*	8 T*
Filters	Ø70	Ø70	Ø93
Weight	710 g (1 lb 9 oz)	920 g (2 lb 0.5 oz)	2000 g (4 lb 6.5 oz)
Length	87 mm (3.42")	157 mm (6.18")	262 mm (10.3")
Code	20532	20540	20559

CB lenses

Zeiss Distagon CB 3.5/60 mm

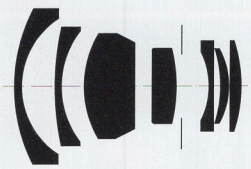
Where space is limited and a pronounced wide-angle perspective is not desirable, the CB 60 mm lens is ideal. Its excellent resolving power and low distortion, even at full aperture, make it perfectly suited for detailed interiors, group portraits and wedding coverage, as well as for many advertising, industrial and scientific applications.

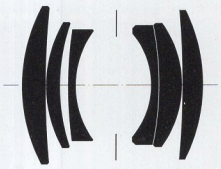
Zeiss Planar CB 2.8/80 mm

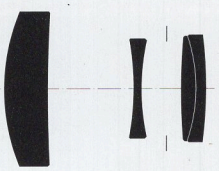
The focal length of 80 mm gives a perspective similar to the human eye. This, together with the extremely uniform edge-to-edge sharpness and flatness of the image plane of the Planar design, makes the CB 80 mm lens very useful for almost any task in general photography. The maximum aperture of f/2.8 facilitates work in poor light.

Zeiss Tessar CB 4.8/160 mm

The lightweight and compact Tessar design, the moderately compressed perspective and shallow depth-of-field have made the CB 160 mm lens popular for portraits of all kinds; people, glamour and weddings. When choosing between the CFi 150 mm and the CFi 180 mm, the CB 160 mm could be the answer especially if you prefer to work with the camera hand-held.







Tech. spec.	CB 3.5/60	CB 2.8/80	CB 4.8/160
Focal length	60 mm	80 mm	160 mm
Aperture range	3.5-22	2.8-22	4.8-32
Focusing range	0.6 m-∞ (2')	0.9 m-∞ (3')	1.5 m-∞ (5')
Angle of view, diagonal/horizontal	67°/50°	52°/38°	27°/19°
No. of elements	7 T*	6 T*	4 T*
Filters	Ø60	Ø60	Ø60
Weight	680 g (1 lb 8 oz)	550 g (1 lb 3 oz)	650 g (1 lb 7 oz)
Length	83 mm (3.27")	65 mm (2.56")	114 mm (4.49")
Code	20208	20032	20068

ArcBody lenses

A series of technical lenses especially designed and produced for the Hasselblad ArcBody by Rodenstock, Germany. It consists of three focal lengths – 35, 45 and 75 mm – the 45 mm being used as the standard lens.

The large image circles of the lenses make it possible to fully exploit the camera's 28 mm shift facility. Colour fringing is virtually eliminated, distortion is extemely low and all lens elements are multicoated to provide superb image contrast and colour saturation. Used with the dedicated Centre filter the illumination is remarkably even at all shift positions.

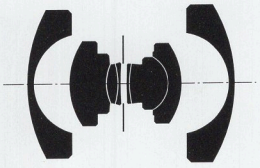
As the ArcBody does not feature a shutter, the lenses have built-in leaf shutters providing shutter speeds from 1 to 1/500 s, with flash synchronization at all speeds.

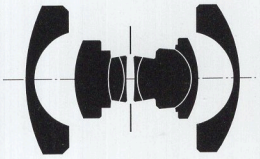
Though the lenses are equipped with the Hasselblad bayonet mount for rapid and secure mounting and changing of lenses, they cannot be used on other Hasselblad cameras.

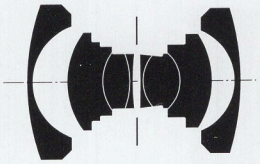
Rodenstock Apo-Grandagon 4.5/35 mm

Rodenstock Apo-Grandagon 4.5/45 mm

Rodenstock Grandagon-N 4.5/75 mm







Tech. spec.

	Apo-Grandagon 4.5/35	Apo-Grandagon 4.5/45	Grandagon-N 4.5/75
Focal length	35 mm	45 mm	75 mm
Aperture range	4.5-22	4.5-32	4.5-45
Focusing range	0.5 m-∞ (1'7")	0.5 m-∞ (1'7")	1 m-∞ (3'4")
Angle of view, diagonal/horizontal	94°/75°	80°/62°	55°/40°
No. of elements	8 (multicoated)	8 (multicoated)	8 (multicoated)
Filters	M77	M77	M77
Weight	420 g (14.81 oz)	500 g (1lb 1.6oz)	660 g (1lb 2.71oz)
Length	55 mm (2.16")	65 mm (2.56")	95 mm (3.74")
Code	27035	27045	27075

Converters

Teleconverter 1.4XE

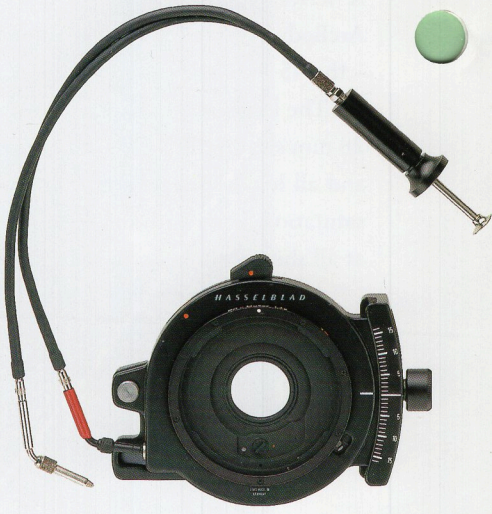
A lightweight teleconverter for lenses with focal lengths of 100 mm and longer, except the Makro-Planar CF 135 mm. Extends the focal length of the lens 1.4 times, reducing the lens aperture by only one f/stop. Its compact design makes it practical to include permanently in the camera outfit.

Teleconverter APO 1.4XE

Specially designed and optimized for the Tele-Super-achromat CFE 350 mm. Extending the focal length 1.4 times and reducing the aperture by only one f/stop, the combination forms an excellent 490 mm lens. It can also be used to advantage with the Sonnar CFi 250 mm, Tele-Apotessar CF 500 mm and Tele-Tessar FE 350 mm.

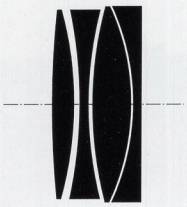
Converter 2XE

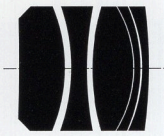
A converter for all Hasselblad lenses, except the Makro-Planar CF 135 mm. It doubles the lens focal length, reducing the lens aperture by two f/stops. When combined with the Makro-Planar CFi 120 mm, the lens should be used within the macro range only, not at infinity. Combined with the Tele-Apotessar CF 500 mm the focal length is extended to 1000 mm.

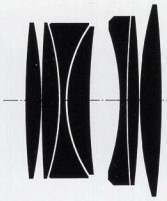


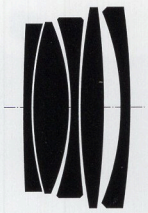
Zeiss PC-Mutar 1.4X Shift Converter

This converter, which extends the lens focal length 1.4 times, features a shift facility for perspective control. It is optimized for the Distagon CFE 40 mm lens, but can also be used with all lenses with a focal length between 50 and 100 mm. The shift potential ranges from maximum ±16 mm with the 40 mm lens, down to ±8 mm, depending on which lens is being used.









Tech. spec.	Teleconv. 1.4XE	Teleconv. APO 1.4XE	Conv. 2XE	PC-Mutar 1.4X
Reduction of lens aperture	-1 f/stop (-1EV)	-1 f/stop (-1EV)	-2 f/stop (-2EV)	-1 f/stop (-1EV)
No. of elements	4 (multicoated)	5 (multicoated)	7 (multicoated)	5 T*
Databus connections	yes	yes	yes	no
Weight	235 g (8 oz)	430 g (15 oz)	350 g (12 oz)	480 g (1 lb 1 oz)
Length	40 mm (1.57")	100 mm (4")	70 mm (2.75")	39 mm (1.5")
Code	20608	20613	20605	20311

Lens accessories

Lens shades for contrast and protection

Aiming for the ultimate image quality, you should always use a lens shade that efficiently shields the lens from stray light. If not, you run the risk of decreasing the superb image contrast that the Hasselblad lenses are built to provide. Furthermore, a sturdy lens shade is one of the best ways to protect the front element of the lens from accidental damage.

You can choose either rigid lens shades for individual lenses or an adjustable bellows lens shade, the Proshade 6093T, which can be fitted to all current Hasselblad lenses with focal lengths longer than 30 mm. It features a filter holder for glass, gelatine and plastic filters. For viewing without filter, the bellows can easily be folded down.

Close-up equipment

The closest focusing distance of the lens need not be a limitation. The Hasselblad close-up accessories enable you to get really tight to the subject to obtain the desired scale of reproduction.

Extension tubes are available in lengths of 8, 16, 32 and 56 mm and can be combined when longer extensions are needed. With the exception of the 8 mm, all tubes are fitted with databus connections which transmit the lens data to the electronics of the 200 series camera models.

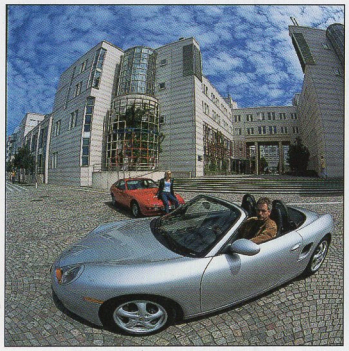
The automatic bellows extension interconnects the camera body and the lens mechanisms, so winding and releasing the shutter and diaphragm are controlled directly from the camera. With its variable extension from 63.5 mm to 202 mm and ease of operation, the bellows extension is a powerful close-up tool. Used with the Makro-Planar CF 135 mm lens, which does not have a focusing mechanism of its own, it provides a focusing range from infinity down to a reproduction scale of 1:1.

A compact and lightweight solution is offered by the Zeiss Proxar close-up lenses, which attach to all lenses with Ø60 front bayonet. They come in three focal lengths and can be combined to further decrease the focusing distance. Another advantage is that the Proxars do not affect the aperture of the lens, so there is no need to increase the exposure.

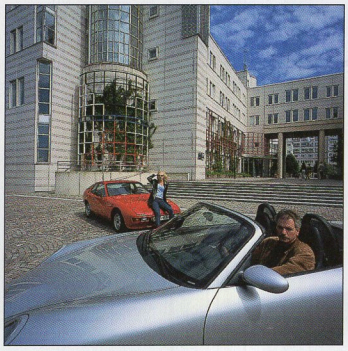
Filters for creative work and fine-tuning

Hasselblad original filters provide your work with a distinctive, personal style, balancing the light and creating the precise effect you are aiming for. To complement the outstanding Hasselblad lenses in the best possible way, they are manufactured under stringent demands for flatness and transmission quality.

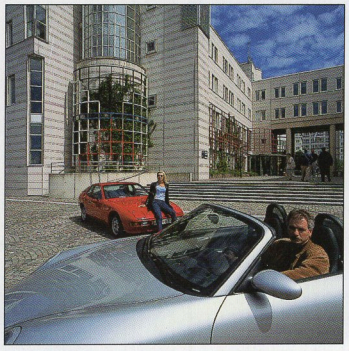
In addition to coloured filters, light balance and UV/haze filters, neutral density and polarization filters, there are also Softars and Soft 100 filters, which bleed highlights beautifully into shaded areas and give an exquisite soft touch to portraits, fashion and wedding pictures. They come in three degrees of diffusion and can be combined for even more variety or to increase the soft focus effect.



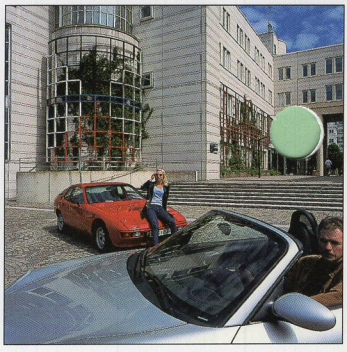
Distagon CFi 3.5/30 mm – 180°/112°



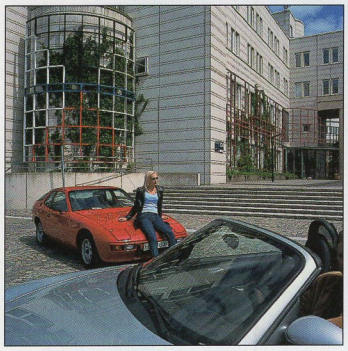
Biogon CF 4.5/38 mm – 91°/72°
(picture taken with the 903SWC)



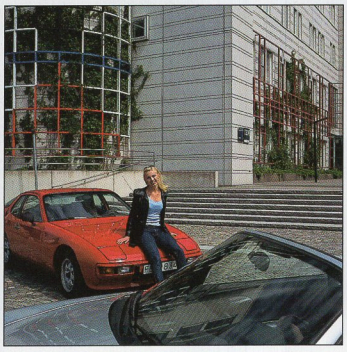
Distagon CFE 4/40 mm – 88°/67°



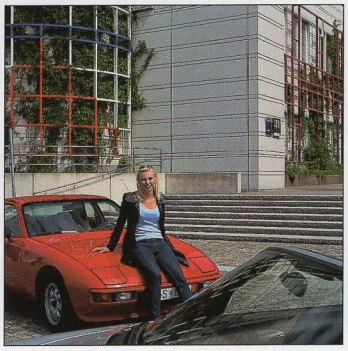
Distagon CFi 4/50 mm – 75°/57°
Distagon FE 2.8/50 mm – 75°/56°



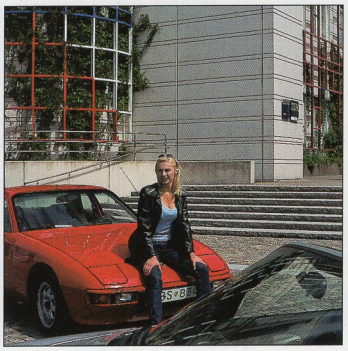
Distagon CB 3.5/60 mm – 67°/50°



Planar CFE 2.8/80 mm – 52°/38°
Planar CB 2.8/80 mm – 52°/38°
Planar FE 2.8/80 mm – 52°/38°

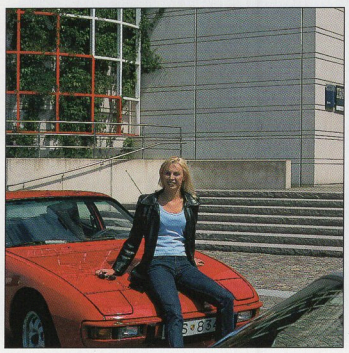


Planar CFi 3.5/100 mm – 42°/30°

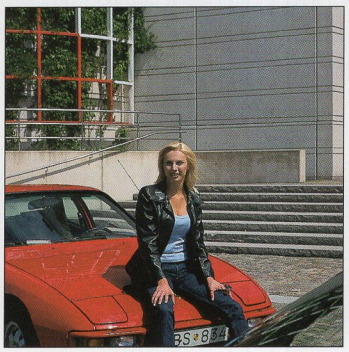


Planar FE 2/110 mm – 39°/28°

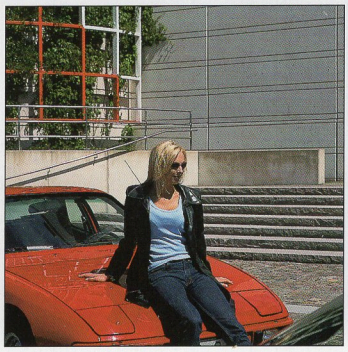
Zoom range of Hasselblad FE 4.8/60-120 mm – 36-66°/26-49°



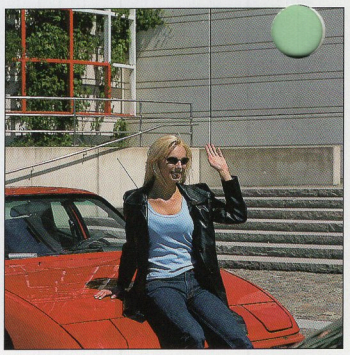
Makro-Planar CF 5.6/135 mm –
32°/23°
(used with the bellows extension)



Sonnar CFi 4/150 mm – 30°/21°
Sonnar FE 2.8/150 mm – 29°/21°



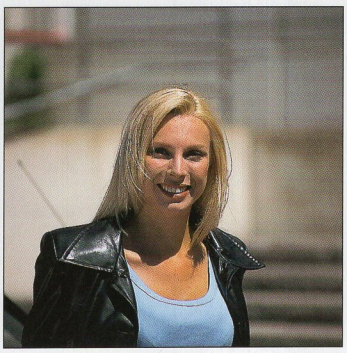
Tessar CB 4.8/160 mm – 27°/19°



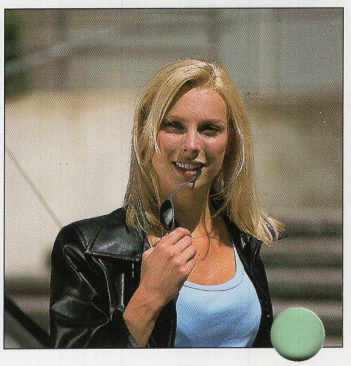
Sonnar CFi 4/180 mm – 24°/17°

Zoom range of Variogon CF 5.6/140-280 mm – 16-30°/11-22°

Tele-Superachromat (Sa)
CFE 5.6/350 mm – 13°/9°
Tele-Tessar FE 4/350 mm – 13°/9°



Tele-Apotessar CF 8/500 mm – 9°/6.4°



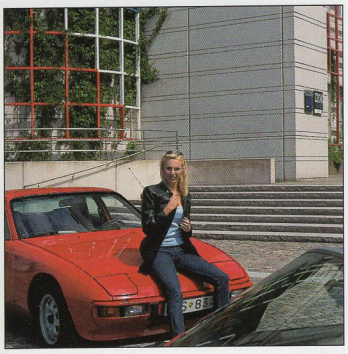
Tele-Superachromat (Sa)
CFE 5.6/350 mm +
Teleconverter APO 1.4XE
= CFE 8/490 mm – 9°/6.5°
Tele-Tessar FE 4/350 mm +
Teleconverter APO 1.4XE
= FE 5.6/490 mm – 9°/6.5°

From 30 mm wide-angle to 1000 mm telephoto

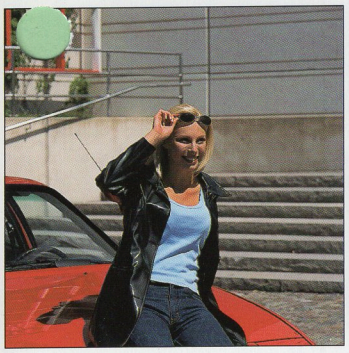
With fixed-focal-length lenses in tight steps from 30 to 500 mm, two zoom lenses covering 60 to 280 mm and four converters extending the range up to a maximum focal length of 1000 mm, Hasselblad offers the most comprehensive line of lenses for medium format photography.

This comparison chart shows the angle of view and perspective obtained with the different Hasselblad lenses. The figures after the lens designation state the diagonal/horizontal angle of view.

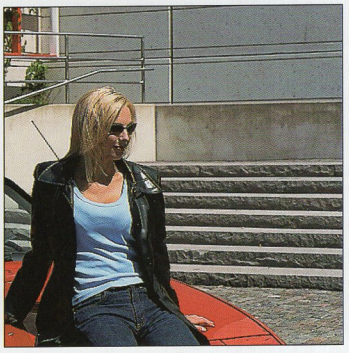
When taking the pictures, each lens was focused on the girl in the centre of the image area 5.5 m (18') away. Our photographer used a tripod fitted with a Hasselblad Quick-coupling S to ensure an exact and repeatable camera position when changing between the 503CW, 203FE and 903SWC cameras, which were used.



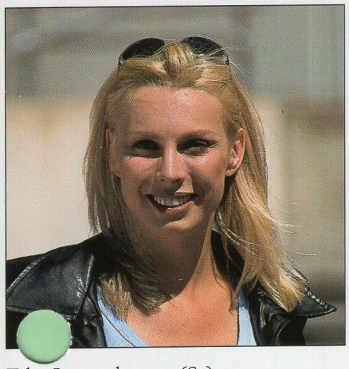
Makro-Planar CFi – 4/120 mm – 37°/25°



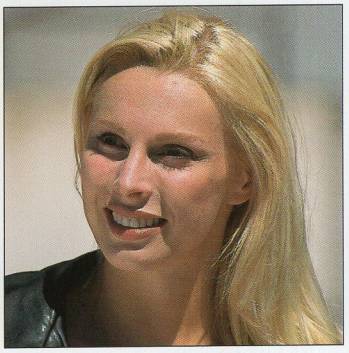
Sonnar CFi 5.6/250 mm – 17°/12°
Sonnar Superachromat (Sa)
CFi 5.6/250 mm – 17°/12°
Tele-Tessar FE 4/250 mm – 18°/13°



Variogon CF 5.6/140-280 mm –
16-30°/11-22°
Focal length set at 280 mm – 16°/11°

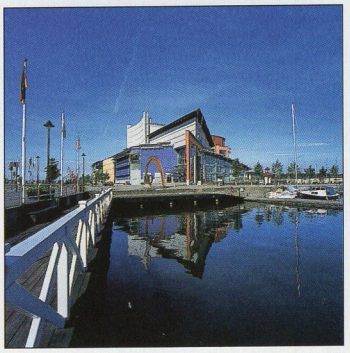


Tele-Superachromat (Sa)
CFE 5.6/350 mm + Converter 2XE
= CFE 11/700 mm – 6.5°/4.6°
Tele-Tessar FE 4/350 mm +
Converter 2XE
= FE 8/700 mm – 6.5°/4.6°

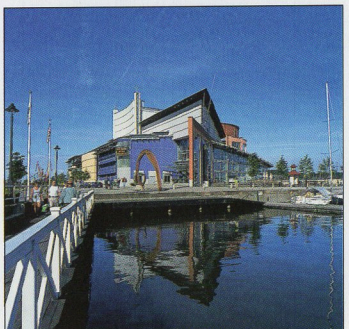


Tele-Apotessar CF 8/500 mm +
Converter 2XE
= CF 16/1000 mm – 4.5°/3.3°

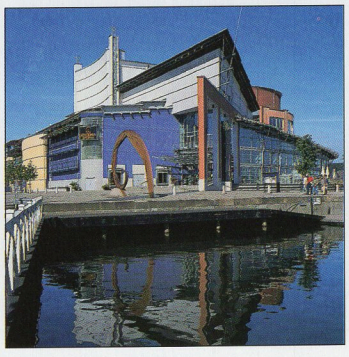
ArcBody lenses



Apo-Grandagon 4.5/35 mm – 94°/75°



Apo-Grandagon 4.5/45 mm – 80°/62°



Grandagon-N 4.5/75 mm – 55°/40°

Zeiss lenses for Hasselblad cameras

The extensive range of high-performance lenses is the result of a tight collaboration between Hasselblad and Carl Zeiss. The first contact between the two companies dates back to the early fifties when the first Hasselblad super wide-angle camera was developed in order to include the still unsurpassed Zeiss Biogon 38 mm lens in the expanding Hasselblad system. Ever since, Carl Zeiss has been the principal supplier of lenses for Hasselblad cameras, producing 22 of the current 27 lenses.

Employing the world's most renowned lens manufacturer ensures lenses of highest possible optical quality, state-of-the art design and long-lasting reliability.

The Zeiss lenses especially designed for Hasselblad encompass 6 basic types of optical design:

Distagon

The Distagon retrofocus design was specially developed to enable the use of extreme wide-angle lenses on SLR cameras. As the back focal distance can be made considerably longer than the lens focal length, it allows the motion of the reflex finder mirror in the free space between the last lens element and the film plane. The Distagon lenses – characterized by extraordinary speed and angle of view – provide remarkably good correction of all aberrations and thus excellent image quality. Through the use of floating lens elements (FLE) it has been possible to achieve high image quality and field flatness even in the close focusing range. The Distagon CFi 3.5/30 mm fish-eye lens features the widest diagonal angle of view in medium format – 180°.

Biogon

An almost symmetric lens design of surprising compactness, featuring extremely well controlled distortion, colour correction and image field flatness. The solitary lens in the Hasselblad system with this design is the Biogon CF 4.5/38 mm. Since the last lens vertex is located only 18.8 mm away from the film plane, no viewfinder/mirror can be placed between the lens and the film, thus it cannot be used as an interchangeable lens on the Hasselblad SLR camera bodies. However, the performance of the Biogon 38 mm was considered so outstanding, that the lens is permanently attached to a camera body of its own: the Hasselblad 903SWC.

Planar and Makro-Planar

The Planar is one of the most successful camera lens designs ever created. It provides the lens designer with the ideal basis for high-performance lenses with excellent anastigmatic flatness of the image field, outstanding correction of chromatic aberration, high speed and low distortion. The optical performance is remarkably constant over a wide range of imaging ratios, enabling such a versatile lens variety as the Makro-Planar lenses, optimized for close range photography. The Planar design is the basis for nearly all professional standard and medium focal length lenses and also for the fastest lenses ever created. In the Hasselblad range the fastest lens is consequently a Planar: the Planar FE 2/110 mm.

Sonnar

The Sonnar design with relatively few glass to air surfaces is ideal for compact high-performance medium telephoto lenses. It allows apertures up to f/2.8, very elaborate correction of lens errors and even illumination of the image field. In the extreme case of the Sonnar Superachromat CFi 250 mm, sophisticated optical glass types are being used for achieving the extraordinary correction of chromatic aberration and even corner-to-corner illumination.

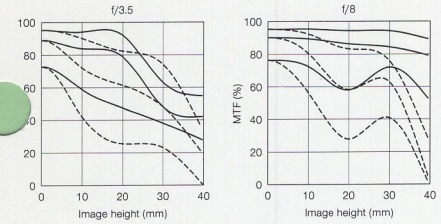
Tessar, Tele-Tessar and Tele-Apotessar

The lenses forming the Tessar group are characterized by a low number of lens elements and a relatively long distance between a collective front group and a dispersive rear group. The high performance of these lenses is achieved by using high refractive glass qualities with particularly suitable optical properties. As the Tessar design leads to compact and lightweight lenses, it is the perfect approach for telephoto lenses of 350 mm focal length and beyond. The longest telephoto lens in the Hasselblad range is a Tessar: the Tele-Apotessar CF 8/500 mm.

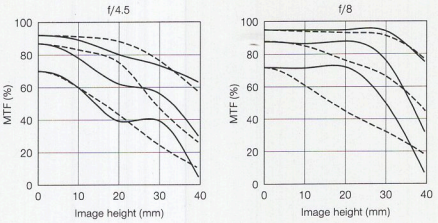
Superachromat

The superachromatic lenses are the top-of-the-line Zeiss lenses. They incorporate special optical materials and are extremely difficult to produce. The chromatic correction within the entire spectral range between approx. 400-1000 nm is so perfect, that colour fringing has been eliminated.
Even when working within the infrared spectral range, the focusing can be done on the focusing screen – no special index or further focusing adjustment is needed.

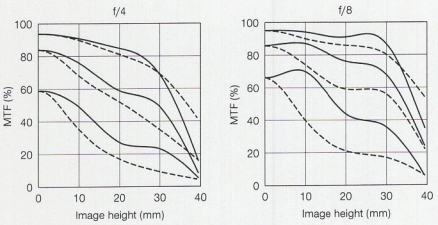
CFi 30



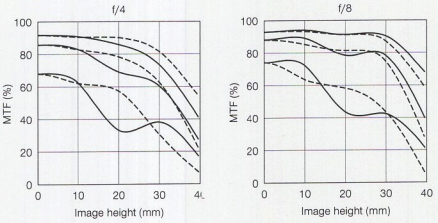
CF 38



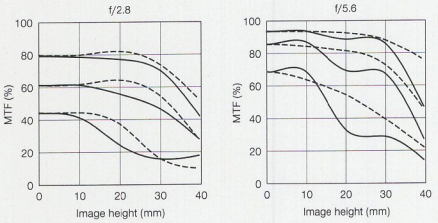
CFE 40



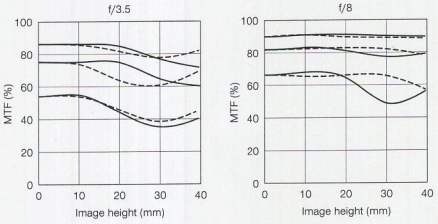
CFi 50



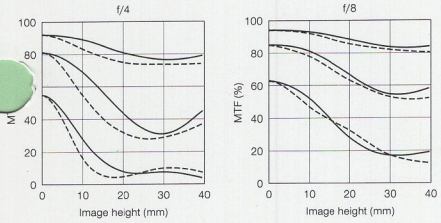
CFE 80



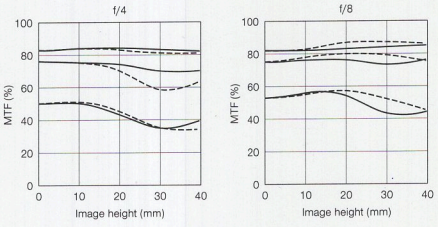
CFi 100



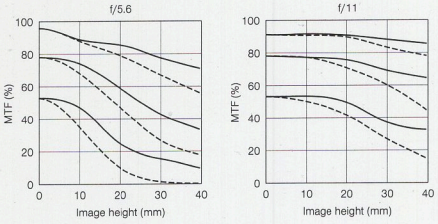
CFi 120 - ∞



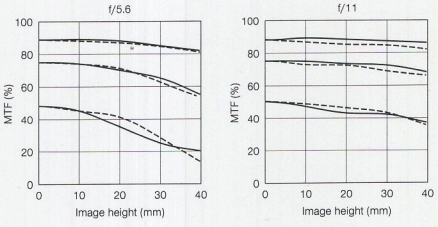
CFi 120 - 1:5



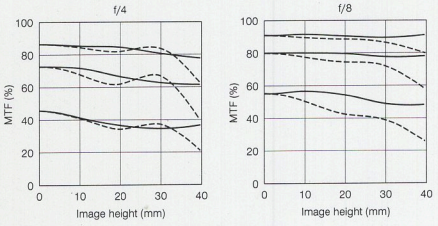
CF 135 - ∞



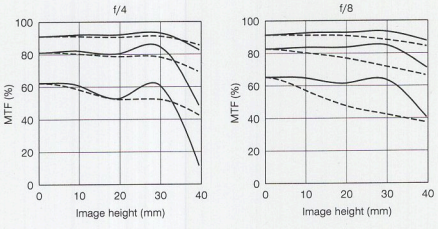
CF 135 - 1:5



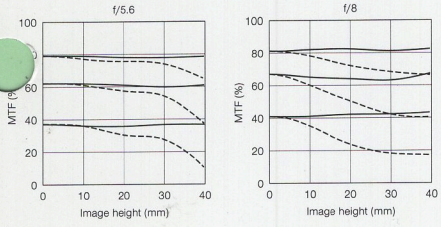
CFi 150



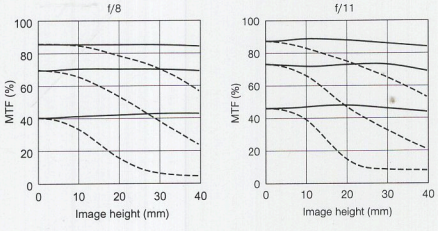
CFi 180



CFi 250



CF 500



The Modular Transfer Function (MTF) of the Hasselblad lenses

The Modulation Tranfer Function (MTF) is the established optical term for the ability of a lens to transfer the contrast in a subject to the film plane. Standardized MTF measurements presented in a diagram make it possible to objectively judge the contrast and resolution of a lens and to compare one lens with another.

When measured, the lens is focused on a standardized subject, which consists of pairs of white and black lines of the same width. The thickness of such a line pair is expressed in number of line pairs per millimeter reproduced on the film plane. Three different frequences are used – 10, 20 and 40 lp/mm.

As the contrast may vary over the film plane, measurements are taken from the centre of the image area along a radius towards the image corner. The distance between the point measured and the image centre is called the image height. For the Hasselblad 6x6 cm format the maximum image height is 40 mm.

The MTF value also depends on the orientation of the line pair pattern in relation to the radius from the image centre to the point measured. When the lines run in the same direction as the radius, they are said to have a sagittal orientation. When they cross the radius at right angles, the orientation is tangential.

MTF measurements are done with the lens at maximum aperture and with the lens stopped-down, resulting in two diagrams for each lens.

How to read the MTF diagrams

The image height is entered in mm on the horizontal axis of the graph.

The MTF value is entered on the vertical axis. The top MTF value 100% means that the modular transfer is perfect. The value 0% means that there is no contrast at all, the line pairs are reproduced flat grey.

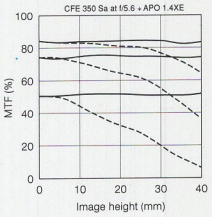
The lowest frequency (10 lp/mm) corresponds to the upper pair of curves, the highest spatial frequency (40 lp/mm) to the lower pair.

——— indicates that the line pairs have a sagittal orientation,

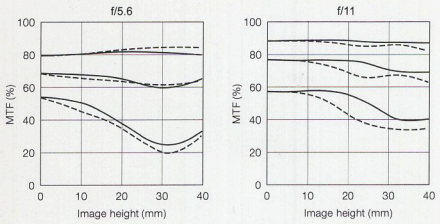
– – – – indicates that they have a tangential orientation.

MTF measurements are made using a light source with a standardized spectral distribution resembling that of natural daylight. Unless otherwise stated, the performance data refer to large object distances for which normal photographic lenses are primarily used.

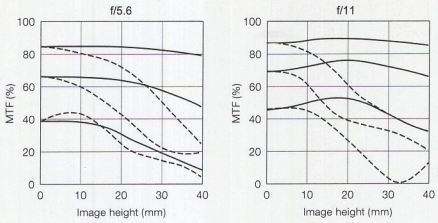
APO 1.4XE/CFE 350 Sa



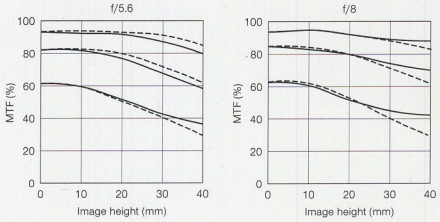
CF 140-280/140



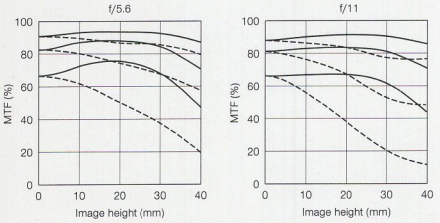
CF 140-280/280



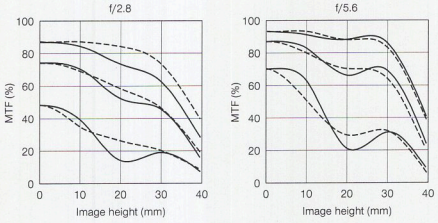
CFi 250 Sa



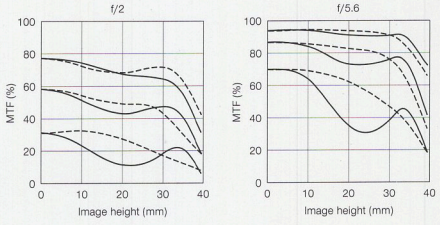
CFE 350 Sa



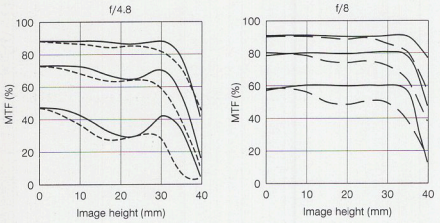
FE 50



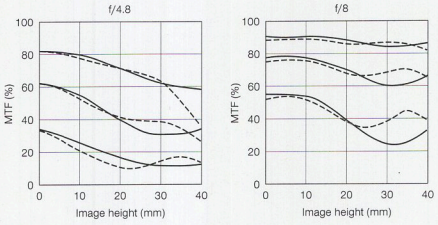
FE 110



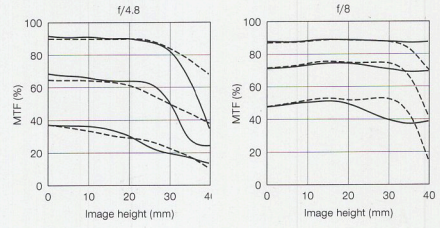
FE 60-120/60



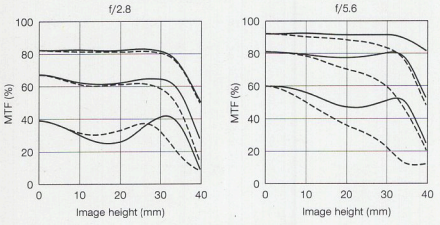
FE 60-120/95



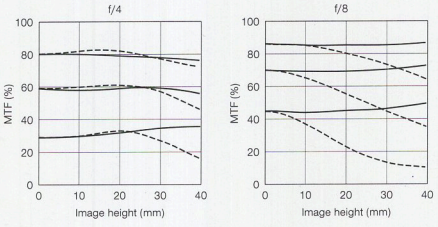
FE 60-120/120



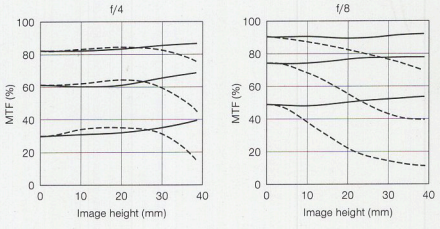
FE 150



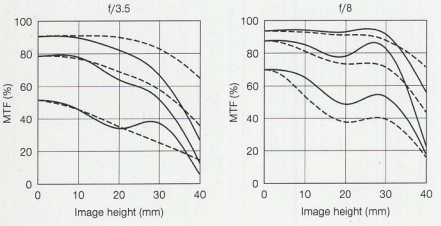
FE 250



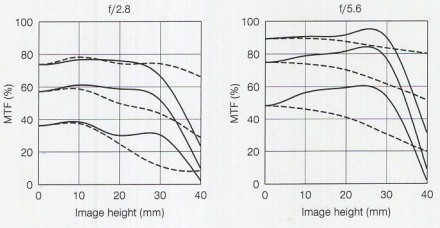
FE 350



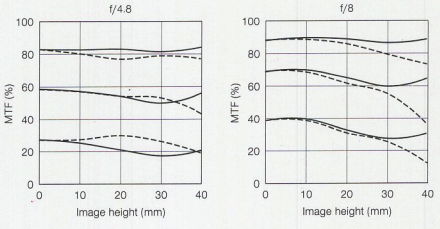
CB 60



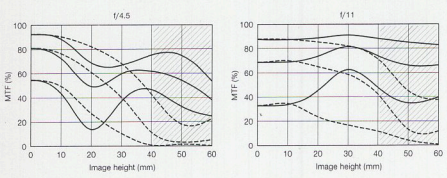
CB 80



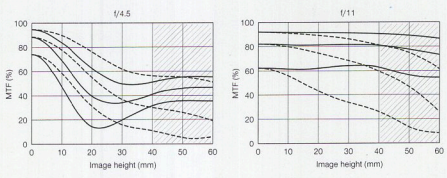
CB 160



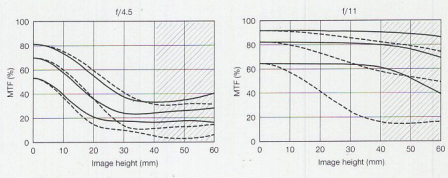
ArcBody 35 mm



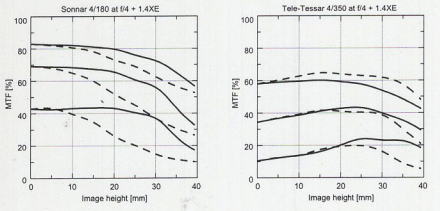
ArcBody 45 mm



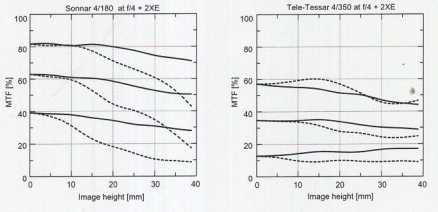
ArcBody 75 mm



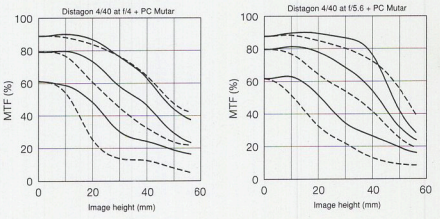
Teleconverter 1.4XE



Converter 2XE

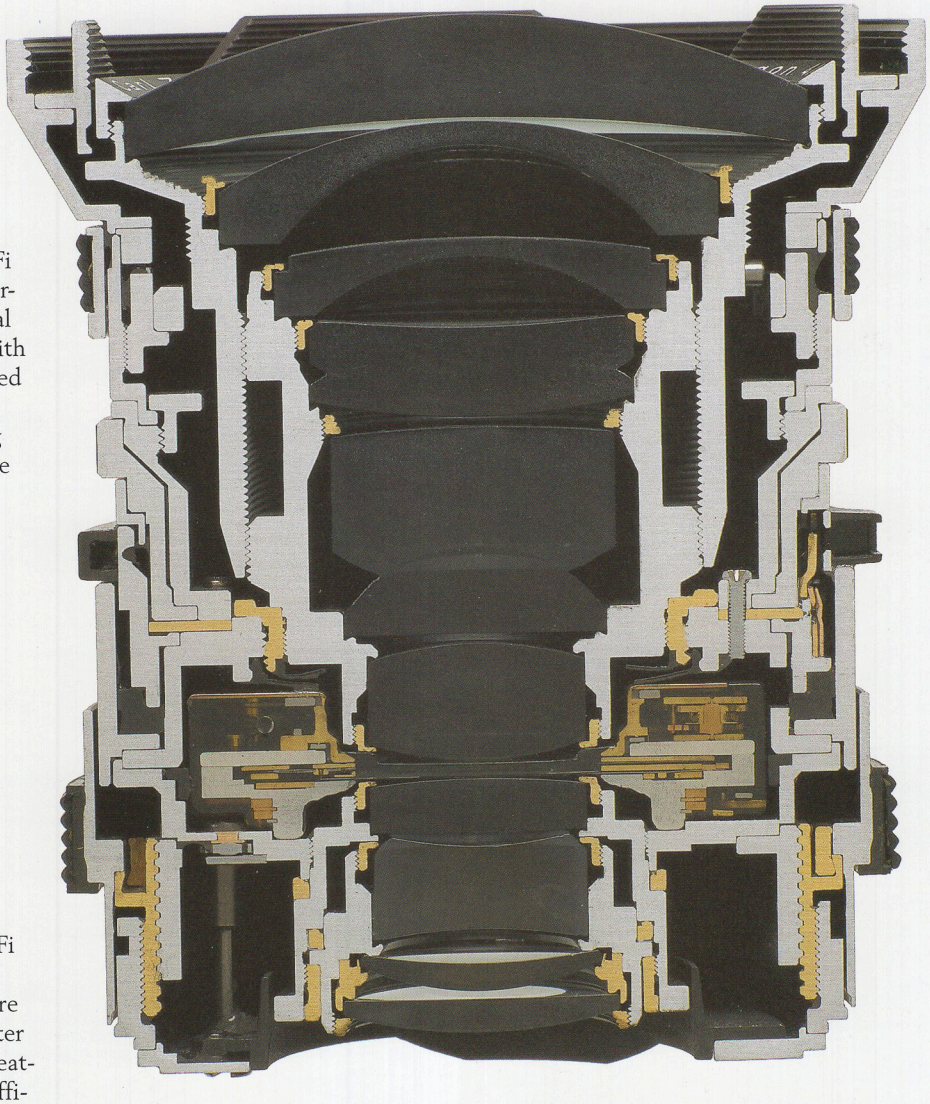


PC-Mutar/CFE 40



- When designing Hasselblad lenses, 250 types of optical glass and crystal materials are considered. Some of them are almost as heavy as steel, others are even more expensive than gold.

- After being ground and polished to perfection, all lens surfaces receive a T* multicoating of as many as 7 layers, each only about 1/10000 mm thick. The coating increases the light transmission and reduces a large degree of stray light, which otherwise would affect the image contrast.



- In the CFE and CFi lenses the inner barrels and mechanical parts are coated with a recently developed material, which reduces the veiling glare to an absolute minimum.

- Mechanically a lens is an intricate assembly of precision made small and large components, keeping the lens elements in exact positions and steering their calculated relative distances when focusing. The quality of the lens mechanics, including lens bayonet and controls, is of vital importance to both the image quality and the lasting performance of the lens.

- In the CF, CFE, CFi and CB lenses the built-in shutters are matched in diameter to each lens for greatest accuracy and efficiency at all shutter speeds and apertures.

- Each individual lens is tuned to maximum performance using modulation transfer function (MTF) measuring systems as a part of the state-of-the-art process for obtaining 100% quality assurance.

HASSELBLAD

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