

## HASSELBLAD H4D<sup>60</sup>

With the release of the new H4D-60 – the most recent addition to the Hasselblad H System – Hasselblad marks the beginning of a new chapter in the history of medium format DSLRs. The H4D-60 features True Focus with APL (Absolute Position Lock) – patent pending, making auto-focus substantially easier and more accurate for photography professionals.

H4D-60 is the top model of Hasselblad camera family. It sets a new standard for camera handling, image detail and image resolution. With a 60Mpix sensor covering the classic 645-format,

it provides the basis for optimal lens performance with the HC lenses at lens factor 1.0, and the HCD lenses at lens factor 1.0 with a marginal crop. For developing your creative expression the H4D-60 takes full advantage of the Hasselblad HTS 1.5 tilt/shift adapter. With its unique large and bright viewfinder image, its wide range of quality lenses matching the best of the icon lenses from Carl Zeiss, and its wide choice of accessories, the H4D-60 is the ultimate camera choice for the professional studio photographer.



### Raising the bar from H3D

Expanding on the great feature set of the H3D camera-line, Hasselblad introduces a new set of camera features with the H4D-60:

- new camera electronics providing the basis for True Focus and ultra fast Auto Focus
- new True Focus auto-focus system with Absolute Position Lock and new camera controls
- new 3" double-res (460.320 pixels) TFT 24bit color display with large viewing angle
- new improved AF assist illumination for working in dark environments
- new 90 MB/sec read-write performance on Extreme Pro cards from Sandisk
- new rear uni-body housing for improved local servicing

The H4D-60 camera system has been especially designed to meet demands for both flexibility and ultimate image quality. This includes:

- highest image resolution from 60Mpixel sensor
- the freedom to choose between eye-level and waist-level viewfinders
- the choice of combining point-and-shoot and tilt/shift to solve creative commercial challenges
- the ability to choose between working tethered or untethered to get the most of your camera system both on location and in the studio
- the option of processing your raw images in Hasselblad's Phocus imaging toolbox, or working with your raw images directly in Apple or Adobe imaging environments.

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The H4D-60 features a CCD sensor measuring 40,2x53,7mm – more than twice the physical size of the largest 35mm DSLR sensors. Basic ISO rating is from ISO 50 to ISO 800. The H4D-60 makes use of a new high speed capture architecture capturing full size, compressed 80Mbyte images at the rate of 1.4 seconds per capture, working either mobile or tethered to a computer.

The combination of these features makes the H4D-60 the natural choice for the professional studio photographer wanting to work with the highest image resolution within a camera system that supports ultimate creative expression in order to deliver outstanding image quality to satisfy the most demanding requirements.

### Medium Format digital capture advantage

In digital photography, the advantages of large format cameras have become even more obvious. The 6x4.5 cm window allows the H4D-60 to use the largest image sensors currently available in digital photography. Consequently the sensor holds more pixels, which deliver the highest possible image quality in terms of moiré-free color rendering without gradation break-ups on even the finest lit surfaces.

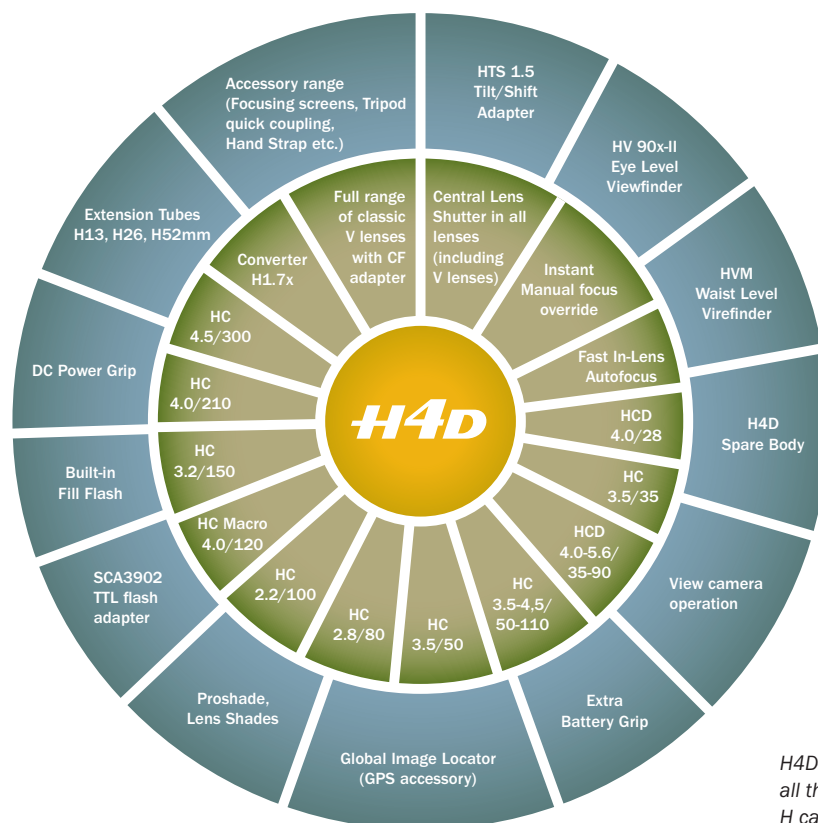
### An impressive lens line outperforming the Carl Zeiss lenses

The highly renowned HC/HCD lens line includes 11 auto-focus lenses, all with central lens shutters. Range is from 28mm to 300mm, 35-90 mm zoom, 50-110mm zoom, and 1.7X converter. The HTS 1.5 tilt/shift adapter delivers an easy to use, portable tilt/shift solution for 5 HC/HCD lenses ranging from 28mm to 100mm. The central lens shutter, with flash sync speed up to 1/800s, also improves image quality by reducing camera vibration.

The CF lens adapter allows use of the classic CF-lenses from the Hasselblad V-camera, with full use of their central lens shutters, allowing flash to be employed at shutter speeds up to 1/500s. And thanks to the large format of the H System cameras, there is a considerably shallower depth of field range, making it much easier to utilize selective focus to creative effect.

### A choice of bright viewfinders

One of the important traditional advantages of the medium format is the extra-large and bright viewfinder image, enabling extremely precise compositions and easy operation in dim lighting. The H4D-60 comes with the HV 90x-II viewfinder designed for full performance



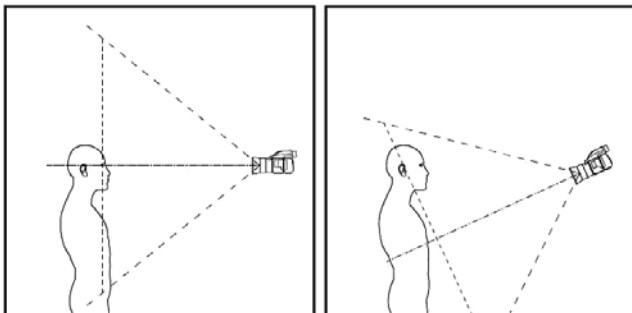
*H4D-60 takes full benefit from all the flexibility of the impressive H camera system.*

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over the large sensor. Hasselblad has added an interchangeable waist-level viewfinder, the HVM, for the entire range of H system cameras. The bright and large viewfinder image is ideal for creative composing and the photographer is able to shoot in the fashion that suits them most; maintaining eye contact with the model, or gaining impact by shooting from a point lower than eye-level, for example.

### True Focus and Absolute Position Lock

True Focus helps solve one of the most lingering challenges that faces serious photographers today: true, accurate focusing throughout the image field. Without multi-point auto-focus a typical auto-focus camera can only correctly measure focus on a subject that is in the center of the image. When a photographer wants to focus on a subject outside the center area, they have firstly aim the camera at the subject to lock focus and then re-compose the image. At close focusing distances especially, this re-composing causes a focus error, as the plane of sharpness follows the movement of the camera, perpendicular to the axis of the lens.



The plane of focus changes when the camera is tilted for composition.



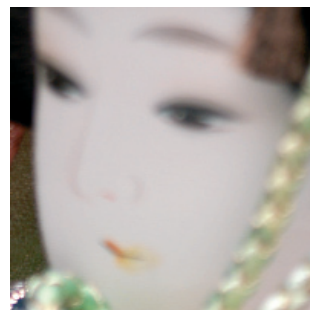
Final desired composition with sharpness on the eyes of the doll.



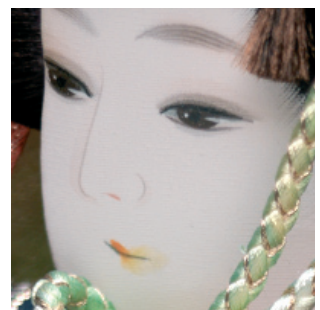
Aiming the central focusing point on the eyes will make them sharp but produce the wrong composition.

The traditional solution for most DSLRs has been to equip the camera with a multi-point AF sensor. These sensors allow the photographer to fix an off-center focus point on an off-center subject, which is then focused correctly. Due to the physics of an SLR-camera, the off-center focus points that are offered are all clustered relatively close to the center of the image. This means that the photographer still has to frame the subject more or less centrally, focus and then reframe again. And perhaps more importantly, the problem is still not completely resolved because the incorrect distance setting remains after reframing, thereby causing focusing errors. In addition, focusing points must firstly be manually selected and then reselected if the camera is turned. This takes precious seconds, is distracting to workflow and is prone to error.

To overcome this problem, Hasselblad has used modern yaw rate sensor technology to measure angular velocity in an innovative way. The result is the new Absolute Position Lock (APL) processor, which forms the foundation of Hasselblad's True Focus feature. The APL processor accurately logs camera movement during any re-composing, then uses these exact measurements to calculate the necessary focus adjustment, and issues the proper commands to the lens's focus motor so it can compensate. The APL processor computes the advanced positional algorithms and carries out the required focus corrections at such rapid speed that no shutter lag occurs. The H4D's firmware then further perfects the focus using the precise data retrieval system found on all HC/HCD lenses.



Without True Focus - tilting the camera down to produce the desired composition makes the eyes now fall outside the plane of sharpness.



With True Focus - the focus is automatically adjusted to keep the eyes sharp.

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### Digital Lens Correction and Ultra-Focus for image perfection

The H4D-60 camera allows information from the lens and exact capture conditions to be fed to the camera processor for ultra-fine-tuning of the auto-focus mechanism, taking into account the design specifications of the lens and the optical specifications of the sensor. In this way the full HC lens program is even further enhanced, bringing a new level of sharpness and resolution. Digital correction for color aberration and distortion is also added. Digital Lens Correction (DAC), is an APO-chromatic correction of the images based on a combination of the various parameters concerning each specific lens for each specific shot, ensuring that each image represents the best that your equipment can produce.

### Phocus software driving down the learning curve

Phocus provides an advanced software toolbox that has been especially designed to easily achieve optimum workflow and absolute image perfection from Hasselblad raw image files.

With the H4D-60 camera system Phocus provides:

- Uncompromising image quality
- Special extended camera controls with which to operate your H4D-60 camera. These features, such as live video for easier shot set-up and workflow, or the ability to control the lens drive for focusing when the camera is in a remote position or when the digital capture unit is mounted on a view camera, bring an entirely new level of flexibility to the way you shoot.
- Moiré Removal Technology automatically applied directly on the raw data, leaving image quality intact and eliminating the need to carry out special masking selections or other manual procedures, saving hours of tedious post-production work.

- Flexible Workflow. The Phocus GUI features easy-to-use options that allow you to customize your set-up to suit a range of different workflow situations, such as choice of import source, browsing/comparison functions, file management, image export in a number of file formats, pre-setting of options for upcoming shoots, and much, much more.
- New Metadata (GPS, etc). The extended metadata included in all Phocus images provides for accurate and detailed cataloguing and indexing, easy image management, and includes added GPS data functionality in order to allow a range of new functions. Phocus links GPS data directly to Google Earth, for example, making geographic reference a snap and image storage and retrieval much easier.
- Perfect Viewing Quality. The Phocus Viewer delivers image viewing quality that matches every detail of what you will see later in Photoshop. In addition, the Phocus Viewer allows you to customize layout and composition to suit your current or desired workflow, providing a wide range of options including full view, compare, browse, horizontal, or vertical view, and so on. You can have multiple folders open simultaneously for side-by-side viewing, comparison, and selection.

### Hasselblad's unique natural colors

Hasselblad's Natural Color Solution (HNCS) enables you to produce outstanding and reliable out-of-the-box colors, with skin tones, specific product colors and other difficult tones reproduced easily and effectively. In order to incorporate our unique HNCS and DAC-features we have developed a custom Hasselblad raw file format called 3F RAW (3FR). This file format includes lossless image



H4D with GIL Global Image Locator accessory.

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compression, which reduces the file size by 33%. The 3FR files can be opened directly in Apple or Adobe imaging environments. In order to utilize DAC and optimize the colors of the DNG file format, conversion from 3FR must take place through Phocus.

### Accessories including GPS Recording Flexibility

Hasselblad's Global Image Locator (GIL) is an accessory for use with any Hasselblad H-System digital capture product. With the GIL device, all images captured outside are tagged with GPS coordinates, time and altitude. This data provides the key to a number of future applications involving image archiving and retrieval. One example is the direct mapping of images in Phocus software to the Google Earth application. Check out full list of accessories at: <http://www.hasselblad.com/products/lenses-and-accessories/h-system-accessories.aspx>

### Instant Approval Architecture

Building on the success of its Audio Exposure Feedback technology, Hasselblad has created Instant Approval Architecture (IAA), an enhanced set of feedback tools, designed to enable the photographer to focus on the shoot rather than the selection process. IAA triggers audible and visual signals for each image captured, notifying the photographer immediately of its classification status.

The information is recorded both in the file and in the file name, providing a quick and easy way to classify and select images, in the field or back at the studio. IAA is a Hasselblad trademark and Hasselblad has a patent pending on the invention.

The extra large 3" display on the H4D-60 provides a realistic, high quality and perfect contrast image view, even in bright sunlight.

### Options for working with tilt/shift

Two basic options are available for tilt/shift work with H4D-60. A simple, portable adapter solution and the classic view camera solution.

The HTS tilt/shift adapter for H4D-60 allows for portable tilt/shift with the HC/HCD lens range from 28mm to 100mm. Please refer to the separate datasheet on this product for details.

To further increase usability, the H4D-60 has been designed to allow the digital capture unit to be detached and used on a view camera by way of an adapter. Please refer to page 7 for details.

### Two modes of operation and storage

The H4D-60 offers a choice of storage devices: portable CF cards or a computer hard drive. With these operating and storage options, you are able to select a mode to suit the nature of the work in hand, whether in the studio or on location.



5 HC/HCD lenses including Extension Tubes can be used with the HTS 1.5



H4D with HTS 1.5 tilt/shift adapter and a HCD 28mm lens.

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## Hasselblad Camera Line – model comparison

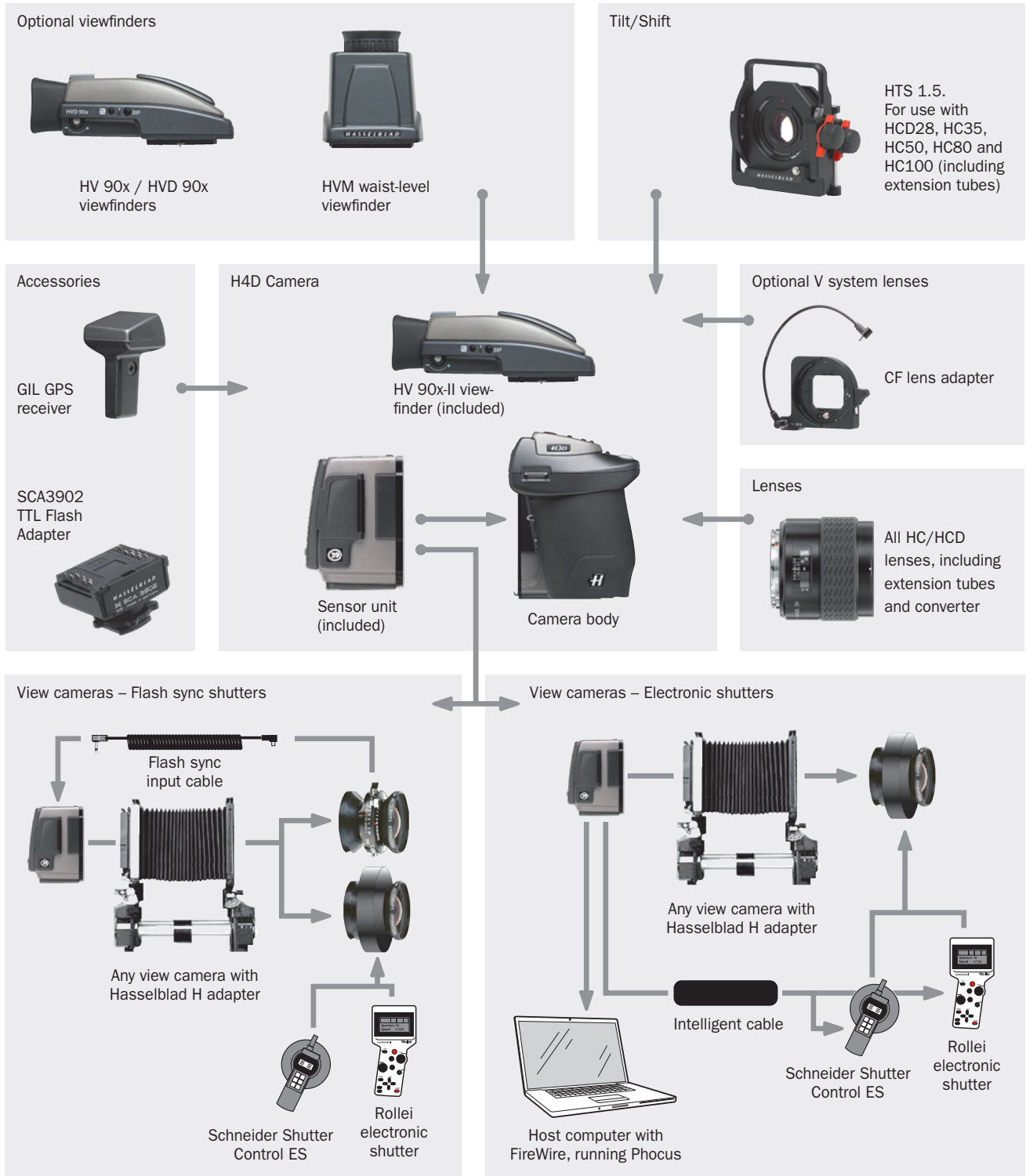
	Pixels	Sensor format	ISO range	Capture speed	HC lens factor	HCD lens factor
H3DII-31	31 million	33.1×44.2mm	ISO 100 - 1600	1.2 sec/capture	1.3	1.1
H3DII-39	39 million	36.8×49.1mm	ISO 50 - 800	1.4 sec/capture	1.1	1.0
H3DII-50	50 million	36.8×49.1mm	ISO 50 - 800	1.1 sec/capture	1.1	1.0
H4D-60	60 million	40.2×53.7mm	ISO 50 - 800	1.4 sec/capture	1.0	1.0 (marginal crop)

## Technical specification

SPECIFICATIONS DIGITAL FEATURES	
Sensor size	60.1 Mpixels (6708×8956 pixels)
Sensor dimensions	40.2×53.7 mm
Pixel size	6.0 µm
Image size	RAW 3FR capture compressed to 80 MB on average. TIFF 8 bit: 180 MB
RAW file format	Lossless compressed Hasselblad 3FR
Shooting mode	Single shot
Color definition	16 bit
ISO speed range	ISO 50, 100, 200, 400 and 800
2 storage options	CF card type U-DMA (e.g. SanDisk Extreme Pro) or tethered to Mac or PC
Color management	Hasselblad Natural Color Solution
CF storage capacity	8 GB CF card holds 100 images on average
Capture rate	1.4 seconds per capture. 31 captures per minute
Color display	3 inch, double-res (460.320 pixels), TFT, 24 bit color
Histogram feedback	Yes
IR filter	Mounted on CCD sensor
Acoustic feedback	Yes
Software, included	Phocus for Mac and Windows
Platform support	Macintosh: OSX version 10.6. Windows: XP, Vista and Windows 7 (32 and 64 bit)
Host connection type	FireWire 800 (IEEE1394b)
View camera compatibility	Yes, Mechanical shutters controlled via flash sync. Electronic shutters can be controlled from Phocus.
Operating temperature	0 - 45 °C / 32 - 113 °F
Dimensions	Complete camera without lens: 153 x 131 x 136 mm [W x H x D]
Weight	1800 g (Camera body, HV 90x-II viewfinder, Li-Ion battery and CF card)

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## Connectivity diagram



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H4D lens range

		
HCD 4/28mm	HC 3.5/35mm	HC 3.5/50mm
		
HC 2.8/80mm	HC 2.2/100mm	HC Macro 4/120mm
		
HC 3.2/150mm	HC 4/210mm	HC 4.5/300mm
		
HC 3.5-4.5/50-110mm	HCD 4.5.6/35-90mm	All C-type lenses from the V system with CF lens adapter. Full lens shutter operation.

Specification subject to change without notice.

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