Lab

The Home Lab: Pictures of an Analog World

There is no doubt: The real world is analog. We understand „analog" as the complement to „digital". Everything that surrounds us – light, materials, sounds – we perceive as an analog presentation, as a continuous, i.e. a continuously changing „signal".

The decision, whether you will make images of our real world as analog or digital „signals", that is to say shoot analog or digital pictures, is of basic fundamental importance. The same applies to the further processing of the analog or digital image. Even though shooting digital or analog as a procedure is almost the same (even the cameras look very similar), the home lab as the place for analog processing is a completely different world.

Digital processing requires substantial knowledge about computers and software for processing digital ima-

ges. On the other hand working in a home lab needs handicraft skills and requires practical as well as specific knowledge. The enjoyment for handicraft work is the most important motivation for „making pictures" in your own homelab. In some way the results of this work can be seen as pieces of art. Take into consideration, that the home lab worker uses the same materials as the professional, then he could produce professional results, something you normally have to spend big money for.

Working in an own home lab is also very often a pleasing compensation for your professional work, nowadays done very often in front of a computer monitor. There are many people who do not like to continue that in their free time.

There are even more reasons to do your own processing, printing and enlarging. Your home lab offers invaluable advantages when you make enlargments bigger than 30 x 40 cm or 12 x 16". At these scales you can clearly recognize another property of the analog image recording procedure: the continuous tone increase from the deepest shadows to the brightest highlights.

The pictures produced in a home lab are also very durable. Especiall black-and-white pictures printed on baryta paper can reach an age of more than 100 years if they are properly proces-sed and stored. Viewing these images requires no additional tools, even the human eye is an analog sensor.

The craftsman in his home lab needs suitable and reliable tools for his „picture workshop". The core piece is the enlarger, an appliance which does the exposure by projec-ting the film image on the photogra-phic paper. Kaiser offers a flexible and well-engineered enlarger system and every „image crafts-man" can make an adequate and reasonable choice – analog after all (Greek: „ana" = according to + „logos" = reason).

Photography: Ivana Grujič


Photography: Carlo Lecuit

SYSTEM-V: A Concept with a System

The Kaiser SYSTEM-V is the consistant implementation of the modular concept to an entire range of enlargers. It is not only characterized by the upgradability to different lighting heads and formats, all the items in the system are compatible with all the units. The complete modularisation of the enlargers is the unmistakable feature of SYSTEM-V. It also permits an enlarger to be assembled from the various system modules to completely suit your individual needs. So you can get a model out of the box or have one tailor-made for you as well.
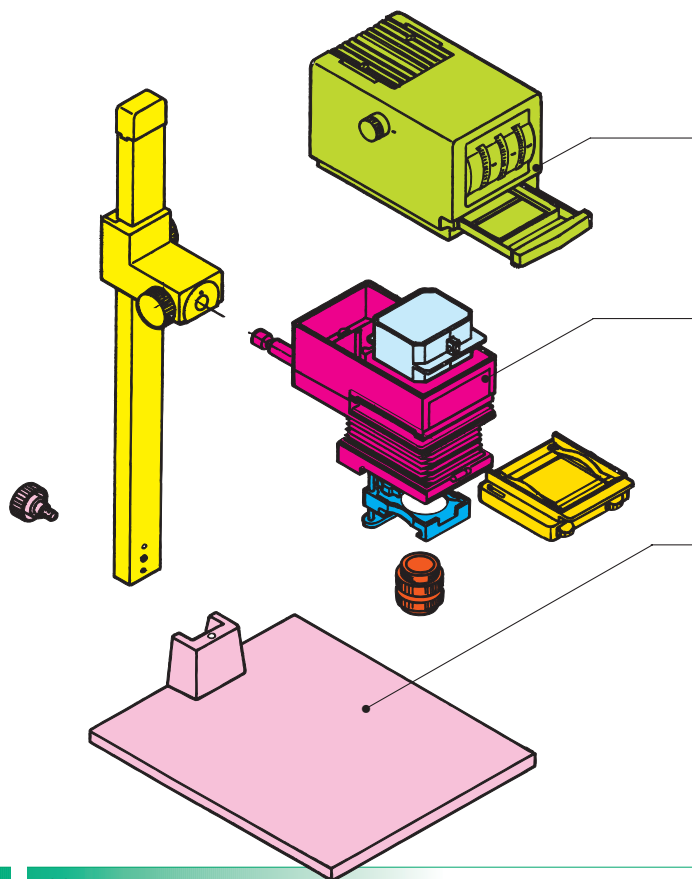
The hardware side of the SYSTEM-V concept is based on three separate assemblies.

1. The lighting components

The „heads" determine the type of light and beam, the filtration and light mixing features. They decide whether the complete machine is a color or black-and-white enlarger.

2. The format-determinative components

„Format" is defined here as the maximum enlargeable negative format. These components include the condensor system, the inserts for the compound negative carrier, and the enlarger lens. They decide whether the machine is a 35 mm enlarger or a medium-format one for 6 x 6 cm, 6 x 7 cm or 6 x 9 cm.

3. The dimension-determinative components

These include the baseboard and column and their dimensions – The width times the depth and column height determine the overall machine sizes.

Everything under Control

	Type	Code no.	up to 6 x 9 cm (2.4 x 3.5")	up to 6 x 7 cm (2.4 x 2.8")	up to 6 x 6 cm (2.4 x 2.4")	up to 24 x 36 mm (35 mill)	wall and floor projection	scale display	height adjustment with friction drive	weight balance with roll spring	focus with fine drive	max. enlargement (linear) on baseboard	Scheimpflug rectification	interchangeable	mask/glass insert top 2)	mask/glass insert bottom 2)	adjustable masking strips	color head with dichroic filters	filter values, densitometric to 180	scale wheels illuminated	white-light lever/density diaphragm	double condensor	filter drawer/spirit level	diffuser; UV filter; IR filter	red filter	quick-change lens attachment	filter holder	direct, 75 w opal lamp	reflex, 100 w cold light mirror lamp 3)	50 x 60 cm (19.5 x 23.5")	45 x 50 cm (17.5 x 19.5")
Color enlargers	VCP 9005	4550	●				●	●	●	●	●	6,0		●	AN	P	●	●	●	●	●	●	●	●	●	●	●		●	●	
	VCP 7005	4480		●			●	●	●	●	●	7,2		●	AN	M	●	●	●	●	●	●	●	●	●	●			●	●	
	VCP 6005	4460			●		●	●	●			8,4		●	AN	M	●	●	●	●	●	●	●	●	●	●			●		●
	VCP 3505	4420				●	●	●	●			14,6		●	M	M	●	●	●	●	●	●	●	●	●	●			●		●
Multigrade®	VPM 9005	4560	●				●	●	●	●	●	6,0		●	AN	P	●	1)	1)	●	●	●	●	●	●	●	●		●	●	
	VPM 7005	4471		●			●	●	●	●	●	7,2		●	AN	M	●	1)	1)	●	●	●	●	●	●	●			●	●	
	VPM 6005	4530			●		●	●	●			8,4		●	AN	M	●	1)	1)	●	●	●	●	●	●	●			●		●
	VPM 3505	4426				●	●	●	●			14,6		●	M	M	●	1)	1)	●	●	●	●	●	●	●			●		●
B&W enlargers	VP 9005	4540	●				●	●	●	●	●	6,0		●	AN	P	●					●	●	●	●	●	●	●		●	
	VP 7005	4470		●			●	●	●	●	●	7,2		●	AN	M	●					●	●	●	●	●	●	●		●	
	VP 6005	4465			●		●	●	●			8,4		●	AN	M	●					●	●	●	●	●		●			●
	VP 3505	4425				●	●	●	●			14,6		●	AN	M	●					●	●	●	●	●		●			●

1) Multigrade head   2) AN = Anti-Newton-glass, M = mask, P = flat glass   3) Transformer required

Color Enlargers
SYSTEM-V

General specifications:

Color mixing head with dichroic interference filters, calibrated in densitometric values up to 180. Dials are indirectly illuminated. White-light lever for simultaneous swinging in or out of filters, with control light. Continuously adjustable density aperture up to 60 densito-metric densities (= two aperture settings). Best possible light distribution due to special diffusor plate and exchangeable double con-densor system. UV and IR filters. Filter dra-wer.

Removable compound negative carrier with interchangeable inserts, adjustable masking strips, adjustable film stops and grid pins. Lens stage with spirit level and red filter, tilta-ble for distortion correction on Scheimpflug principle. Quick change attachment for len-ses. Height adjustment by hand-crank ope-rated friction drive on plastic bearings. Wall and floor projection possible.

Wide, vibration-resistant column of embos-sed aluminium tubing, with dull black anodi-zed surface, cm and inch scales and mar-kings for enlarging scales. Matt-gray lamina-ted baseboard with individually height-adju-stable feet. Spirit level on column base.

Technical specifications:

Lamp: Halogen cold light mirror lamp,
        12 V, 100 W, socket GZ 6.35
Cord: approx. 1.80 m (6 ft.)
Filter drawer: 85 x 85 mm (3.3 x 3.3 in.)
Column (HxWxD): approx. 1000 x 70 x 35 mm
        (39.4 x 2.8 x 1.4 in.)

Distance between optical axis and column base: approx. 220 mm (8.7 in.)

Can be converted into a copy stand or a slide duplicator.

Scope of supply: Incl. compound negative carrier, lamp and dust hood, without lens, without transformer.

4550/4480

4451/4453   12 V, 100 W   4459

KAISER
FOTOTECHNIK

4550
VCP 9005

Color enlarger for all film formats up to 6 x 9 cm (2.4 x 3.5 in.) and lenses up to 105 mm focal length.

Compound negative carrier fitted with Anti-Newton glass on top and flat glass on bottom.

Focusing with additional fine drive. Height adjustment with weight compensation by a roll-off spring mechanism.

Filter holder for square filters and framed Multigrade® filters, can be swung out and adjusted in height, with diffusor plate for integral metering.

Baseboard (WxDxH): approx. 600 x 500 x 32 mm (23.6 x 19.7 x 1.3 in.)

4460
VCP 6005

Color enlarger for all film formats up to 6 x 6 cm (2.4 x 2.4 in.) and lenses up to 80 mm focal length. Can be converted to formats up to 6 x 9 cm.

Compound negative carrier fitted with Anti-Newton glass on top and 6 x 6 format mask on bottom.

Baseboard (WxDxH): approx. 450 x 500 x 28 mm (17.7 x 19.7 x 1.1 in.)

4460/4420

4480
VCP 7005

Color enlarger for all film formats up to 6 x 7 cm (2.4 x 2.8 in.) and lenses up to 105 mm focal length. Can be converted to a 6 x 9 enlarger.

Compound negative carrier fitted with Anti-Newton glass on top and 6 x 7 format mask on bottom.

Focusing with additional fine drive. Height adjustment with weight compensation by a roll-off spring mechanism.

Filter holder for square filters and framed Multigrade® filters, can be swung out and adjusted in height, with diffusor plate for integral metering.

Baseboard (WxDxH): approx. 600 x 500 x 32 mm (23.6 x 19.7 x 1.3 in.)

4420
VCP 3505

Color enlarger for 35 film (24 x 36 mm) and lenses up to 50 mm focal length. Can be converted to formats up to 6 x 9 cm.

Compound negative carrier fitted with 35 mm (24 x 36 mm) format masks.

Baseboard (WxDxH): approx. 450 x 500 x 28 mm (17.7 x 19.7 x 1.1 in.)

4560/4471

Multigrade® Enlargers
SYSTEM-V

General specifications:

Multigrade® head with dichroic color filter for use with variable gradation paper without changing the exposure time. Scale dial indirectly illuminated with index numbers in half steps from 0 (extra soft) to 5 (extra hard) for stepless contrast control. White-light lever for simultaneous swinging in or out of filters, with control light. Continuously adjustable density aperture up to 60 densitometric densities (= two aperture settings). Best possible light distribution due to special diffusor plate and exchangeable double condensor system. UV and IR filters. Filter drawer.

Removable compound negative carrier with interchangeable inserts, adjustable masking strips, adjustable film stops and grid pins. Lens stage with spirit level and red filter, tiltable for distortion correction on Scheimpflug principle. Quick change attachment for lenses. Height adjustment by hand-crank operated friction drive on plastic bearings. Wall and floor projection possible.

Wide, vibration-resistant column of embossed aluminium tubing, with dull black anodized surface, cm and inch scales and markings for enlarging scales. Matt-gray laminated baseboard with individually height-adjustable feet. Spirit level on column base.

Technical specifications:

Lamp: Halogen cold light mirror lamp,
12 V, 100 W, socket GZ 6.35
Cord: approx. 1.80 m (6 ft.)
Filter drawer: 85 x 85 mm (3.3 x 3.3 in.)
Column (HxWxD): approx. 1000 x 70 x 35 mm (39.4 x 2.8 x 1.4 in.)
Distance between optical axis and column base: approx. 220 mm (8.7 in.)

Can be converted into a copy stand.

Scope of supply: Incl. compound negative carrier, lamp and dust hood, without lens, without transformer.

4451/4453   12 V, 100 W   4459

KAISER
FOTOTECHNIK

4560
VPM 9005

Multigrade® enlarger for all film formats up to 6 x 9 cm (2.4 x 3.5 in.) and lenses up to 105 mm focal length.

Compound negative carrier fitted with Anti-Newton glass on top and flat glass on bottom.

Focusing with additional fine drive. Height adjustment with weight compensation by a roll-off spring mechanism.

Filter holder for square filters and framed Multigrade® filters, can be swung out and adjusted in height, with diffusor plate for integral metering.

Baseboard (WxDxH): approx. 600 x 500 x 32 mm (23.6 x 19.7 x 1.3 in.)

4530
VPM 6005

Multigrade® enlarger for all film formats up to 6 x 6 cm (2.4 x 2.4 in.) and lenses up to 80 mm focal length. Can be converted to formats up to 6 x 9 cm.

Compound negative carrier fitted with Anti-Newton glass on top and 6 x 6 format mask on bottom.

Baseboard (WxDxH): approx. 450 x 500 x 28 mm (17.7 x 19.7 x 1.1 in.)

4530/4426

4471
VPM 7005

Multigrade® enlarger for all film formats up to 6 x 7 cm (2.4 x 2.8 in.) and lenses up to 105 mm focal length. Can be converted to a 6 x 9 enlarger.

Compound negative carrier fitted with Anti-Newton glass on top and 6 x 7 format mask on bottom.

Focusing with additional fine drive. Height adjustment with weight compensation by a roll-off spring mechanism.

Filter holder for square filters and framed Multigrade® filters, can be swung out and adjusted in height, with diffusor plate for integral metering.

Baseboard (WxDxH): approx. 600 x 500 x 32 mm (23.6 x 19.7 x 1.3 in.)

4426
VPM 3505

Multigrade® enlarger for 35 film (24 x 36 mm) and lenses up to 50 mm focal length. Can be converted to formats up to 6 x 9 cm.

Compound negative carrier fitted with 35 mm (24 x 36 mm) format masks.

Baseboard (WxDxH): approx. 450 x 500 x 28 mm (17.7 x 19.7 x 1.1 in.)

Multigrade is a registered trademark of Ilford Ltd.

4540/4470

B & W Enlargers
SYSTEM-V

General specifications:

Lamp head with 75 W opal lamp, lamp adjustable. Exchangeable double condensor system. Filter drawer.

Removable compound negative carrier with interchangeable inserts, adjustable masking strips, adjustable film stops and grid pins. Lens stage with spirit level and red filter, tiltable for distortion correction on Scheimpflug principle. Quick change attachment for lenses. Height adjustment by hand-crank operated friction drive on plastic bearings. Wall and floor projection possible.

Wide, vibration-resistant column of embossed aluminium tubing, with dull black anodized surface, cm and inch scales and markings for enlarging scales. Matt-gray laminated baseboard with individually height-adjustable feet. Spirit level on column base.

Technical specifications:

Lamp: Opal lamp 75 W, E 27 socket
Cord: approx. 2.50 m (8 ft. 2 in.)
Filter drawer: 85 x 85 mm (3.3 x 3.3 in.)
Column (HxWxD): approx. 1000 x 70 x 35 mm (39.4 x 2.8 x 1.4 in.)
Distance between optical axis and column base: approx. 220 mm (8.7 in.)

Can be converted into a copy stand.

Scope of supply: Incl. compound negative carrier, lamp and dust hood, without lens.

75 W, E 27   4356

KAISER
FOTOTECHNIK

4540
VP 9005

B & W enlarger for all film formats up to 6 x 9 cm (2.4 x 3.5 in.) and lenses up to 105 mm focal length.

Compound negative carrier fitted with Anti-Newton glass on top and flat glass on bottom.

Focusing with additional fine drive. Height adjustment with weight compensation by a roll-off spring mechanism.

Filter holder for square filters and framed Multigrade® filters, can be swung out and adjusted in height, with diffusor plate for integral metering.

Baseboard (WxDxH): approx. 600 x 500 x 32 mm (23.6 x 19.7 x 1.3 in.)

4465
VP 6005

B & W enlarger for all film formats up to 6 x 6 cm (2.4 x 2.4 in.) and lenses up to 80 mm focal length. Can be converted to formats up to 6 x 9 cm.

Compound negative carrier fitted with Anti-Newton glass on top and 6 x 6 format mask on bottom.

Baseboard (WxDxH): approx. 450 x 500 x 28 mm (17.7 x 19.7 x 1.1 in.)

4470
VP 7005

B & W enlarger for all film formats up to 6 x 7 cm (2.4 x 2.8 in.) and lenses up to 105 mm focal length. Can be converted to a 6 x 9 enlarger.

Compound negative carrier fitted with Anti-Newton glass on top and 6 x 7 format mask on bottom.

Focusing with additional fine drive. Height adjustment with weight compensation by a roll-off spring mechanism.

Filter holder for square filters and framed Multigrade® filters, can be swung out and adjusted in height, with diffusor plate for integral metering.

Baseboard (WxDxH): approx. 600 x 500 x 32 mm (23.6 x 19.7 x 1.3 in.)

4425
VP 3505

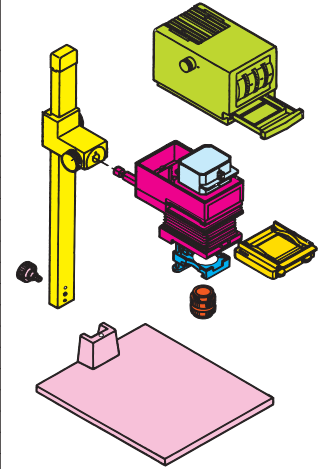B & W enlarger for 35 film (24 x 36 mm) and lenses up to 50 mm focal length. Can be converted to formats up to 6 x 9 cm.

Compound negative carrier fitted with 35 mm (24 x 36 mm) format masks.

Baseboard (WxDxH): approx. 450 x 500 x 28 mm (17.7 x 19.7 x 1.1 in.)

4465/4425

Specs and More: A Survey

SYSTEM-V

Base Boards and Accessories			VCP 9005 4550	VCP 7005 4480	VCP 6005 4460	VCP 3505 4420	VPM 9005 4560	VPM 7005 4471	VPM 6005 4530	VPM 3505 4426	VP 9005 4540	VP 7005 4470	VP 6005 4465	VP 3505 4425	also for use with previous SYSTEM-V models	also for use with VP 350 (4401)
Base Boards and Accessories	4472	Base Board 45 x 50 cm (17.7 x 19.7 in.)	○	○	●	●	○	○	●	●	○	○	●	●	○	–
	4413	Base Board 50 x 60 cm (19.7 x 23.6 in.)	●	●	○	○	●	●	○	○	●	●	○	○	○	–
	4414	Base Board 60 x 80 cm (23.6 x 31.5 in.)	○	○	○	○	○	○	○	○	○	○	○	○	○	–
	5508	Base Stand	○	○	○	○	○	○	○	○	○	○	○	○	○	–
Columns and Accessories	4473	Column w/o weight compensation, 1 m (40 in.)	○	○	●	●	○	○	●	●	○	○	●	●	○	–
	4474	Column with weight compensation, 1 m (40 in.)	●	●	○	○	●	●	○	○	●	●	○	○	○	–
	4475	Column w/toothed rack and fine drive, 1 m (40 in.)	○	○	○	○	○	○	○	○	○	○	○	○	○	–
	4476	Column with toothed rack, 1 m (40 in.)	○	○	○	○	○	○	○	○	○	○	○	○	○	–
	4408	Column with toothed rack, 1.2 m (47 in.)	○	○	○	○	○	○	○	○	○	○	○	○	○	–
	4409	Column with weight compensation, 1.5 m (60 in.)	○	○	○	○	○	○	○	○	○	○	○	○	○	–
	4412	Wall Mount	○	○	○	○	○	○	○	○	○	○	○	○	○	–
	4455	Extension Arm	○	○	○	○	○	○	○	○	○	○	○	○	○	–
Enlarger Head Lower Part and Accessories	4568	Enlarger Head Lower Part	●	●	●	●	●	●	●	●	●	●	●	●	○	○
	4423	Lens Holder Ring up to 50 mm focal length	●	●	●	●	●	●	●	●	●	●	●	●	–	–
	4424	Lens Holder Ring 60 – 105 mm focal length	●	●	●	●	●	●	●	●	●	●	●	●	–	–
Enlarger Heads and Accessories		B&W Head, for formats up to 6 x 6 cm	○	○	○	○	○	○	○	○	○	○	●	●	○	○
	4541	B&W Head, for formats up to 6 x 9 cm	○	○	○	○	○	○	○	○	○	○	●	●	○	○
	4544	Color Head with density aperture	●	●	●	●	○	○	○	○	○	○	○	○	○	○
	4545	Multigrade Head with density aperture	○	○	○	○	●	●	●	●	○	○	○	○	○	○
	4451	Transformer with voltage stabilization	○	○	○	○	○	○	○	○	–	–	–	–	○	–
	4453	Transformer w/o voltage stabilization	○	○	○	○	○	○	○	○	–	–	–	–	○	–
	4356	Opal Lamp, 75 Watt	–	–	–	–	–	–	–	–	●	●	●	●	○	●
	4459	Halogen Cold Light Mirror Lamp	●	●	●	●	●	●	●	●	–	–	–	–	○	–
Condensor Systems	4443	Double Condensor for formats up to 35 mm	○	○	○	●	○	○	○	●	○	○	○	●	○	○
	4542	Double Condensor for formats up to 6 x 6 cm	○	○	●	○	○	○	●	○	○	○	●	○	○	○
	4449	Double Condensor for formats up to 6 x 9 cm	●	●	○	○	●	●	○	○	●	●	○	○	–	○
Compound Negative Carrier System	4583	Compound Negative Carrier w/o inserts	●	●	●	●	●	●	●	●	●	●	●	●	–	○
	4493	Comp. Neg. Car. w. 6x6 mask/AN-glass for border exp.	○	○	○	○	○	○	○	○	○	○	○	○	–	○
	4584	Compound Negative Carrier for 7 x 7 cm slides	○	○	○	○	○	○	○	○	○	○	○	○	–	○
	4486	Pair of Format Masks 24 x 36 mm (35 mm)	○	○	○	●	○	○	○	●	○	○	○	○	○	–
	4491	Pair of Format Masks 24.5 x 36.5 mm, border exposure	○	○	○	○	○	○	○	○	○	○	○	○	○	–
	4431	Pair of Format Masks 4.5 x 6 cm	○	○	○	○	○	○	○	○	○	○	○	○	○	–
	4485	Pair of Format Masks 6 x 6 cm	○	○	○	○	○	○	○	○	○	○	○	○	○	–
	4436	Pair of Format Masks 6 x 7 cm	○	○	○	○	○	○	○	○	○	○	○	○	○	–
	4487	Pair of AN Glass Inserts	○	○	○	○	○	○	○	○	○	○	○	○	○	–
	4490	Pair of Flat Glass Inserts	○	○	○	○	○	○	○	○	○	○	○	○	○	–
	4433	Inserts AN Glass/Flat Glass	●	○	○	○	●	○	○	○	●	○	○	○	○	–
	4435	Inserts 24 x 36 Mask/AN Glass	○	○	○	○	○	○	○	○	○	○	○	●	○	–
	4434	Inserts 6 x 6 Mask /AN Glass	○	○	●	○	○	○	●	○	○	○	●	○	○	–
	4432	Inserts 6 x 7 Mask/AN Glass	○	●	○	○	○	●	○	○	○	●	○	○	○	–
	4489	Format Mask for 5 x 5 cm slides	○	○	○	○	○	○	○	○	○	○	○	○	○	–
	4492	Pair of Panorama Format Masks 24 x 66 mm	○	○	○	○	○	○	○	○	○	○	○	○	○	–
	4494	Pair of Masks for own cut-out	○	○	○	○	○	○	○	○	○	○	○	○	○	–
General Accessories	4495	Filter Holder	●	●	○	○	●	●	○	○	●	●	○	○	○	○
	4496-99	Screw-On Filter Adapter	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	4448	Filter Drawer 85 x 85 mm	●	●	●	●	●	●	●	●	●	●	●	●	○	○

All SYSTEM-V enlargers can be converted into copy stands using the components of the R1 copy system (see pages 70-83).

● Standard equipment

○ Combination possible, additional components could be necessary

– Combination not possible

KAISER FOTOTECHNIK

4401
VP 350 B & W Enlarger

 4356

For sizes up to 24 x 36 mm (35 mm film) and lenses up to 50 mm focal length. Floor projection possible. Removable compound negative carrier with negative masks for size 24 x 36 mm and slide sizes 5 x 5 cm (2 x 2 in.). Optically ground single condenser. Red filter within bellows extension for dust protection. Can accomodate filter drawer. Height adjustment by hand crank-operated friction drive on plastic bearings. Column with cm and inch scales.

The enlarger is convertible to sizes up to 6 x 9 cm and to a Color or Multigrade enlarger.

Supplied with compound negative carrier and lamp, without lens.

Specifications:

Baseboard (WXDXH): approx. 400 x 420 x 25 mm (15.7 x 16.5 x 1 in.)
Height of column: approx. 760 mm (30 in.)
Maximum enlargement on baseboard:
24 x 30 cm (9.4 x 4.8 in.)
Lamp: Opal lamp 75 W
Cord: ca. 2.50 m (8 ft. 2 in.)

4403
AN Glass Insert

Glass insert with specially etched contact surface to prevent Newton rings.
For insertion into the upper part of the compound negative carrier of the VP 350.

Dimensions: 50 x 52 mm (2 x 2 in.)

5421
RA 2 XA Copy Adapter

To convert the VP 350 to a copy stand. Horizontally adjustable. 1/4" camera thread.

4473-76/4408-09
Column

Made of aluminium tubing, dull black anodized surface, with cm and inch scales and markings for enlarging scales. With mount and fastening for lower part enlarger head 4568. Height adjustment by hand crank.

4473: Height adjustment by friction drive with plastic bearings, without weight compensation, height 1 m (40 in.)

4474: Height adjustment by friction drive with plastic bearings, with weight compensation by built-in roller-spring, height 1 m (40 in.)

4475: Rack-and-pinion height adjustment, with weight compensation by built-in roller-spring, additional 1:10 fine drive. Locking screw for fixing the adjusted height. Height 1 m (40 in.).

4476: same as 4475, but without fine drive.

4408: Rack-and-pinion height adjustment, with weight compensation by built-in roller-spring. Locking screw for fixing the adjusted height. Height 1.2 m (47 in.).

4409: Height adjustment by friction drive with plastic bearings, with weight compensation by built-in roller-spring, Locking screw for fixing the adjusted height. Height 1.5 m (60 in.)

4472/4413-14
Base Board

Matt-gray base board with column base fixed for attaching column. Spirit level in column base. Individually height-adjustable feet.
Dimensions (WxHxD):
4472: approx. 450 x 28 x 500 mm
(17.7 x 1.1 x 19.7 in.)
4413: approx. 600 x 32 x 500 mm
(23.6 x 1.3 x 19.7 in.)
4414: approx. 800 x 32 x 600 mm
(31.5 x 1.3 x 23.6 in.)
(Dimensions without base and feet)

5508
Base Stand

For converting all SYSTEM-V enlargers from table to free-standing models. Also suitable for all Kaiser base boards from 45 x 50 cm to 60 x 80 cm) (17.7 x 19.7 in. to 23.6 x 31.5 in.).
Height-adjustable feet.

Dimensions (WxHxD): approx. 580 x 510 x 595 mm (22.8 x 20.1 x 23.4 in.)

4412
Wall Mount
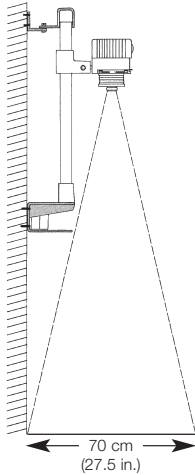
Strong wall mount for all Kaiser columns 70 mm (2.8 in.) wide. Required if projection is not made on base board but on larger-sized table or the floor, especially to achieve large enlarging scales.

Wall mounting with 6 screws. Upper part adjustable for absolutely vertical position. Lower part with base and spirit level and space for transformer.
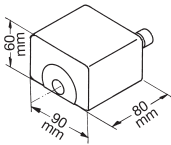
Maximum possible enlargement with lens f = 50 mm: 70 x 105 cm (27.5 x 41.3 in.) L = 29x, linear.

Entire height with 1 m (40 in.) column: 1.16 m (46 in.)

Supplied with screws and dowels.

70 cm
(27.5 in.)

4455
Extension Arm

60 mm
90 mm
80 mm

To extend the holding arm on enlargers. Required for large-dimension enlargements. This increases the distance between the optical axis and the base by 80 mm (3.1 in.). The extension arm is attached between the standard holding arm and the enlarger head. Dimensions (WxHxD): approx. 115 x 60 x 135 mm (4.5 x 2.4 x 5.3 in.)
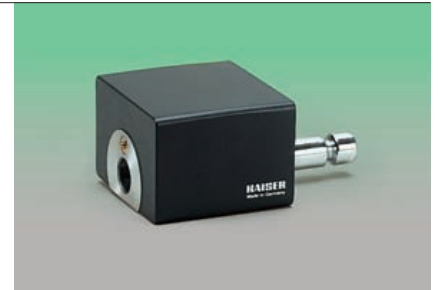
4568
Enlarger Head Lower Part

Consists of condensor housing with bellows and lens stage, without condensor system and compound negative carrier. With lens adapter rings for lenses up to 50 mm and from 60 up to 105 mm focal lenght. Quick change attachment for easy lens mounting. Also required for converting Kaiser copy stands into enlargers.
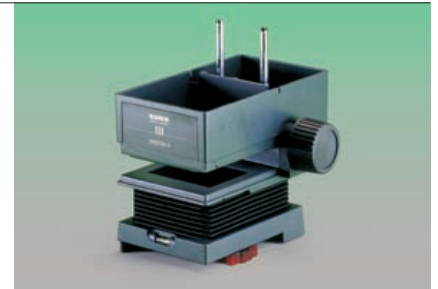
4544
Color Head
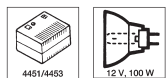
Suitable for all Kaiser enlargers. Dichroic interference filters, calibration in densitometric units up to 180. Dials indirectly illuminated. White-light lever Continuously adjustable, illuminated density aperture up to 60 densitometric densities (= two aperture settings). Best possible light distribution due to special diffusor plate. UV filter and IR filter. Drawer for additional filter. May only be operated with transformer 4451 and 4453. Supplied with halogen cold light mirror lamp (12 V, 100 W, socket GZ 6.35)

Filter drawer: 85 x 85 mm (3.3 x 3.3 in.)
Cord: 1.8 m (6 ft.)
Dimensions: approx. 160 x 250 x 125 mm
(WxHxD)   (6.3 x 5.9 x 8.8 in.)

4451/4453   12 V, 100 W   4459

4545
Multigrade® Head
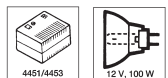
Suitable for all Kaiser enlargers. With dichroic colour filter for processing variable contrast printing papers without changing the exposure time. Indirectly illuminated scale dial calibrated in half steps from 0 (extra soft) to 5 (extra hard) for stepless gradation control. White-light lever for simultaneous swinging in and out of filters, with control light. Continuously adjustable, illuminated density aperture up to 60 densitometric densities (= two aperture settings). Best possible light distribution due to special diffusor plate. UV filter and IR filter. Drawer for additional filter. May only be operated with transformer 4451 and 4453.

Supplied with halogen cold light mirror lamp (12 V, 100 W, socket 6.35). Same dimensions as with 4544.

4451/4453   12 V, 100 W   4459

4541
B & W Head

Suitable for all Kaiser enlargers. Lamp adjustable. Drawer for additional filters. Supplied with opal lamp.

Specifications:

Lamp: Opal lamp, 75 W
Filter drawer: 85 x 85 mm (3.3 x 3.3 in.)
Cord: approx. 2,5 m (8.2 ft.)
               with cord switch
Dimensions: 145 x 150 x 245 mm
(WxHxD)   (5.7 x 5.9 x 9.6 in.)

75 W, E 27   4356

KAISER
FOTOTECHNIK

4451/4453
Transformer

Output power: 100 W
Dimensions: approx. 120 x 80 x 140 mm
(4.7 x 3.1 x 5.5 in.)
Available for 230 V, 240 V and 120 V
Fuse: 1.6 AT (230/240 V) / 2.5 AT (120 V)

4451: with starting-current limitation and electronic voltage stabilization. For compensation of voltage deviations (for constant color temperature).
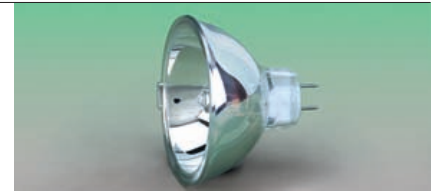
Input: 230 V, + 10%, -15%, 50 Hz
Output: 11,5 V ± 1%, 50 Hz

4453: without voltage stabilization
Input: 230 V, 50 Hz
Output: 12 V, 50 Hz

4459
Halogen Cold-Light Mirror Lamp

12 V, 100 W, 3200 K, average service life 50 hrs. Lamp with high light yield and constant light radiation and color temperature during the entire service life.
Low heat stress on the film due to the cold-light mirror.

4356
Opal Lamp

75 W, E 27. Average service life 100 hrs. Lamp with bright light output. Uniform light density due to special inner coating of the bulb.
Colour temperature: 3000 K

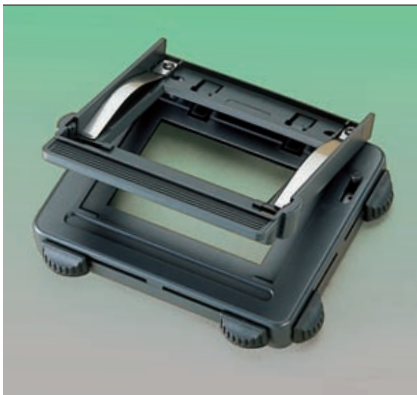**4443/4449/4542**
Double Condenser

For SYSTEM-V enlargers. Simple fitting with two coin screws on the head base.

4449: for formats up to 6 x 9 cm (2.4 x 3.5 in.).
Fits all enlargers made from 10/94 on (05 series).
4542: for formats up to 6 x 6 cm (2.4 x 2.4 in.)
4443: for formats up to 24 x 36 mm (35 mm).

4449
4542
4443

Lab

4583
Compound Negative Carrier

For use with all negative masks and glass inserts size 100 x 72.5 mm (3.9 x 2.9 in.). Suitable for all SYSTEM-V enlargers made from 10/94 on (05 series).

Adjustable guide pins for film widths 61.5 mm (rollfilm 120), 41 mm (rollfilm 127) and 35 mm film. Four steplessly adjustable masking strips for selecting the desired detail. Two grid pins at standard hole intervals.

Dimensions: approx. 142 x 37 x 123 mm (5.6 x 1.4 x 4.8 in.)

4584
Compound Negative Carrier for 7 x 7 cm Slides

For mounted 6 x 6 slides with outer dimensions 7 x 7 cm (2.8 x 2.8 in.). Suitable for all SYSTEM-V enlargers made from 10/94 on (05 series). Four steplessly adjustable masking strips for selecting the desired detail.

Dimensions: approx. 142 x 37 x 123 mm (5.6 x 1.4 x 4.8 in.)

4493
Compound Negative Carrier for Border Exposure 6 x 6 cm

For pictures with a black border. Comes with 6 x 6 format mask for border exposure and AN glass.

Also for use with all negative masks and glass inserts size 100 x 72.5 mm (3.9 x 2.9 in.). Suitable for all SYSTEM-V enlargers made from 10/94 on (05 series).

Adjustable guide pins for film widths 61.5 mm (rollfilm 120), 41 mm (rollfilm 127) and 35 mm film. Four steplessly adjustable masking strips for selecting the desired detail. Two grid pins at standard hole intervals.

Dimensions: approx. 142 x 37 x 123 mm (5.6 x 1.4 x 4.8 in.)

KAISER FOTOTECHNIK

Format Masks and Inserts

For insertion into the 4583 compound negative carrier of SYSTEM-V enlargers and for 4493 compound negative carrier.

Dimensions: approx. 100 x 72.5 mm
(3.9 x 2.9 in.)

4431/36/85/86/91/92 Format Masks

Pairs of masks.

4486: Format masks 24 x 36 mm (35 mm) (a + b). With guide ridges for film strips and neg number read-out window.

4491: Format masks 24,5 x 36,5 (a + b). For pictures with black border

4431: Format masks 4,5 x 6 cm

4485: Format masks 6 x 6 cm

4436: Format masks 6 x 7 cm

4492: Panorama format masks 24 x 66 mm, e.g. for Hasselblad X-pan, Noblex 135 and Mamiya 7 with 35 mm panorama insert.

4432/4434-35 Anti-Newton Glass/Mask

Pairs of inserts.

4435: AN glass/format mask 24 x 36 (b)

4434: AN glass/format mask 6 x 6 cm

4432: AN glass/format mask 6 x 7 cm

4433/87/90 Glass Inserts

Pairs of inserts.

4487: AN glass
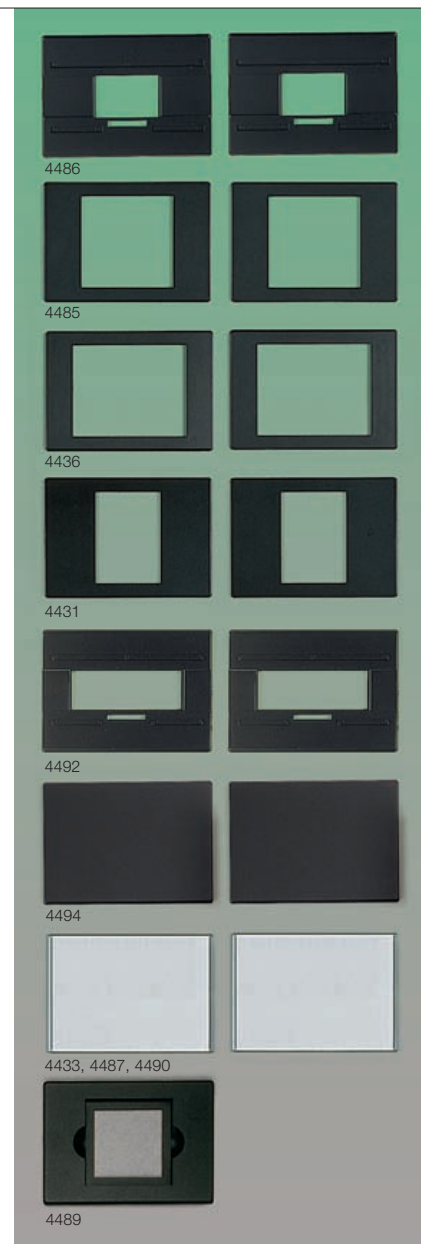
4433: AN glass/flat glass

4490: Flat glass

4489 Format Mask

For mounted 35 mm slides with 5 x 5 cm (2 x 2 in.) outer dimensions.

4494 Inserts

Without cut-out. For „do-it-yourself" cut. 1 pair.

4486

4485

4436

4431

4492

4494

4433, 4487, 4490

4489

Rodenstock Enlarging Lenses

Rogonar: For enlarging scales up to 4:1. For almost all B&W work, can be used for color enlarging with some restrictions.

Rogonar-S: Almost unlimited application in B & W enlarging, in color up to enlarging scales of approx. 10:1.

Rodagon: Almost unlimited application for all B & W and color enlarging.

Apo-Rodagon N: For highest standards. Brilliant color reproduction with apochromatic correction.

Rodagon-WA: Wide-angle lens for highest performance. For achieving large enlarging scales at normal distance to base board.

Schneider Enlarging Lenses

Componar-S: Optimum performance at enlargement scales around 8:1.

Componon-S: For highest demands and all enlarging scales.

Apo-Componon HM: Apochromatic corrected lens for highest demands and all enlarging scales.

Code no.	Designation	Lens speed	Focal length	Ele-ments	Click-stop disengaging	Aperture presetting	Aperture scale illuminated	Filter thread	max. film format
4363	Rodagon-WA	4.0	40 mm	6	•	•	•	40.5 mm	24 x 36 mm
4355	Rogonar	2.8	50 mm	3	-	-	•	-	
4365	Rogonar-S	2.8	50 mm	4	•	•	•	40.5 mm	
4367	Rodagon	2.8	50 mm	6	•	•	•	40.5 mm	
4469	Apo-Rodagon N	2.8	50 mm	6	•	•	•	40.5 mm	
4328	Rodagon-WA	4.0	60 mm	6	•	•	•	40.5 mm	6 x 6 cm
4360	Rogonar-S	4.5	75 mm	4	•	•	•	40.5 mm	
4341	Rodagon	4.0	80 mm	6	•	•	•	40.5 mm	6 x 7 cm
4340	Apo-Rodagon N	4.0	80 mm	7	•	•	•	40.5 mm	
4327	Rodagon	5.6	105 mm	6	•	•	•	40.5 mm	6 x 9 cm
4329	Apo-Rodagon N	4.0	105 mm	7	•	•	•	40.5 mm	
4349	Apo-Componon HM	2.8	40 mm	6	•	•	•	43 mm	24 x 36 mm
4336	Apo-Componon HM	4.0	45 mm	6	•	•	•	43 mm	
4325	Componar-S	2.8	50 mm	4	•	-	•	30 mm	
4382	Componon-S	2.8	50 mm	6	•	•	•	43 mm	
4350	Apo-Componon HM	4.0	60 mm	6	•	•	•	43 mm	6 x 6 cm
4384	Componon-S	4.0	80 mm	6	•	•	•	43 mm	6 x 7 cm
4337	Apo-Componon HM	4.5	90 mm	6	•	•	•	43 mm	
4338	Componon-S	5.6	100 mm	6	•	•	•	43 mm	6 x 9 cm

All enlarging lenses with M 39 x 1 mounting thread.

4423-24
Lens Holder Ring

For the fast mounting of lenses on SYSTEM-V enlargers made from 10/94 on (05 series).

4423: for lenses up to 50 mm focal length
4424: for lenses from 60 to 105 mm focal length

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4495
Filter Holder for Enlargers

Device for positioning filters and masks below the enlarging lens. For all Kaiser enlargers built after 1981. Mounted on vertical parallel rods. Height of filter tray steplessly adjustable, can be swung out of line of beam. Two grooved insertion planes for square filter plates (for filters between 64 and 67 mm (2.5 and 2.6 in.) width and 2 mm (.1 in.) max. thickness) and for adapters for screw-on filters. One grooved insertion plane for masks, pinhole diaphragms etc. up to 1.5 mm (.06 in.) max. thickness. Special holding device for framed filters for variable contrast printing papers. Supplied with red filter and diffusor plate for integral metering.
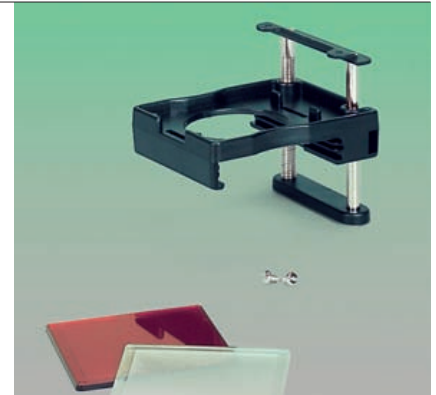
4496-99
Screw-on Filter Adapter

Allows for the use of screw-on filters with filter holder 4495.

4496: for screw-on filter ø 49 mm (1.9 in.)
4497: for screw-on filter ø 52 mm (2.0 in.)
4498: for screw-on filter ø 55 mm (2.2 in.)
4499: for screw-on filter ø 58 mm (2.3 in.)
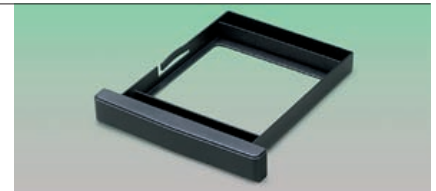

4417
Gray Filter

For use in 4495 Filter Holder.
Reduces light intensity by two aperture increments. Filter factor 4.

Dimensions: 67 x 67 mm (2.6 x 2.6 in.)
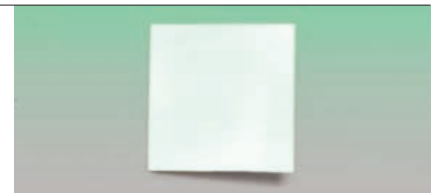

4448
Filter Drawer

For all Kaiser enlargers. For filter inserts size 8.5 x 8.5 cm (3.3 x 3.3 in.)

4437
Heat Filter

For the protection of negatives and acetate or gelatine filters in B & W enlargers against heat stress during continuous operation. Fits in suitable filter drawers.

Dimensions: approx. 70 x 70 mm (2.8 x 2.8 in.).

4996
Darkroom Kit „Color"

Includes:

– VCP 3505 color enlarger for 35 mm films
 with transformer and Schneider
 Componar-S 2.8/50 enlarging lens
– „spectral 590" safelight
– "digital timer" electronic exposure timer
– 18 x 24 cm (7 x 10") masking frame
– two chemical storage bottles
– three lab trays
– three stainless steel print tongs
– a thermometer
– 30 sheets of RA-4 color printing paper
– print kit for color

12 V, 100 W 4459

4997
Darkroom Kit „Multigrade®"

Includes:

– VP 3505 B & W enlarger for 35 mm films
 with Multigrade filter kit and Rodenstock
 2.8/50 mm enlarging lens
– safelight with Multigrade filter
– 18 x 24 cm (7 x 10") masking frame
– two chemical storage bottles
– three lab trays
– two print tongs
– a tray thermometer

75 W, E 27 4356

KAISER
FOTOTECHNIK

4999
B & W Darkroom Kit

Includes:

– VP 6005 B & W enlarger for formats up to
  6 x 6 cm with additional 35 mm format
  masks and Rodenstock Rogonar
  2.8/50 mm enlarging lens
– electronic exposure timer
– 18 x 24 cm (7 x 10") masking frame
– safelight
– three lab trays
– two print tongs
– a thermometer
– two bottles

75 W, E 27   4356

8902
Basic B & W Darkroom Kit

Includes:

– VP 350 B & W enlarger with Rodenstock
  Rogonar 2.8/50 mm enlarging lens
– safelight
– 18 x 24 cm (7 x 10") masking frame
– two bottles
– three lab trays
– two print tongs
– a thermometer

75 W, E 27   4356

Lab

Tools for Picture-Makers

The enlarger is the most important device in the darkroom. But in addition there is a wide range of supplementary tools to make exposing photographic paper easier and more reliable. The basic equipment should at least comprise a safelight for a „safe" basic illumination, a masking frame or easel for holding the photographic paper and a timer to control the exposure time. A combined exposure timer and meter is even more convenient, because it makes determining of the correct exposure time much easier.

Test printer and focus magnifier round off the equipment.

Developing the exposed photo paper requires lab trays (a minimum of three), print tongs, bottles for photo chemicals, graduates and beakers to measure and mix the chemicals, a process timer, a thermometer and a drying rack as basic equipment.

Buying a print washer is a very good idea. Dish warmer, digital thermometer and print wipers make things even more convenient.

If you also want to do your own film developing, you will also need a developing tank with a self-loading reel, bottles, graduates and funnels for the photo chemicals, a thermometer, a process timer, film clips to hang up wet films and a pair of scissors.

Some basic knowledge is indispensible – there are many useful books – and some exercise is also needed. For this you will need time. The reward for your efforts are pictures which in their own way are unique and which bear the distinctive hand of their „maker".

4704-06
„promask" Professional Masking Frame

Margin stop with preclamping device, format markings and sinkable grid pins for centered positioning of photo paper. Grid pins at standard hole intervals. Frame made of non-warping moulded aluminium. Scales in cm and inch. Pneumatic spring with end position damping. Raised frame stays open. Four sliding masking strips with fast adjustment and fine setting by friction drive, lockable. Border width adjustable from 2 to 45 mm (0.08 to 1.8 in.). Each strip ist individually adjustable. Light grey base plate. Non-slip rubber feet.

4704: For formats up to 30 x 40 cm (12 x 16 in.) Dimensions: 630 x 70 x 515 mm (24.8 x 2.8 x 18.4 in.)
4705: For formats up to 40 x 50 cm (16 x 20 in.) Dimensions: 725 x 70 x 620 mm (28.5 x 2.8 x 24.4 in.)
4706: For formats up to 50 x 60 cm (20 x 24 in.) Dimensions: 830 x 70 x 718 mm (32.7 x 2.8 x 28.3)
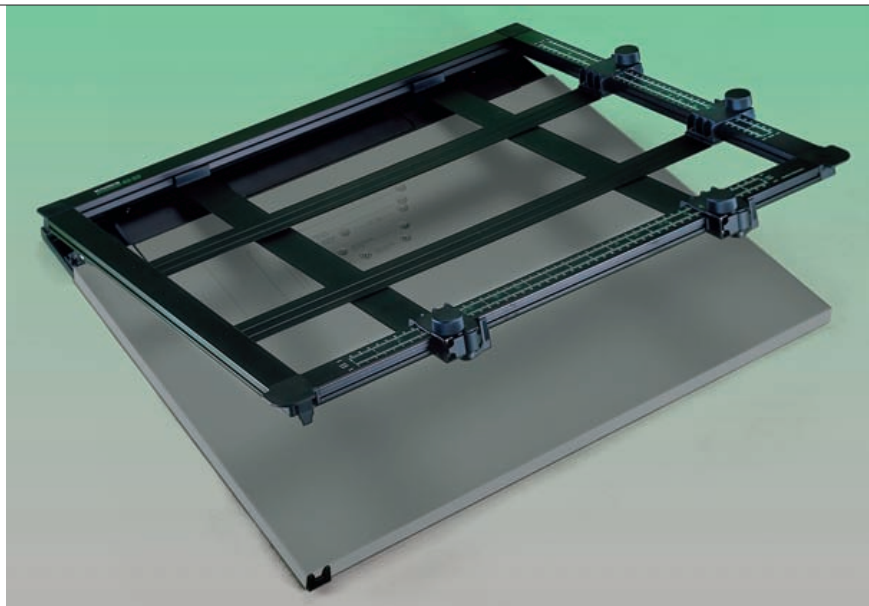
4001
Masking Frame
24 x 30 cm (9 1/2 x 12 in.)

Metal base plate with non-slip base and dull white surface. Adjustable margins for borders from 5 to 12 mm (0.2 to 0.5 in.). Metal dull black masking frame with cm and inch scales and snap paperholding mechanism. Bilaterally guided self-adjusting masking bands with instant-lock push buttons. Maximum print size 28 x 36 cm (11 x 14.2 in.).

Dimensions: (WxHxD): approx.
470 x 30 x 395 mm (18.5 x 1.2 x 15.6 in.)

4000
Masking Frame
18 x 24 cm (7 x 9 1/2 in.)

Metal base plate with non-slip base and dull white surface. Adjustable margins for borders from 5 to 12 mm (0.2 to 0.5 in.). Plastic dull black masking frame with cm and inch scales. Bilaterally guided self-adjusting masking bands. Maximum print size: 19 x 24.5 cm (11.8 x 1.4 x 10.8 in.)

Dimensions (WxHxD): approx.
330 x 25 x 275 mm (13 x 1 x 10.8 in.)

4009
Test Printer

For producing test strips to determine exposure time and filter setting for enlargements. Top with six separately opened shutters. Turning the paper around after the first exposure makes a total of 12 exposures possible on one sheet of 13 x 18 cm (5 x 7 in.).

Dimensions: approx. 180 x 160 mm
(7.1 x 6.3 in.)

4005
„focuscop" Focus Magnifier

For reliable focus control in enlarging. Double lens system with 4 x magnification. Focus control using both eyes. Bright, distortion-free image on focussing screen, wide viewing angle.

Dimensions (WxHxD): approx.
65 x 105 x 120 mm (2.6 x 4.1 x 4.7 in.)

KAISER
FOTOTECHNIK

6361
Antistatic Cloth

Lint-free, especially treated cloth.

Dimensions: approx. 24 x 30 cm
(9.4 x 11.8 in.)

6363
Special Antistatic Cloth

High-grade lint-free cloth with chainstitched border for cleaning and antistatic treatment of films, glass, and lenses. Also suitable for phonograph records, plastic parts and plastic-coated surfaces.

Dimensions: approx. 24 x 30 cm
(9.4 x 11.8 in.)

6308-09
„Clear Gear" Compressed Air

For touch-free dust removal from optical, fine mechanical and electronic equipment and components.

6308: „Clear Gear" compressed air can, 200 ml, propane/butane mixture.

6309: „Clear Gear", 400 ml, non-inflammable fluorethane mixture.

6362/65/67
Cotton Gloves

To prevent fingerprints on prints, negatives optical glass, etc. 100 % cotton, washable at all temperatures.

6362: One pair, size 15
6365: One pair, size 12 (standard size)
6367: Three pairs, size 12

4065
Lab Apron

Acid-resistant and washable, made of light pleasant-to-wear material, with seamed edges. Matt black with pocket.

Length: approx. 1 m (40 in.)
Width: approx. 70 cm (28 in.)

4220
„spectral 590" Darkroom Safelight

Illumintes a broad area with 20 selected LED's especially adapted to negative-positive processes. The emitted light lies in the narrow spectral range around 590 nm in which most colour papers are insensitive. Also suited to variable contrast printing paper. Adjustment knob for controlling brightness. Removable special filter for greater brightness in the B & W lab. Dull black housing. Top can be tilted from 0 to 40°. Mounting on wall can be done for direct or indirect lighting of working area.

Cord: approx. 1.8 m (6 ft.)
Dimensions: approx. 150 x 110 x 90 mm
               (5.9 x 4.3 x 3.5 in.)
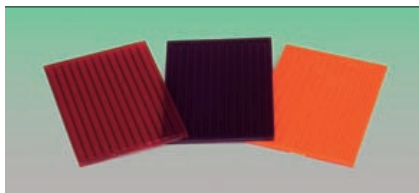
4018
Darkroom Safelight

15 W, E 14   2008

Dull black plastic housing. Top tiltable from 0 to 40°. Can be used as wall or table-top light. Mounting on wall can be done either for direct or indirect lighting of working area. With 9 x 12 cm (3.5 x 4.7 in.) filter for Multigrade papers and graded B&W papers.

Lamp: 15 W, E 14
Cord with cord switch: approx. 1.8 m (6 ft.)
Dimensions: approx.   140 x 110 x 90 mm
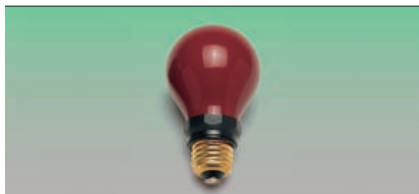   (5.5 x 4.3 x 3.5 in.)

Supplied with lamp.

4013–15
Safelight Filter

Size 9 x 12 cm (3.5 x 4.7 in.), for 4018 darkroom safelight.
4013: Orange, for B&W silver chlorobromide papers
4014: Red, for orthochromatic papers and films and B&W graded papers.
4015: Multigrade, for variable contrast papers and B&W graded papers

4227
Darkroom Lamp

Red. 15 W, 230 V, E 27.
Can be used together with clamp-on lamp holder, for example.

KAISER
FOTOTECHNIK

4214
„Automatic Timer cpd 2" Electronic Exposure Meter and Timer

Exposure timer and exposure meter for B & W and colour negatives and slides.

Selective or integral exposure metering using a separate probe with color-corrected silicon photo element and attachable collecting lens. Three-digit digital display. Start button and Ready display. Elapsed time runs backwards to zero. Interruption and restarting the remaining time as well as interruption with direct reset to the given time is possible. Can also be used as an exposure timer with manual time setting. Set time using the Step up/Step down buttons.

Additional power outlet for safelight in push-pull switching mode (not suitable for „Kaiser duka 50" safelight).

Switching capacity:	500 watt
Time range:	0.1 ... 999 sec
Index range:	0.1 ... 99.9 luxsec
Fuse:	2.5 AT (at 230/240 V)
	5 AT (at 120 V)
Cord:	approx. 2 m (6.5 ft.)

4030
„digital timer" Electronic Exposure Timer

2-digit amber-colored display. Time settings with step-up/step-down keys. Time count-down to zero, then reset to starting time (can be repeated any number of times for exposure series). Interrupt and restart of remaining time, and interruption with direct reset to the set starting time are likewise possible.
Focusing light switch. Matt black housing made of impact resistant plastic.

Operation by way of four large pushbuttons that can be easily located in the dark.

Time range:	0.1 - 99 seconds
Display:	0.1 - 9.9 seconds in 10th sec. increments, and 10-99 seconds in sec. increments
Maximum switching capacity:	500 W
Dimensions:	approx. 100 x 75 x 152 mm (3.9 x 3 x 6 in.)
Power cable:	2 m (6 ft. 7 in.)

Lab

4218
Digital Lab Timer

Four-figure LCD display for minutes and seconds. Count-down. Time preset up to max. 99 minutes 59 seconds. Acoustic signal for count-down to zero. Interruption possible. Set starting time retrievable. Magnet on the back for simple fixing to metal surfaces. Including button battery:1.5 V, type G-13.
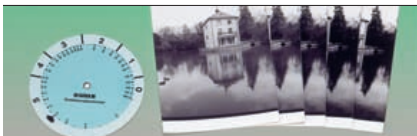
Dimensions: approx. 88 x 14 x 46 mm (3.5 x .6 x 1.8 in.)

4219
Process Timer

Three independent channels for separate timing, in addition clock, alarm and calendar functions. Time preset up to max. 99 hours, 59 minutes and 59 seconds. Acoustic signal for count-down to zero. Set starting times retrievable. Interruption possible. Counts upwards after count-down to zero. Various accoustic signals for simple indentification of different channels. Holder clip for pocket or belt, folding stand foot and magnet for fixing to metal surfaces. Including button battery: 1.5 V, type G-13. Dimensions: approx. 82 x 15 x 70 mm (3.2 x .6 x 2.8 in.)

4091
„digi-thermo F"
Digital Thermometer

Battery-powered all-purpose thermometer with LCD display. Four-figure temperature display, switchable from °C to °F. Fast and normal temperature reading option (reading interval 2 sec. and 10 sec.). Settable minimum and maximum temperature, acoustic signal if exceeded or below. Count-down timer. Time interval up to 99 hrs. 59 min. max. Stainless steel temperature sensor with 1 m cable. With pocket clip, hanger eyelet and stand bracket. Reading range: -50° ... +260° C (-58 ° ... +500° F)
Battery: 1.5 V Micro/AAA (included)
Dimensions   approx.105 x 19 x 66 mm (without sensor): (4.1 x .7 x 2.6 in.)

4026
Gradation Calculator

Calculator disk to determine the correct gradation.

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4080
Developing Tank Thermometer

Alcohol-filled. Unbreakable plastic stem.
With centigrade and Fahrenheit scales: 0 to 50° C/32 to 120° F.
With marker at 18° C/64 ° F.
Length: 130 mm (5.1 in.); ø 12 mm (.5 in.)

4081
Developing Tank Thermometer

Alcohol-filled. With centigrade and Fahrenheit scales: 0 to 50° C/32 to 120° F.
With marker at 18° C/64° F.
Length: 130 mm (5.1 in.), ø 11 mm (.4 in.)

4084
Floating Thermometer

With lead weight to ensure vertical position in the liquid and measurement under the surface. Alcohol-filled bulb. Centigrade and Fahrenheit scales: 0 ... 50°C/32 ... 120°F.
With marking at 18°C/64°F.
Length: 130 mm (5.1 in.), ø 11 mm (.4 in.)

4083
Tray Thermometer

With angled stem and hook for hanging it on tray's edge. Alcohol-filled bulb. Centigrade and Fahrenheit scales: 0 . . 50° C/32 . .120° F.
With marking at 18°C/64°F. Length: 85 mm + 45 mm of angled stem (3.3 + 1.8 in.), ø 10 mm (.4 in.)

4086
Precision Thermometer

Especially suited for color processing. Alcohol-filled bulb. Luminous blue capillary. Scale from 10 to 50° C, calibrated in steps of .2 degrees, margin of error ± .2°. Max. immersion depth 60 mm (2.4 in.).
Length: 195 mm (7.7 in.), ø 12 mm (.5 in.)

4067
Print Tongs

Stainless steel, insensitive to photochemicals. With spiral spring and catch for hanging on side of tray. With protective caps especially designed for working with plastic-coated papers.
Length: 150 mm (6 in.) 2 pieces.

4062
Print Tongs

Made of chemical-resistant plastic; self-opening. Molded tray edge recess. One pair of different-coloured print tongs.
Length: 160 mm (6.3 in.)

4059
Print Tongs and Clamp

Print tongs made of chemical-resistant plastic, self-opening. Molded tray-edge recess. Can also be used as film or print clamp.
Length: 180 mm (7.1 in.) Set of two.

Lab Trays

Made of shock-resistant plastic. Acid-proof. Heat resistant up to 80° C (176° F). Grooved bottom enhances removal of paper and ensures best possible flow for chemicals and stability. With pouring lip. 4171-73 with recess for tray thermometer.

For sizes up to	White	Black	Red	Dimensions(LxWxH): approx. mm/in.
13 x 18 cm / 5 x 7"	4151	4152	4153	235 x 185 x 50 / 9.3 x 7.3 x 2
20 x 25 cm / 8 x 10"	4156	4157	4158	325 x 260 x 65 / 12.8 x 10.2 x 2.6
24 x 30 cm / 9$^{1}/_{2}$ x 12"	4166	4167	4168	375 x 315 x 70 / 14.8 x 12.4 x 2.8
30 x 40 cm / 12 x 16"	4171	4172	4173	460 x 360 x 85 / 18.1 x 14.2 x 3.3
40 x 50 cm / 16 x 20"	4176		4178	580 x 490 x 95 / 22.8 x 19.3 x 3.7
50 x 60 cm / 20 x 24"	4181			695 x 575 x 115 / 27.4 x 22.6 x 4.5

4141
Dish Warmer

For one dish up to 30 x 40 cm (11.8 x 15.7 in.) or two dishes 20 x 25 cm (7.9 x 9.8 in.). All-metal housing in a black stoved-enamelled finish. Adjustable thermostat for automatic temperature control. ON/OFF switch and control light. Power cable: approx. 2 m (6 ft. 7 in.)

Heating capacity:	300 Watt
Control range:	approx. 20 - 45°C (68 - 113 °F)
Tolerance:	approx. ±0.5°
Dimensions (WxHxD):	approx. 310 x 60 x 450 mm (12.2 x 2.4 x 17.7 in.)

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4192-95
Chemical Storage Bottle

Made of polyathylene, unbreakable and
acid-proof. With screw cap and blank label.

4192: 1000 ml, white
4193: 1000 ml, brown
4194: 2000 ml, white
4195: 2000 ml, black

4198-99
Accordion Bottle

For photochemicals. Black. The accordion-
like walls can be pressed together, setting
excess air free. This reduces the danger of
oxidation and allows for longer storage of
chemicals.
With screw-on cap.

4198: 550-1000 ml
4199: 900-2000 ml

4250-55
Graduate

Made of Chemical-resistant polypropylene.
Temperature-resistante up to 95 °C (203 °F).
With pouring lip and wide base for steady
stand. Graduated scale.

	Content	Scale steps	Height mm/in.
4250:	50 ml	1 ml	150/6
4252:	100 ml	2 ml	160 /6.3
4253:	250 ml	5 ml	195 /7.7
4254:	500 ml	10 ml	220/8.7
4255:	1000 ml	20 ml	285/11.2
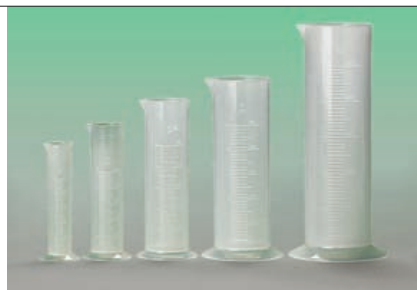
4256-57
Graduated Beaker

Made of chemical-resistant plastic.
Temperature-resistant in excess of 80 °C
(176 °F). With pouring lip and scale.

	Content	Scale steps	Height mm/in.
4256:	1000 ml	10 ml	150/5.9
4257:	2000 ml	20 ml	215/8.5

4243
Funnel

For handling photochemicals. Made of non-
brehemical-resistant polyethyakable clene.
Ribbed barrel to prevent airlocks and facilita-
te fast pouring.
Diameter: 120 mm (4.7 in)
Height: 170 mm (6.7 in.)

4296
„Standard" Developing Tank

With adjustable self-winding reel for film size 135 (35 mm), 126, 127, 120 or 220 (roll film). Tank and reel made of nonbreakable plastic. Quick-drain outlet.

Capacity: one film size 135 (35 mm) or two films size 126 or two films size 127 or one film size 220 or two films size 120.
Max. quantity: 500 ml
Dimensions: ø 100 mm (3.9 in.), height approx. 160 mm (6.3 in.)
Additional reel 4298 available.

4298
Self-Winding Reel

For films size 135 (35 mm), 126, 127, 120 or 220. Fits 4296 and 4297 developing tanks.

4297
„Universal" Developing Tank

With two adjustable self-winding reels. For film sizes 135 (35 mm), 126, 127, 120 or 220 (roll film) . Tank and reels made of non-breakable plastic. Quick-drain outlet.

Capacity: two films size 135 (35 mm) or four films size 126 or two films size 127 or one film size 220 or two films size 120.
Max. quantity: 650 ml
Dimensions: ø 100 mm (3.9 in.), height approx. 160 mm (6.3 in.)

4263
Film Washing Hose

For fast and thorough film washing. Fits all Kaiser developing tanks and almost all water faucets.

Length: approx. 55 cm (22 in.)

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4299
Negative Lab Set

Contains all items required for B & W developing.

Includes: Film wiper (4070),

Tank thermometer (4081),

Film clips (4117),

Chemical storage bottle 1000 ml, white (4192),

Chemical storage bottle 1000 ml, brown (4193),

Funnel ø 120 mm (4243),

Graduate 250 ml (4253),

„Standard" developing tank (4296)

4094
PE/RC Print Washer

For quick and thorough washing of plastic-coated papers. With connecting hose of 1 m (3.3 ft.) length and hose clip for attaching to water outlet.

For formats up to 30 x 40 cm (12 x 16 in.)
Capacity approx. 4 l
Dimensions (WxHxD): approx. 460 x 85 x 360 mm (18.1 x 3.3 x 14.2 in.)
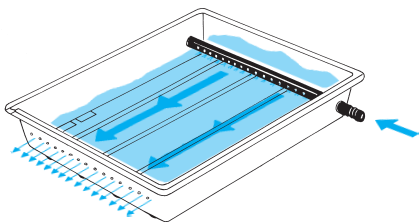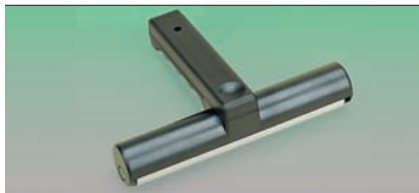
4048
Drying Rack

For air-drying of plastic-coated paper (PE/RC papers). For five 30 x 40 cm (12 x 16 in.) or 24 x 30 cm (9 1/2 x 12 in.) prints or ten 20 x 25 cm (8 x 10 in.) prints or more prints of smaller size.
Required space: approx. 32 x 22.5 cm (12.6 x 8.9 in.)
Height: approx. 25 cm (9.8 in.)

4056
Roller Squeegee

For squeezing off excess water from plastic-coated papers. Also suitable for blister-free rolling of prints on glazing pressures and for mounting photographs on particle boards etc. Handy plastic handle. Roller made of moulded PVC, 180 mm (7.1 in.) wide, ø 26 mm (1 in.). Dimensions: approx. 190 x 50 x 140 mm (7.5 x 2 x 5.5 in.)

4074
Print Wiper

For wiping off excess water from plastic-coated paper and sheet films. Contoured plastic handle with soft blade.

Length: 300 mm (11.8 in.)

4070
Film Wiper

With four-fold soft rubber blades, 70 mm (2.8 in.) wide. Completely harmless to film. For film widths up to 60 mm (2.4 in.).

Length: 160 mm (6.3 in.)

4117
Film Clips

For hanging up wet films. 3-hole clip mechanism. Plastic with stainless steel spring. 1 clip with and 1 without weight.

Dimensions: approx. 27 x 83 x 14 mm (1.1 x 3.3 x .6 in.)

4120
Film Clips

For hanging up wet films. 2-hole clip mechanism. Stainless steel model. 1 clip with and 1 without weight.
Dimensions: approx. 25 x 85 (50) x 25 mm (1 x 3.3 (2) x 1 in.)

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**4129
Film Loader**

For loading bulk 35-mm film into cartridges in daylight. For bulk film material up to 30 m (98 ft.). With frame counter and remaining-film meter.

Dimensions: approx. 130 x 110 x 80 mm
(5.1 x 4.3 x 3.1 in.)

**4124/27
Film Cartridges**

For 35-mm film. For self-loading with bulk film material.

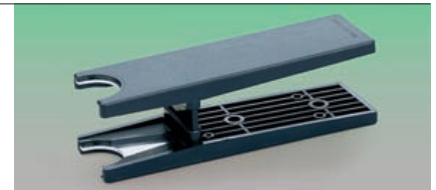**4124:** metal type, 5 pcs.
4127: plastic type, 5 pcs.

**4132
Film Leader Retriever**

For extracting 35 mm film leader from cartridges into which the film has been wound. Plastic casing with one fixed and one sliding tongue. Simple use.

**4125
Film Cartridge Opener**

For opening 35-mm film cartridges.
Dimensions: approx. 140 x 40 x 40 mm
(5.5 x 1.6 x 1.6 in.)

**6689
Antimagnetic Lab Scissors**

Made of fibreglass-reinforced nylon; blades of special heat-treated stainless steel, antimagnetic.

Length: 18 cm (7.1 in.)

Lab