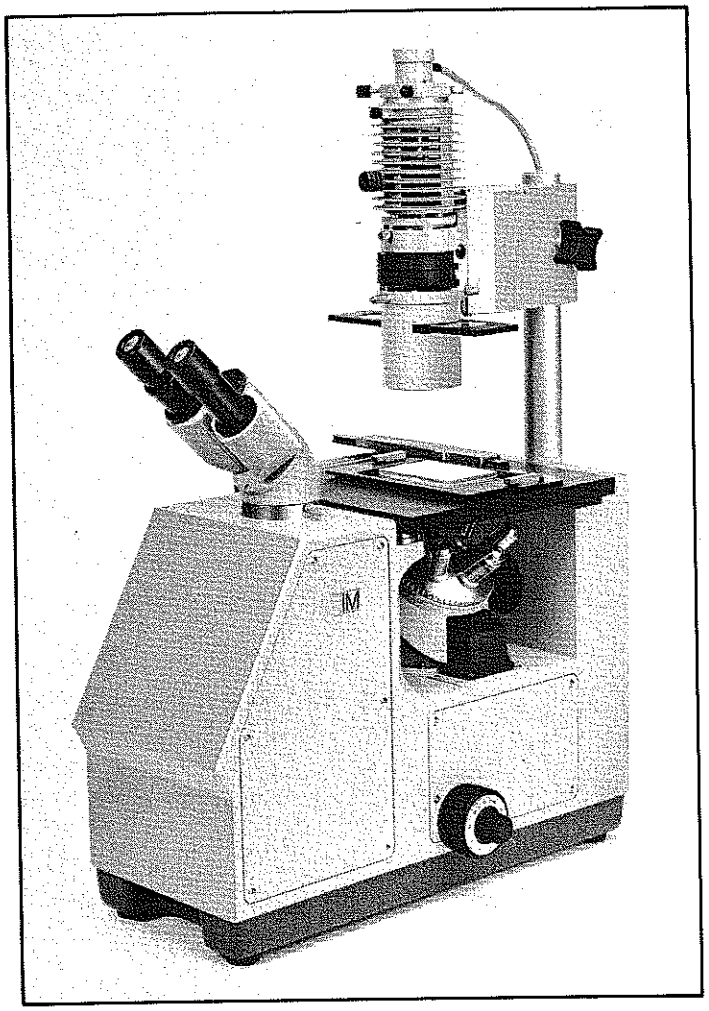
Inverted microscope IM

Mounting frames, sample vessels and LD-optics Equipment combinations

Carl Zeiss
D-7082 Oberkochen
West Germany

Information



Inverted microscope IM
equipped for brightfield and phase contrast with long working distance

Contents

1. Specimen stages, attachable mechanical stages and mounting frames

2. Objectives with long working distances

3. Condensers

4. Recommended equipment

1. Specimen stages, attachable mechanical stages and mounting frames

Description	Cat. No.
1.1 Stage plate 211x230 mm	**47 17 40**
Attachable mechanical stage IM, travelling range ca. 85x125 mm	47 17 45
plus either of the following mounting frames for:	
— microtest plates, 60, 72 or 120 pos. (Terasaki) including scale stickers dimensions 81.5x56 mm	47 17 47
— microtiter plates, 96 positions including scale stickers dimensions 128.5x86.3 mm	47 17 46
— Möller-Coates Hamax plates, 60 positions including scale stickers dimensions 93.5x67.5 mm	47 17 48
— multi dishes, e.g. Costar plate, 24 positions dimensions 133.5x88.5 mm	47 17 44
— specimen slide 76x26 mm	47 17 49
— Petri dish 36 mm dia.	47 17 42
— Petri dish 54 mm dia.	47 17 43
— Petri dish 65 mm dia.	47 17 58
— Petri dish 88 mm dia.	47 17 59
— Costar flasks, dimensions 125x77 mm	1200-808/8
— Corning flasks, dimensions 98.5x52 mm	1200-808/9
— Greiner tissue culture plate 6x4x16 = 384 positions dimensions 136.5x92.5 mm	1200-808/12
— plankton chambers 42 mm dia.	1200-808/15
The matching plates, dishes, flasks, etc. are generally ca. 1 to 5 mm smaller.	
Two clips to fix flasks	47 12 45
1.2 Stage plate 300x230 mm	**47 17 41**
Two clips to fix flasks	47 12 36
1.3 Glide stage 10, including reducing plates 24 and 48 mm dia.	**47 17 20 -99 01**
Further specimen stages (not shown)	
Mechanical stage 71x110 mm	47 17 24 - 99 03
Rotary and centerable glide stage	47 17 22
Rotary stage Z with graduation	47 17 23
plus attachable mechanical stage	47 56 61

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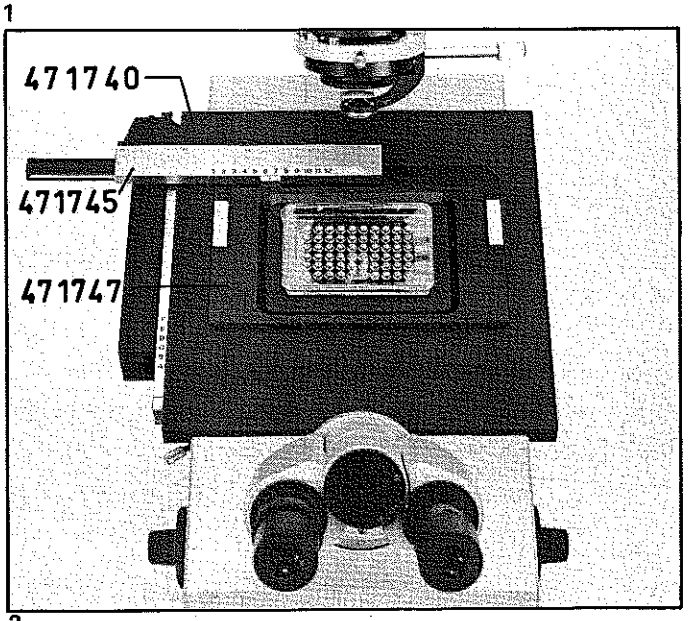

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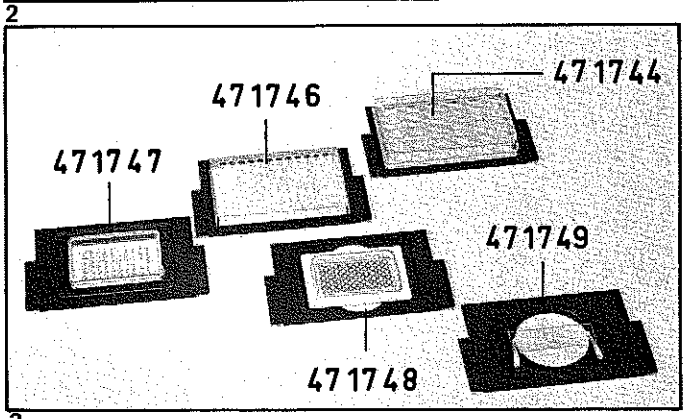

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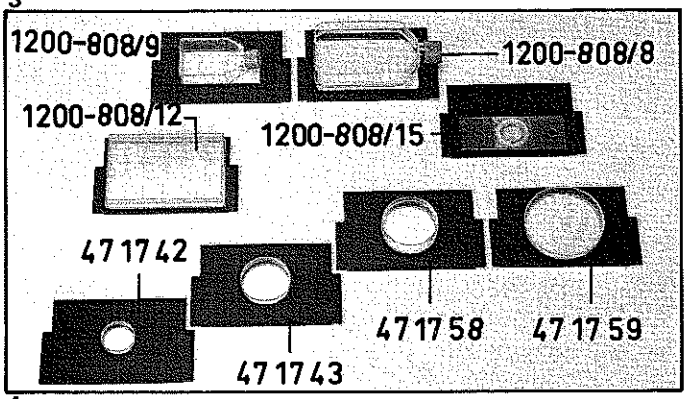

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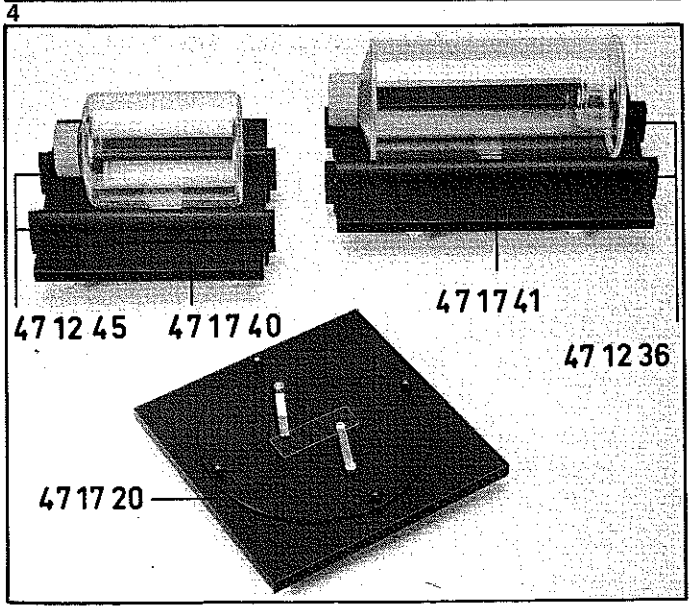

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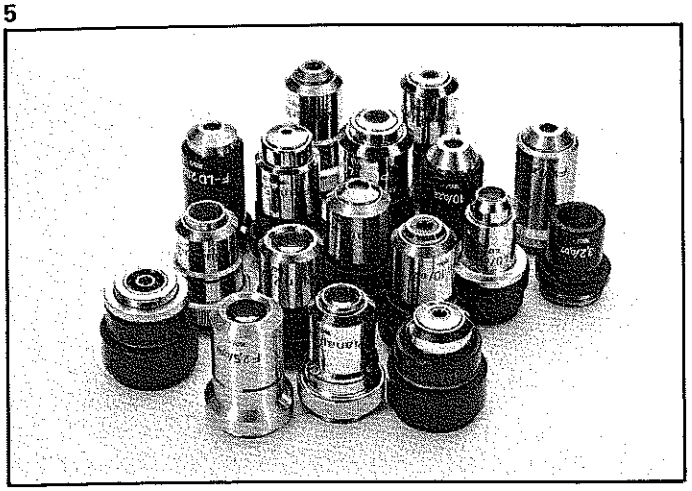

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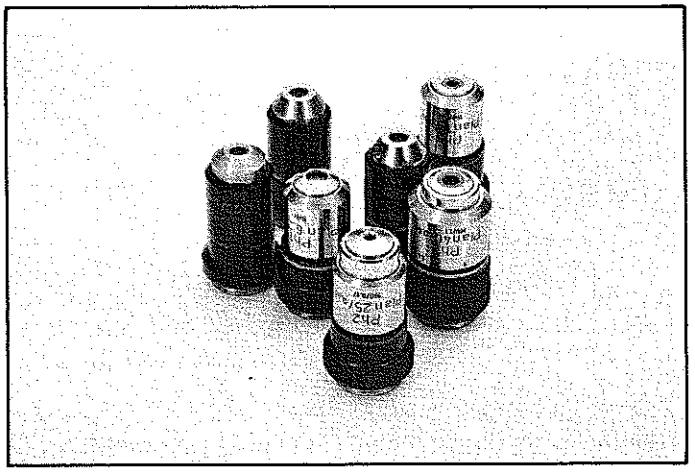

2.1 Brightfield objectives

Designation Magnification/NA	Working distance mm	Cat. No.
F-Achromat 2.5/0.08	8.9	46 01 05
Planachromat 2.5/0.08	8.9	46 01 10
Achromat 3.2/0.07	23.2	46 01 00
Planapochromat 4/0.14	9.2	46 02 40
Planachromat 6.3/0.16	4.9	46 03 10
Neofluar 6.3/0.20	10.8	46 03 20
Achromat 10/0.22	5.0	46 04 00
F-Achromat 10/0.25	6.8	46 04 05
Planachromat 10/0.22	4.8	46 04 10
Neofluar 10/0.30	4.8	46 04 20
Planachromat 16/0.35	2.8	46 05 10
Epiplan 16/0.35 Pol	3.1	46 20 03
Epiplan LD 16/0.30 Pol (covergl. thickn. 1.5)	4.1	46 21 23
optional: Protective cap LD 16 Pol (covergl. thickn. 0)	3.3	46 29 15
Required for each Epiplan objective: Adapter ring, height 23 mm W0.8 x 0.8		46 29 88
F-Achromat LD 20/0.25 for coverglass thickness 1-3 mm with coverglass thickness 2 mm	2.0	46 06 05
Planachromat 25/0.45	1.4	46 06 10
Achromat UD 40/0.65 C (magnification/NA for universal rotary stage without hemisphere: 25/0.41)	6.2	46 20 46
Required in addition: Adapter ring, height 12 mm W 0.8x1/36"		46 29 90
F-Achromat LD 32/0.40 for covergl. thickn. 0.5-1.5 mm with covergl. thickn. 1.5 mm	1.0	46 07 02
Planachromat LD 40/0.60 corr. (covergl. thickn. 1.1-1.5 mm)	1.5	46 07 15

For further objectives, e.g. for special applications, such as fluorescence or for higher magnifications, see general microscope program.

2.2 Phase-contrast objectives

Designation Magnification/NA	Working distance mm	Cat. No.
Planachromat 6.3/0.16 Ph 1	4.9	46 03 11
Achromat 10/0.22 Ph 1	5.0	46 04 01
F-Achromat 10/0.25 Ph 1	6.8	46 04 06
Planachromat 16/0.35 Ph 2	2.8	46 05 11
F-Achromat LD 20/0.25 Ph 1 for covergl. thickn. 1-3 mm with covergl.thickn. 2 mm	2.0	46 06 06
Planachromat 25/0.45 Ph 2	1.4	46 06 11
F-Achromat LD 32/0.40 Ph 1 for covergl. thickn. 0.5-5 mm with covergl. thickn. 1.5 mm	1.0	46 07 03
Planachromat LD 40/0.60 corr. Ph 2 (covergl. thickn. 1.1-1.5 mm)	1.5	46 07 16

Designation/ aperture	Distance condenser front lens/ specimen slide (mm)	Suitable objectives (magnification)	Cat.No.
3.1 For brightfield			
Achromatic-aplanatic condenser 0.32	23	2.5-10	46 52 67
plus: front lens 0.63	7	6.3-100[1)]	46 52 55
or: front lens 1.4	0.3 (oil)	10-100	46 52 58
Condenser 0.9 Z with swing-out front lens	1.0	10-100	46 52 52
front lens swung out (aperture 0.25)		2.5-10	
3.2 For phase contrast			
Annular stop Ph 1 for transillumination	71	Ph 1	47 57 15
Annular stop Ph 2 for transillumination	31	Ph 2	47 57 16
3.3 For brightfield and phase contrast			
LD condenser I 0.3/70 Ph 1/Ph 2	76	brightfield 2.5-25 objectives Ph 1 objectives Ph 2	46 52 24
Achromatic-aplanatic phase-contrast condenser IV Z/7 (aperture 0.63)	7	brightfield 6.3-100[1)] objectives Ph 1, Ph 2, Ph 3	46 52 72
without front lens (aperture 0.32)	23	brightfield 2.5-10	
Phase-contrast condenser II/Z (aperture 0.9)	1	brightfield 10-100 objectives Ph 1, Ph 2, Ph 3	46 52 70
with swung-out front lens (aperture 0.25)		brightfield 2.5-10	

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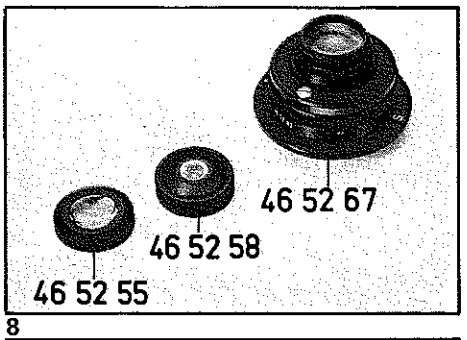

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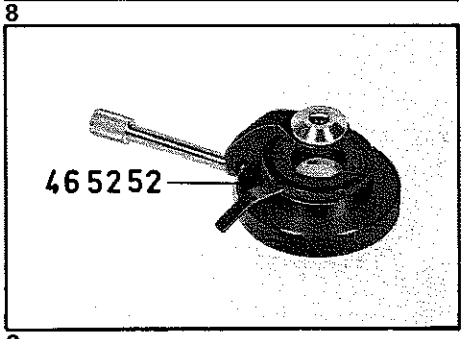

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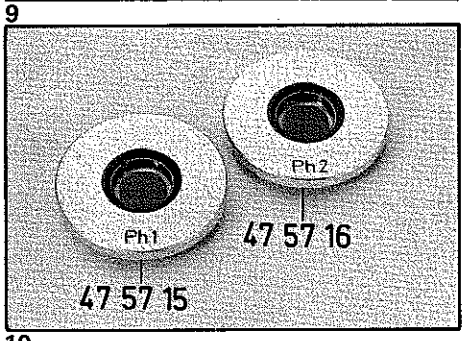

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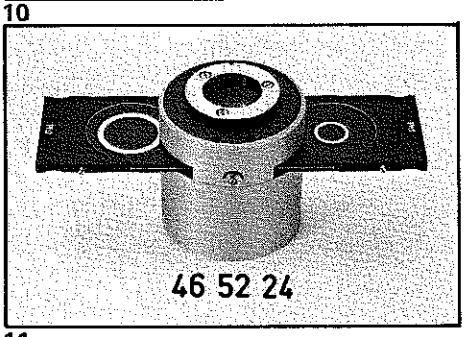

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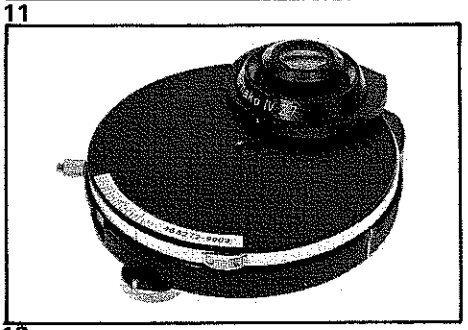

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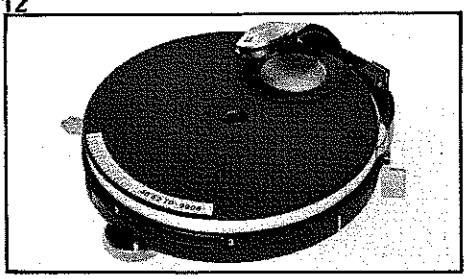

1) Objectives with apertures $\geq$ 1.0 can be used with restrictions only because of the max. condenser aperture of 0.63.

Designation/ aperture	Distance condenser front lens/ specimen slide (mm)	Suitable objectives (magnification or aperture)	Cat. No.
3.4 For brightfield, phase contrast and interference contrast			
Achromatic-aplanatic phase-contrast-interference-contrast condenser IV Z/7 (aperture 0.63)	7	brightfield 6.3-100[1] objectives Ph 2, Ph 3, objectives with corresp. DIC slide	46 52 73
without front lens (aperture 0.32)	23	brightfield 2.5-10 objectives Ph 1, Ph 2	
	23 to 40	objectives 6.3, 16, 25, 40 with corresp. DIC slide (condenser setting II)[2]	
Achromatic-aplanatic phase-contrast-interference-contrast condenser IV Z (1.4)	0.3 (oil)	brightfield 10-100 objectives Ph 2, Ph 3, objectives with corresp. DIC slide except Planachromat 6.3	46 52 85
without front lens (aperture 0.32)	23	brightfield 2.5-10	
	23 to 40	flatfield objectives 6.3, 16, with corresp. DIC slide (condenser setting II)[2]	
3.5 For brightfield and interference contrast			
Achromatic-aplanatic condenser 0.32	23	brightfield 2.5-10	46 52 67
	23 to 40	objectives 6.3, 16, 25, 40 with corresp. DIC slide and DIC prism 43 44 07[2]	
plus: front lens 0.63 Pol	7	brightfield 6.3-100[1]	46 52 65
and DIC prism for objectives with apertures $\leq$ 0.4		objectives up to aperture $\leq$ 0.4 with correspond. DIC slide	43 44 06
or: DIC prism for objectives with apertures $\geq$ 0.5		objectives with aperture $\geq$ 0.5 with corresp. DIC slide[1]	43 44 07
or: front lens 1.4 Pol	0.3 (oil)	brightfield 10-100	46 52 68
and DIC prism for objectives with apertures $\leq$ 0.4		objectives with apertures $\leq$ 0.4 with corresp. DIC slide	43 44 04
or: DIC prism for objectives with apertures $\geq$ 0.5		objectives with apertures $\geq$ 0.5 with corresp. DIC slide	43 44 05

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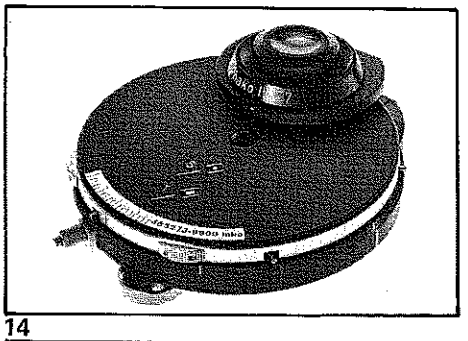

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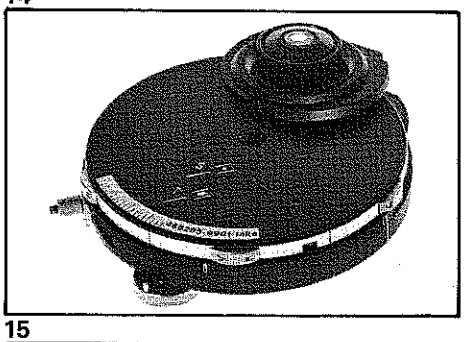

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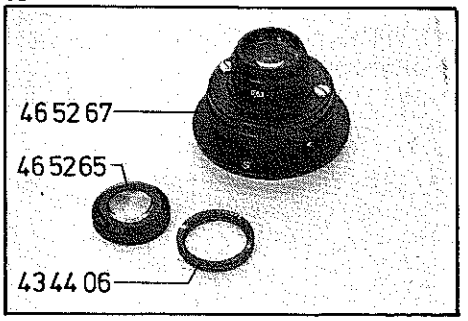

[1] Objectives with apertures $\geq$ 1.0 can be used with restrictions only for brightfield and DIC because of the condenser aperture 0.63.

[2] See information A 41-128.1, invertoscope D, DIC with long condenser back focal length.

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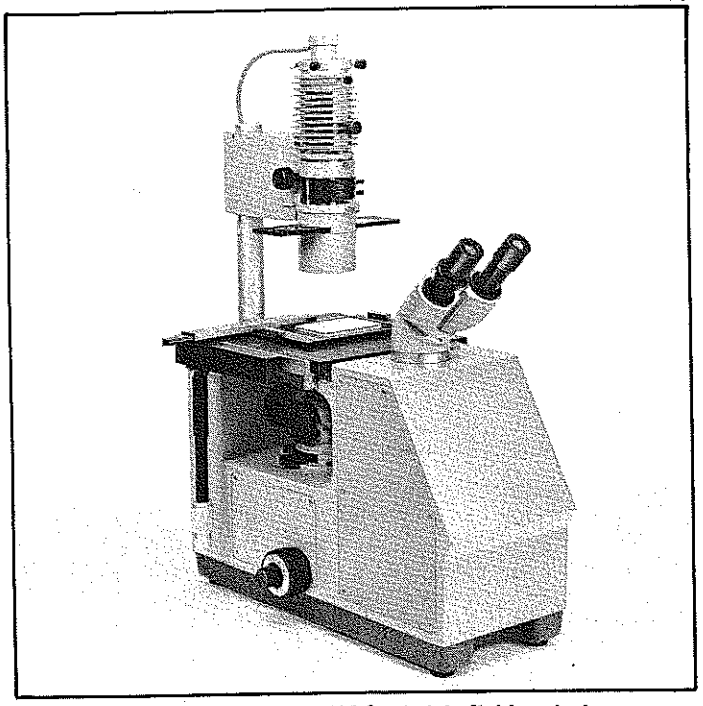

Fig. 16: Inverted microscope IM for brightfield and phase contrast with long working distance

Stand equipment	Cat. No.
Stand IM	47 17 03
Sextuple revolving nosepiece H 1x	47 17 10
Binocular tube D 1	41 30 06
Stage plate 211x230 mm	47 17 40
Attachable mechanical stage IM with coaxial drive	47 17 45
Mounting frame M for specimen slides 76x26 mm	47 17 49
(shown is mounting frame for microtest plates 47 17 47, other mounting frames see p. 2)	
Dust cover	47 93 17
Transilluminator IM 12 V 60 W	
Carrier for transilluminator IM	47 17 52
Lamp housing 60 with lamp condenser	46 72 57
Lamp socket 60/1	46 80 15
Low-voltage filament lamp 12 V 60 W	38 00 18-2520
Stabilized 12 V 100 W power supply, variable 1.5 ... 12 V, 100-110-120-127-220-240 V, 50 ... 60 Hz	39 25 85
Mains cable with CEE plug [1]	38 00 71-2810
Conversion filter CB 12	46 78 50
Optical equipment	
Achromat 3.2/0.07	46 01 00
F-Achromat 10/0.25 Ph 1	46 04 06
F-Achromat LD 20/0.25 Ph 1	46 06 06
F-Achromat LD 32/0.40 Ph 1	46 07 03
Kpl wide-angle eyepiece 10x/18 Br (2x)	46 40 42
LD condenser I 0.3/70 Ph 1/Ph 2	46 52 24
Centering telescope	46 48 22

[1] Mains cable with US flat plug 38 00 74-0160

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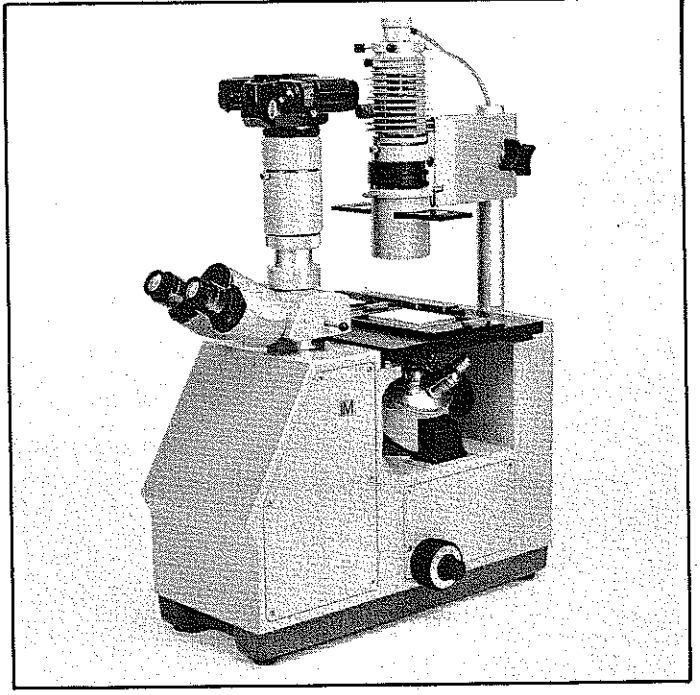

Fig. 17: Inverted microscope IM for brightfield and phase contrast with attached SLR camera

Stand equipment	Cat. No.
Stand IM	47 17 03
Sextuple revolving nosepiece H 1x	47 17 10
Binocular phototube 30° with sliding prism	47 30 28
Kpl wide-angle eyepiece 10x/18 Br	46 40 42
Adapter ring for 40 mm tubes	47 60 05
Stage plate 211x230 mm	47 17 40
Attachable mechanical stage IM with coaxial drive	47 17 45
Mounting frame M for specimen slides 76x26 mm	47 17 49
(shown is mounting frame for microtest plates 47 17 47, other mounting frames see p. 2)	
Dust cover	47 93 17
Transilluminator IM 12 V 60 W	
Carrier for transilluminator	47 17 52
Lamp housing 60 with lamp condenser	46 72 57
Lamp socket 60/1	46 80 15
Low-voltage filament lamp 12 V 60 W (2 pces.)	38 00 18-2520
Stabilized 12 V 100 W power supply, variable 1.5 ... 12 V, 100-110-120-127-220-240 V, 50 ... 60 Hz	39 25 85
Mains cable with CEE plug [1]	38 00 71-2810
Conversion filter CB 12	46 78 50
Optical equipment	
Achromat 3.2/0.07	46 01 00
F-Achromat 10/0.25 Ph 1	46 04 06
F-Achromat LD 20/0.25 Ph 1	46 06 06
F-Achromat LD 32/0.4 Ph 1	46 07 03
Kpl wide-angle eyepiece 10x/18 Br foc (2x)	46 40 43
LD condenser I 0.3/70 Ph 1/Ph 2	46 52 24
Centering telescope	46 48 22
SLR camera with lens f = 63 mm	
Contax RTS II Quartz	41 61 65
Winder W 3	41 61 66
63 mm lens in T2 mount	47 60 29
T2 adapter for Contax	47 60 89
Cable release S 100	41 61 67
Photographic reticle MC 19 mm dia.	47 60 21

[1] Mains cable with US flat plug 38 00 74-0160

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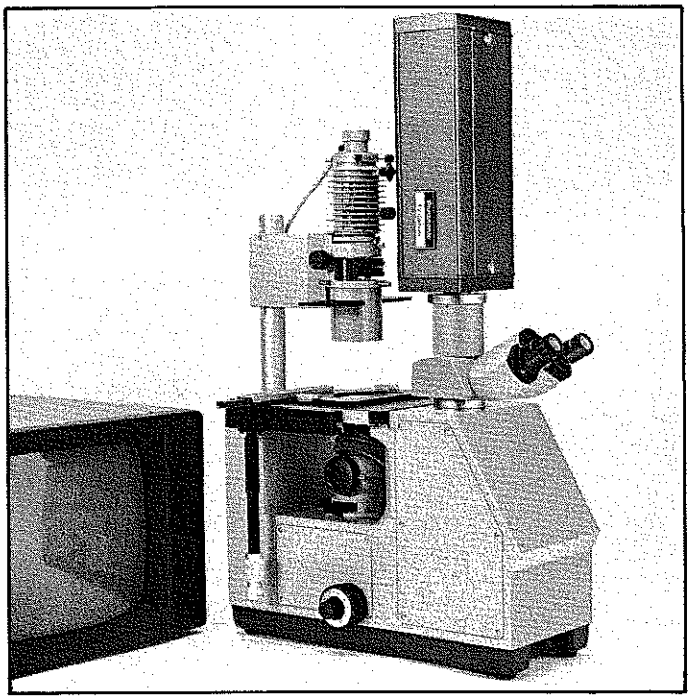

Fig. 18: Inverted microscope IM for transmitted-light brightfield and phase contrast with TV equipment

Stand equipment IM	Cat. No.
Stand IM	47 17 03
Sextuple revolving nosepiece H 1x	47 17 10
Binocular phototube 30° with sliding prism	47 30 28
Stage plate 211x230 mm	47 17 40
Attachable mechanical stage IM with coaxial drive	47 17 45
Mounting frame M for specimen slides 76x26 mm	47 17 49
Dust cover	47 93 17
Transilluminator IM 12 V 60 W	
Carrier for transilluminator IM	47 17 52
Lamp housing 60 with lamp condenser	46 72 57
Lamp socket 60/1	46 80 15
Low-voltage filament lamp 12 V 60 W (2 pces.)	38 00 18-2520
Stabilized 12 V 100 W power supply, variable 1.5 ... 12 V, 100-110-120-127-220-240 V, 50 ... 60 Hz	39 25 85
Mains cable with CEE plug[1]	38 00 71-2810
Conversion filter CB 12, 32x2 mm	46 78 50
Optical equipment	
Planachromat 2.5/0.08	46 01 10
Planachromat 10/0.22	46 04 10
Planachromat 6.3/0.16 Ph 1	46 03 11
Planachromat 16/0.35 Ph 2	46 05 11
LD Planachromat 40/0.60 Ph 2 corr (covergl. thickn. 1.1-1.5 mm)	46 07 16
Kpl wide-angle eyepiece 10x/18 Br foc (2x)	46 40 43
LD condenser I 0.3/70 Ph 1 and Ph 2	46 52 24
Centering telescope	46 48 22
Adapters for TV camera	
(TV camera optional)	
Adapter with standard C mount	47 79 21
Adapter	43 30 47

[1] Mains cable with US flat plug 38 00 74-0160

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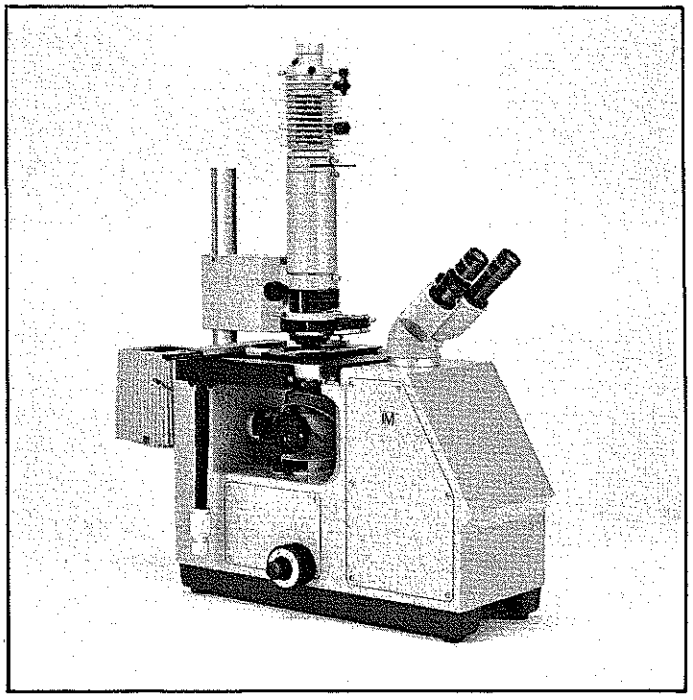

Fig. 19: Inverted microscope IM for transmitted-light brightfield and phase contrast and for epi-fluorescence

Stand equipment IM	Cat. No.
Stand IM	47 17 03
Sextuple revolving nosepiece H 1x	47 17 10
Binocular tube D 1	41 30 06
Stage plate 211x230 mm	47 17 40
Attachable mechanical stage IM with coaxial drive	47 17 45
Mounting frame M for specimen slides 76x26 mm	47 17 49
Dust cover	47 93 17
Transilluminator IM 12 V 60 W	
Carrier for transilluminator IM	47 17 52
Spacer tube with auxiliary lens	47 56 38
Adapter piece with iris	46 72 27
Lamp housing 60 with lamp condenser	46 72 57
Lamp socket 60/1	46 80 15
Low-voltage filament lamp 12 V 60 W (2 pces.)	38 00 18-2520
Stabilized 12 V 100 W power supply, variable 1.5 ... 12 V, 100-110-120-127-220-240 V, 50 ... 60 Hz	39 25 85
Mains cable with CEE plug[1]	38 00 71-2810
Conversion filter CB 12, 32x2 mm	46 78 50
Optical equipment	
Neofluar 6.3/0.20	46 03 20
Neofluar 16/0.40 Ph 2	46 05 21
Neofluar 40/0.75 Ph 2	46 07 21
Plan-Neofluar 40/0.9 imm. corr	46 17 25
Plan-Neofluar 63/1.25 oil	46 18 36
Neofluar 100/1.30 oil Ph 3	46 19 21
Kpl wide-angle eyepiece 10x/18 Br (2x)	46 40 42
Phase-contrast condenser IV Z/7, aperture 0.63	46 52 72
Centering telescope	46 48 22
Epi-fluorescence equipment	
Illumination attachment incident light FL	47 17 61
Reflector housing 2 FL	46 63 01
Lamp housing 100	46 72 59
Three-lens lamp condenser 100	46 72 74
Socket for HBO 50 lamp	46 80 32
HBO 50 high-pressure mercury lamp	38 16 19
Power supply 220-240 V, 50-60 Hz	39 26 41
Mains cable with CEE plug[1]	38 00 71-2810
Filter set 09 for FITC fluorescence	48 77 09
Filter set 15 for Evans blue	48 77 15

[1] Mains cable with US flat plug 38 00 74-0160

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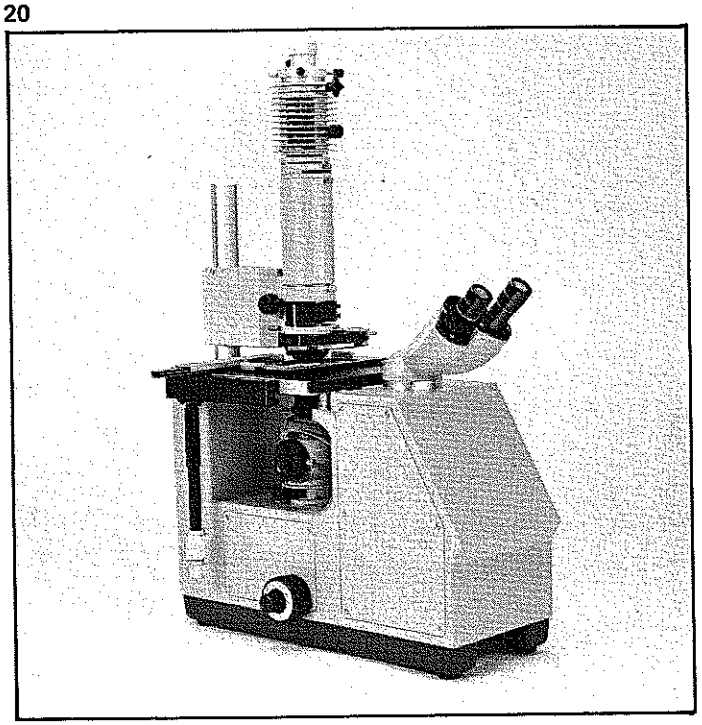

Fig. 20: Inverted microscope IM for transmitted-light brightfield, phase contrast and differential interference contrast

Stand equipment IM	Cat. No.
Stand IM	47 17 03
Quintuple revolving nosepiece DIC 1x with 5 aligned adapter rings for DIC slider	47 17 14
Binocular tube 45	47 30 11
Stage plate 211x230 mm	47 17 40
Set of spacers, stage plate (DIC)	47 17 29
Attachable mechanical stage IM	47 17 45
Mounting frame for specimen slides 76x26 mm	47 17 49
Dust cover	47 93 17
Transilluminator IM 12 V 60 W	
Carrier for transilluminator IM	47 17 52
Spacer tube with auxiliary lens	47 56 38
Adapter piece with iris	46 72 27
Lamp housing 60 with lamp condenser	46 72 57
Lamp socket 60/1	46 80 15
Low-voltage filament lamp 12 V 60 W (2 pces.)	38 00 18-2520
Stabilized 12 V 60 W power supply, variable 1.5 ... 12 V, 100-110-120-127-220-240 V, 50 ... 60 Hz	39 25 85
Mains cable with CEE plug [1)]	38 00 71-2810
Conversion filter CB 12, 32x2 mm	46 78 50
Optical equipment	
Achromatic-aplanatic phase-contrast-interference-contrast condenser IV Z/7, aperture 0.63 with positions for brightfield, phase contrast Ph 2, Ph 3 and DIC objectives with apertures $\leq$ 0.4 and for objectives $\geq$ 0.5	46 52 73
Kpl wide-angle eyepiece 10x/18 Br (2x)	46 40 42
Objectives and accessories for phase contrast	
Planachromat 16/0.35 Ph 2	46 05 11
Planachromat 40/0.65 Ph 2	46 07 11
Centering telescope	46 48 22
Green filter VG 9, 32x2 mm	46 78 05
Objectives and accessories for differential interference contrast (DIC)	
Planachromat 6.3/0.16	46 03 10
Planachromat 16/0.35	46 05 10
LD-Planachromat 40/0.60 corr (covergl. thickn. 1.1-1.5 mm)	46 07 15
For use with the above-mentioned objectives:	
DIC slide for Planachromat 6.3/0.16	47 45 31
DIC slide for Planachromat 16/0.35	47 45 51
DIC slide for LD-Planachromat 40/0.60 corr	47 45 64
Polarizer IM	47 36 14
Analyzer with removable lambda plate IM	47 36 68

[1)] Mains cable with US flat plug 38 00 74-0160

Specifications subject to change.