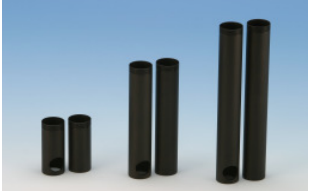
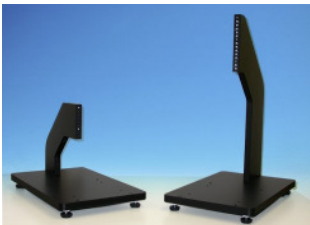


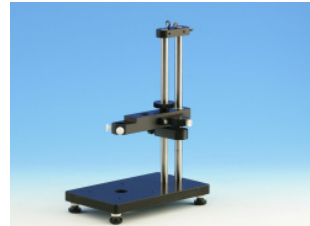

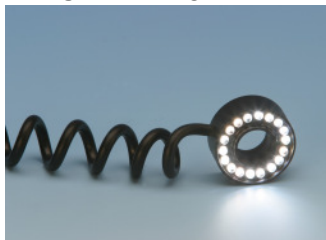


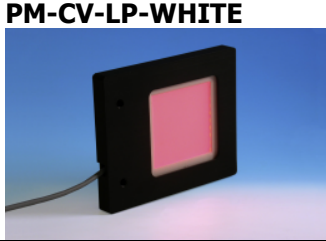



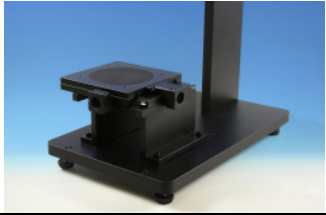


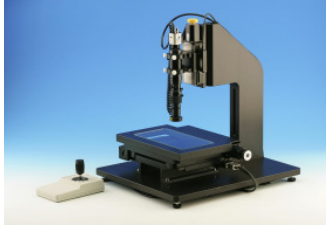


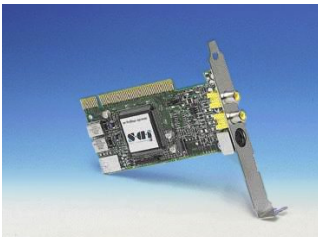




Order-no..	specification	Price in €
PM-CV+length 	Tubes 40 mm to 250 mm with C-Mount thread	75,00
PM-CV-K+length	Tubes 50 mm to 250 mm with C-Mount thread and lateral bore for coaxial illumination.	85,00
PM-CV-ST 	Stand (high or low) with bores for mounting guide rail PM-CV-P300 and XY-crosstables	690,00
PM-PM-CV-B-ST	Like above with opening for underlight-plate PM-CV-LP	810,00
PM-CV-300P-POM-FF 	Guide rail PM-CV-300P with mount for tubes PM-CV-POM and fine-focussing PM-CV-FF, available in 300, 400mm or 500 mm length, for stand PM-CV-ST or to mount directly on working machines	280,00
PM-CV-300P-POM-FF-P	Like above with high precision guide rail (Schneeberger) 300 or 400 mm	330,00
PM-CV-ST-MINI 	Simple stand with base plate, mount for tubes and fine-focussing. Column 300 or 500 mm.	395,00
PM-CV-ST-MINI-DF 	Like above but with additional column (more precise) with bores in the base plate for XY-crosstables PM-CV-MT-50 and underlight illumination ; additional mount for dial gauges for depth measurement.	750,00

Order-no.	specification	Price in €
	By changing the objectives in combination with tubes in different lengths, magnifications from 10x to 4000x are possible.	
PM-CV-O-005	Objective 0.5x	140,00
PM-CV-O-008	Objective 0.8x (special)	415,00
PM-CV-O-010	Objective 1.0x	140,00
PM-CV-O-016	Objective 1.6x (special)	310,00
PM-CV-O-020	Objective 2.0x	90,00
PM-CV-O-030	Objective 3.0x	140,00
PM-CV-O-032	Objective 3.2x (special)	380,00
PM-CV-O-040	Objective 4.0x	90,00
PM-CV-O-060	Objective 6.0x	100,00
PM-CV-O-064	Objective 6.4x (special)	405,00
PM-CV-O-100	Objective 10x	100,00
PM-CV-O-150	Objective 15x	150,00
PM-CV-O-200	Objective 20x	240,00
PM-CV-O-300	Objective 30x	
	For different applications, cameras in different versions are available	
PM-CV-W-250-D	CCD camera 1/3" color	640,00
PM-CV-W-221S	CCD camera 1/2" color	790,00
PM-CV-W-902DM3S	CCD camera 1/3" black and white	620,00
PM-CV-W-902-H	CCD camera 1/2" black and white	465,00
PM-USB-2.0	USB 2.0 camera C-MOS, Resolution 1600 x 1200 pixels, corresponding to 1/2" Chip. Attention: An USB 2.0 is absolutely necessary on your PC or laptop !	1.380,00
		

Order-no..	specification	Price in €
	Illumination Control Box with CCD camera 1/3" PM-CV-W-250-D with intensity control and memory function for Ringlight, coaxial illumination and underlight 12V.	1.050,00
PM-CV-LED-16 	Ringlight with LED for objektives CV series ; opening 14 mm current supply via CCD camera or external 12V power supply or control-box PM-CV-LB.	295,00
PM-CV-KOAX 	Coaxial light for tubes PM-CV-K current supply via CCD camera or external 12V power supply or control-box PM-CV-LB.	460,00
PM-DL-MT50 	LED-transmission light for crosstable PM-CV-MT-50	154,00
PM-CV-LP-WHITE 	Transmission light plate for stand PM-CV-B-ST ; white	635,00
PM-CV-LP-RED	Underlight plate for stand PM-CV-B-ST ,Red	635,00
PM-CV-LP-BLUE	Underlight plate for stand PM-CV-B-ST , Blue	635,00
PM-CV-LP-Green	Underlight plate for stand PM-CV-B-ST , Green	635,00

Order-no.	specification	Price in €
PM-CV-KLQ-150W 	Cold light source 150 Watt with double swan neck. Slotted ringlight on request	610,00
PM-CV-SRL-10 	Slotted ringlight 10° for cold light source PM-CV-KLQ-150W	330,00
PM-CV-SRL-35 	Like above with opening 35°	330,00
PM-CV-MT-50 	XY-crosstable 50x50 mm with glass and metal insert plates. Mount for micrometer heads Ø 12 or 18 mm Supplied together with stand strips for PM-CV-ST (not needed for other stands)	600,00
PM-KT-100 	Manual positioning table 100 x 100 mm, surface 210 x 210 mm	550,00
PM-KTU-100 	Like above with opening for underlight	690,00
	Slide table CV-EK-200x200 and -CV-EK-300x300 with base plates and cross table measuring 100 – 300 mm upon request. Also available as motorized version from 100x100 to 300x300 mm. The picture on the left shows the CV-MOT 200-100-Z system. Cross table with 200x100 mm and 50 mm motorized Z axis. All three axes fitted with measuring system. Supplied with joystick, control, PC and Metric MOT individual Solutions on request	

Order-no..	specification	Price in €
MI-164-161 	Micrometer head, range 50 mm resolution 0,001 mm for cross table PM- MT-50 *** 2 pieces needed***	639,00
MI-KA-SA 	Cables for micrometer head DIGIMATIC MI-164-161: - Interface DMX2 - cables for interface (2 pieces) - Adaptater (Dsub25-Dsub9) for reading the values in the software PM-METRIC-MT	385,00
PM-FGC-PC 	Framegrabber (video card) for PC with chinch, S VHS and DSUB 44 input. (On stationary systems Framegrabber provides the power supply for the cameras and illuminations).	390,00
PM-FGC-LE 	PCMCIA Framegrabber for laptop, resolution 768 x 596. (When ordering please specify if you envisage using it in a laptop.)	975,00
PM-DONGLE 	Dongle for activating the Metric measuring software if neither of the above Framegrabbers are used, respectively when you are using your own Framegrabber. (Only supplied together with Metric license)	150,00

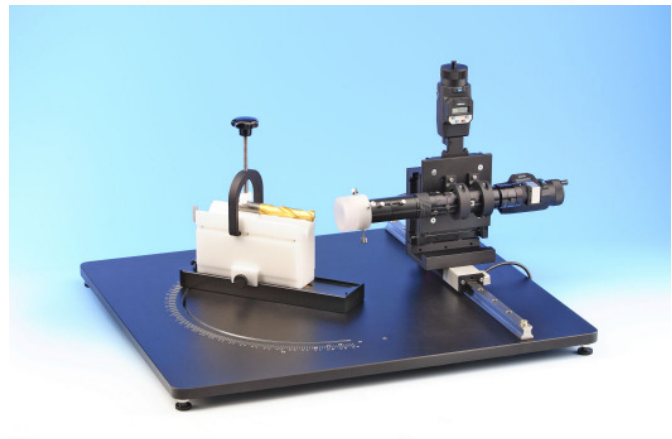
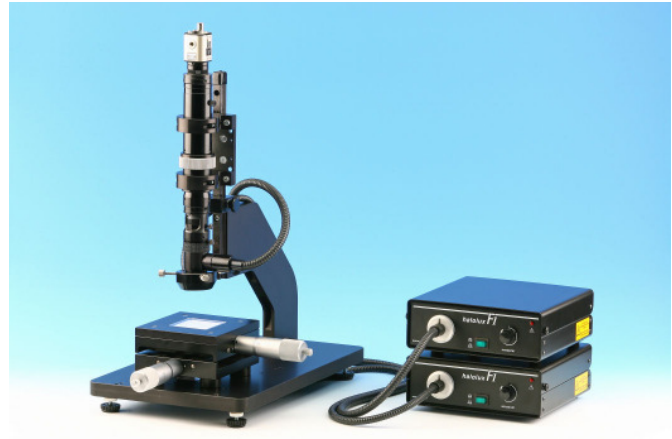
Big choice: combinations tube and objectives

All magnifications based on a 17" screen with a resolution of 1024 x 758														
Screen	17" 1024 x 768	Objective	0,5x	0,8x	1,0x	1,6x	2x	3x	4x	6x	10x	15x	20x	30x
Tube	CCD camera	Chip	1/3"	1/3"	1/3"	1/3"	1/3"	1/3"	1/3"	1/3"	1/3"	1/3"	1/3"	1/3"
CV-40	Distance	mm	-	-	-	930	103	35	25	14	7	10	8	5
	Field of view	mm	-	-	-	60	11	4,6	3	1,6	1	0,6	0,42	0,26
	Magnification		-	-	-	4x	21x	51x	78x	146x	235x	390x	560x	900x
	length	mm	-	-	-	125	120	120	120	126	126	130	134	136
CV-50	Distance	mm	-	-	-	385	71	28	25	14	7	10	8	5
	Field of view	mm	-	-	-	21	6,8	3,3	2,3	1,36	0,79	0,5	0,36	0,23
	Magnification		-	-	-	11x	35x	70x	102x	173x	295x	470x	650x	1020x
	length	mm	-	-	-	135	128	130	128	138	138	140	145	146
CV-60	Distance	mm	-	-	-	265	55	24	24	14	6	11	8	5
	Field of view	mm	-	-	-	12,8	4,8	2,6	1,9	1,15	0,68	0,43	0,32	0,21
	Magnification		-	-	-	18x	50x	90x	125x	208x	352x	558x	750x	1142x
	length	mm	-	-	-	145	138	140	138	148	148	150	154	156
CV-70	Distance	mm	-	-	-	217	48	22	22	14	7	11	8	5
	Field of view	mm	-	-	-	9,4	3,7	2,1	1,6	1	0,59	0,39	0,29	0,19
	Magnification		-	-	-	25x	64x	111x	150x	240x	406x	615x	827x	1263x
	length	mm	-	-	-	155	148	150	148	158	158	160	164	166
CV-80	Distance	mm	520	-	108	187	42	20	22	13	7	10	7	5
	Field of view	mm	30	-	5,7	7,3	3	1,8	1,4	0,9	0,53	0,35	0,26	0,17
	Magnification		8x	-	41x	33x	80x	130x	170x	265x	450x	685x	925x	1410x
	length	mm	162	-	160	165	158	160	158	168	168	170	174	176
CV-90	Distance	mm	318	1150	95	167	40	20	20	13	7	10	7	5
	Field of view	mm	16,5	75	4,7	6	2,5	1,6	1,2	0,8	0,45	0,32	0,23	0,15
	Magnification		14x	3x	50x	40x	96x	146x	200x	300x	530x	750x	1040x	1600x
	length	mm	172	170	170	175	168	160	168	178	178	160	184	186
CV-100	Distance	mm	235	390	85	154	37	20	19	12	7	10	7	5
	Field of view	mm	11	23	4	5	2,2	1,4	1,1	0,73	0,43	0,29	0,22	0,14
	Magnification		21x	10x	58x	48x	109x	138x	218x	328x	558x	827x	1090x	1715x
	length	mm	182	180	180	185	178	170	178	188	188	190	194	196
CV-110	Distance	mm	195	250	83	145	35	16	20	10	5	9	7	5
	Field of view	mm	8,6	14	3,45	4,4	1,9	1,25	1	0,66	0,1	0,32	0,2	0,13
	Magnification		27x	17x	68x	54x	126x	188x	240x	363x	600x	750x	1200x	1846x
	length	mm	192	190	190	195	188	180	188	198	198	200	204	206
CV-120	Distance	mm	165	188	75	135	33	16	18	11	6	9	7	5
	Field of view	mm	7	10	3	3,9	1,75	1,15	0,92	0,62	0,37	0,25	0,19	0,12
	Magnification		33x	24x	78x	61x	137x	204x	260x	380x	648x	960x	1263x	2000x
	length	mm	202	200	200	205	198	190	198	208	208	210	214	216
CV-130	Distance	mm	150	156	70	129	32	16	19	12	7	10	8	5
	Field of view	mm	5,9	7,7	2,7	3,5	1,6	1,05	0,84	0,57	0,34	0,23	0,17	0,12
	Magnification		40x	31x	87x	68x	150x	235x	285x	421x	705x	1043x	1411x	2000x
	length	mm	212	210	210	215	208	200	208	218	218	220	224	226
CV-140	Distance	mm	132	133	70	125	33	16	20	13	7	10	8	5
	Field of view	mm	5	6,3	2,45	3,1	1,45	0,96	0,77	0,54	0,32	0,22	0,165	0,11
	Magnification		47x	38x	95x	77x	165x	244x	305x	444x	750x	1090x	1450x	2180x
	length	mm	222	220	220	225	218	210	218	228	228	230	234	236

All magnifications based on a 17" screen with a resolution of 1024 x 758														
Monitor	17" 1024 x 768	Objektiv	0,5x	0,8x	1,0x	1,6x	2x	3x	4x	6x	10x	15x	20x	30x
Tube	CCD Kamera	Chip	1/3"	1/3"	1/3"	1/3"	1/3"	1/3"	1/3"	1/3"	1/3"	1/3"	1/3"	1/3"
CV-150	Distance	mm	125	119	70	120	31	16	18	11	6	10	6	5
	Field of view	mm	4,4	5,3	2,2	2,8	1,3	0,89	0,72	0,5	0,3	0,2	0,158	0,105
	Magnification		53x	45x	61x	85x	484x	264x	333x	480x	800x	1200x	1520x	2285x
	Length	mm	232	230	230	235	228	220	228	258	258	240	244	246
CV-160	Distance	mm	118	108	60	116	31	16	19	12	7	10	8	5
	Field of view	mm	3,9	4,6	2	2,6	1,23	0,83	0,68	0,47	0,28	0,19	0,15	0,1
	Magnification		60x	52x	117x	92x	195x	283x	352x	510x	857x	1263x	1600x	2400x
	Length	mm	242	240	240	245	238	230	238	248	248	250	254	256
CV-170	Distance	mm	115	102	60	115	30	16	18	12	7	10	7	5
	Field of view	mm	3,6	4	1,9	2,5	1,15	0,77	0,64	0,45	0,27	0,18	0,14	0,095
	Magnification		65x	60x	123x	96x	208x	305x	375x	533x	888x	1333x	1714x	2525x
	Length	mm	252	250	250	255	248	240	248	258	258	260	264	266
CV-180	Distance	mm	105	95	60	113	30	16	18	11	5	10	7	5
	Field of view	mm	3,2	3,5	1,8	2,3	1,1	0,73	0,6	0,42	0,25	0,175	0,13	0,09
	Magnification		73x	66x	130x	104x	218x	320x	400x	570x	960x	1370x	1840x	2660x
	Length	mm	262	260	260	265	258	250	258	268	268	270	274	276
CV-190	Distance	mm	103	88	60	110	30	16	18	10	6	10	8	5
	Field of view	mm	3	3,2	1,65	2,1	1	0,69	0,57	0,4	0,24	0,17	0,128	0,087
	Magnification		78x	75x	142x	114x	240x	340x	420x	600x	1000x	1410x	1875x	2760x
	Length	mm	272	270	270	275	268	260	268	278	278	280	284	286
CV-200	Distance	mm	100	85	60	108	28	16	17	10	5	8	6	5
	Field of view	mm	2,7	2,9	1,55	2	0,95	0,65	0,54	0,38	0,23	0,155	0,12	0,082
	Magnification		87x	82x	151x	120x	252x	361x	444x	631x	1046x	1550x	2000x	2925x
	Length	mm	282	280	280	285	278	270	278	288	288	290	294	296
CV-210	Distance	mm	97	82	60	107	26	16	12	10	6	9	7	5
	Field of view	mm	2,5	2,7	1,48	1,9	0,9	0,62	0,51	0,37	0,22	0,15	0,115	0,08
	Magnification		94x	88x	158x	126x	265x	380x	470x	648x	1090x	1600x	2085x	3000
	Length	mm	292	290	290	295	288	280	288	298	298	300	304	306
CV-220	Distance	mm	94	78	60	105	27	13	16	10	6	10	7	5
	Field of view	mm	2,4	2,5	1,4	1,8	0,86	0,59	0,49	0,35	0,21	0,145	0,11	0,075
	Magnification		98x	96x	168x	133x	280x	398x	490x	685x	1140x	1655x	2180x	3200x
	Length	mm	302	300	300	305	298	290	298	308	308	310	314	316
CV-230	Distance	mm	91	86	60	104	26	13	15	10	6	10	7	5
	Field of view	mm	2,2	2,3	1,23	1,7	0,82	0,56	0,46	0,33	0,2	0,14	0,115	0,07
	Magnification		107x	104x	191x	140x	290x	420x	520x	725x	1200x	1710x	2085x	3425x
	Length	mm	312	310	310	315	308	300	308	315	318	320	324	326
CV-240	Distance	mm	88	74	58	103	26	13	17	10	6	10	6	5
	Field of view	mm	2,1	2,2	1,25	1,6	0,78	0,53	0,45	0,32	0,195	0,13	0,1	0,065
	Magnification		111x	110x	204x	150x	605x	443x	560x	750x	1230x	1845x	2400x	3690x
	Length	mm	322	320	320	325	318	310	318	328	328	330	334	336
CV-250	Distance	mm	85	70	58	100	26	13	16	10	5	9	5	5
	Field of view	mm	2	2	1,2	1,6	0,75	0,51	0,42	0,3	0,18	0,13	0,1	0,06
	Magnification		117x	120x	196x	150x	320x	460x	571x	800x	1333x	1846x	2400x	4000x
	Length	mm	332	330	330	335	328	320	328	338	338	340	344	346

Zoom Systems

Professional Video measurement system



If the magnification has to be changed frequently then it can be more sensible to use raster zoom systems. Here the working distance inside the zoom range is not changed. In addition the zoom systems have a greater depth of focus than the CV systems.

A raster zoom system consists of the zoom optics, 6,5x or 12x, an adapter with an intermediate optic 0,5x to 3,5x, the C-mount adapter and the camera. It is assembled based on your requirements or based on a joint test carried out at your workshops. The zoom range can be changed by using additional supplementary lenses. The supplementary lenses determine the working distance. The zoom lens without a supplementary lens is calculated as 1x. The working distances which this gives range between 356 mm and 36 mm



The individual click stops of the zoom lens are calibrated and stored in the Metric Software. For the zoom lenses in the 6000 series are five stops.

Individual complete systems corresponding to the needs of the customer can be easily mounted thanks to the modular components.

Objectif de zoom 6000

Order-no..	specification	Price in €
PM-NAV-1-60135 	Raster zoom lens 6000 5 click stops	1.290,00
PM-NAV-1-60123 	Raster zoom lens 6000 5 click stops with inlet for coaxial illumination	1.450,00
PM-NAV-1-60439 	adapter barrel 0,5x -not for PM-NAV-1-50486-	280,00
PM-NAV-1-6020 	Adapter barrel 0,67x	230,00
PM-NAV-1-6015 	Adapter barrel 1,0x	170,00
PM-NAV-1-6044 	Supplementary lens 0,25x	255,00
PM-NAV-1-60110 	Supplementary lens 0,5x	175,00
PM-NAV-1-60113 	Supplementary lens 2,0x	175,00

accessoires

Order-no..	specification	Price in €
PM-NAV-1-6010 	C-mount adapter (without caméra)	65,00
PM-CV-KLQ-150 	Cold light source 150W	475,00
PM-NAV-SRL-35 	Slot ring light	330,00
PM-DIF-SRL 	Diffusor for slot ring light PM-SRL-35	100,00
PM-NAV-LED-42 	LED ring light with 16 LED's Powerde directly from the camera	330,00
PM-DIF-LED-42 	Diffusor for LED ring light	100,00
PM-NAV-LL-KOAX 	Coaxial illumination	190,00

choice of adapter barrel and supplementary lens for lens 6000

	barrel 0,5	barrel 0,67	barrel 1,0
Optical magnification	0,09x – 0,56x	0,12x – 0,75x	0,18 – 1,13x
Suppl. lens 0,25x	68,64 – 10,64 mm	51,12 – 8,04 mm	34,32 – 5,32 mm
field of view			
magnification	5x – 36 x	7x – 48x	8x – 50x
Optical magnification	0,18x – 1,13x	0,24 – 1,50x	0,35x – 2,25x
Suppl. lens 0,5x	34,32 – 5,32 mm	25,56 – 4,00 mm	17,16 – 2,67 mm
field of view			
magnification	11x – 73x	15x – 97x	15x – 101x
Optical magnification	0,35 – 2,25	0,47 – 3,00x	0,70 – 4,50x
Sans Suppl. lens	17,16 – 2,67 mm	12,77 – 2,01 mm	8,85 – 1,33 mm
field of view			
magnification	22x – 146x	30x – 195x	45x – 292x
Optical magnification	0,70x – 4,50x	0,94x – 6,00x	1,40x – 9,0x
Suppl. lens 2,0x	8,85 – 1,33 mm	6,38 – 1,00 mm	4,29 – 0,67 mm
field of view			
magnification	45x – 292x	61x – 390x	91x – 585x

Othe barrels and supplementary lenses on request