AR coating machines

		Bühler Alzenau www.buhlergroup.com		
				
		Leybold Optics CCS 610+	Leybold Optics CCS 700	BOXER 900
Application	Small labs (< 100 L/ shift)	x	x	/
	Medium sized labs (100 - 3000 L/shift)	/	/	x
	Mass production labs (> 3.000 L/shift)	/	/	/
	Lens materials		all materials	
	AR coating including mirror coating	x	x	x
	Further special coatings (please specify)	/	/	/
	Top coatings (hydrophobic, oleophobic)	x	x	x
	Top coatings from separate thermal source	o	o	o
	In-chamber tinting full color (absortion coating)	x	x	x
	Gradient tinting color	/	/	/
Technical data	Productivity HMC+ Ø 70 (avg. lenses/h) [both sides coated]	280	380	770
	Process time [both sides coated] (minutes)	70	60	48
	Dome/segment number of sectors	Dome flip-over system	Dome flip-over system	3 segments
	Full dome/segment capacity Ø 70	48	60	96
	Flip-over capacity segment Ø 70	16	36	N/A
	High-vacuum pump system (capacity (L/s)	Turbo pump 1450	Turbo pump 2050	Turbo pump 2050
	Gate valve (in case of turbomolecular pump)	/	/	/
	Roughing pump system (capacity m3/h)	single stage 100	single stage 100	single stage dual pump 2x100
	Cryogenic booster pump with Meissner trap	x	x	x
	Weight (kg / lbs)	1200 / 3300	1350 / 3640	2200 / 4850
	Dimensions (w x d x h) / [mm / inches] (machine without conveyor)	2260 x 1150 x 1310 / 89 x 45 x 52	2260 x 1150 x 1450 / 89 x 45 x 52	1800 x 1900 x 2100 / 70 x 73 x 83
Process	Flip-over	o	o	/
	PVD (physical vapour deposition)	x	x	x
	CVD (chemical vapour deposition)	o	o	o
	Second distribution mask	/	/	x
	Sputter	/	/	/
Features	Electron beam gun (number of pockets/kW)	7 / 3 kW	7 / 3 kW	10 / 13 / 3 kW
	Ion source (kW)	0.4 kW	0.4 kW	1 kW
	Plasma source (kW)	/	/	/
	Number of vacuum measurement systems	4	4	4
	Optional heater (kW)	/	/	x
	Monitoring by Quartz-crystal/optical	single	single	single / dual / 6-fold
	Remote diagnostic	x	x	x
	LMS connectivity	o	o	o
	Further information	Top loader, standard coatings	Top loader, high end coatings	High end coatings

Legend: Yes = x, No = /, Optional = o

	Bühler Alzenau				Cotec
	www.buhlergroup.com				www.cotec-gmbh.com
					
	SYRUS 1100	SYRUS 1100 APSpro	Leybold Optics ECS 1350	Leybold Optics MIR 1200	HCS 100P-UH
	/	/	/	/	x
	x	x	x	x	x
	/	/	x	x	x
	all materials				all materials
	x	x	x	x	/
	/	PE-CVD	/	/	/
	x	x	x	x	x
	o	o	o	/	x
	x	x	x	x	/
	o	o	o	o	/
	1200	1200	2000	2600 single side coated	400
	42	42	44	90	12
	4 segments	4 segments	4 segments Dome Planetary system	Drum	2
	144	144	252 / 200	296	100
	N/A	N/A	N/A	N/A	100
	Diffusion pump 12000	Diffusion pump 12000	Diffusion pump 20000	Turbo pump 2x 2050	/
	N/A	N/A	N/A	/	/
	double stage 300 / 1000	double stage 300 / 1000	double stage 300 / 1000	double stage 65 / 505	single (800 l / min.)
	x	x	x	x	/
	3300 / 7275	3500 / 7700	8000 / 17600	4900 / 10800	300 / 661
	2000 x 2900 x 2200 / 114 x 79 x 87	2000 x 3900 x 2500 / 79 x 153 x 98	2300 x 5500 x 2500 / 90 x 216 x 98	2700 x 2200 x 2400 / 106 x 87 x 94	780 x 950 x 1950 / 31 x 38 x 77
	/	o	o	/	/
	x	x	x	x	x
	o	o	o	o	/
	x	x	x	o	/
	/	/	/	/	/
	7 / 10 / 13 / 3 kW	8 / 10 / 13 / 5 kW	10 / 13 / 5 kW	8 / 3 kW	/
	1 kW	1 KW o	1 kW	glow discharge	/
	/	8 kW	/	/	/
	4 / o	4 / o	4	4	1
	x	x	x	x	/
	single / dual / 6-fold	single / dual / 6-fold / optical	single / dual / 6-fold	single	/
	x	x	x	x	x
	o	o	o	o	/
	High end and premium coatings	Highly customizable. High end and premium coatings	Planetary system for highly curved substrates. High end and premium coatings	Drum coater for highly curved substrates. For fashion applications	High quality hydrophobic coatings for various surfaces in combination with our DURALON products

AR coating machines

		OptoTech www.optotech.de/en/coating		
				
		OAC 25 Plus	OAC 60	OAC 75
Application	Small labs (< 100 L/ shift)	x	x	x
	Medium sized labs (100 - 3000 L/shift)		x	x
	Mass production labs (> 3.000 L/shift)			
	Lens materials		all materials	
	AR coating including mirror coating	x	x	x
	Further special coatings (please specify)	anti fog	anti fog	anti fog
	Top coatings (hydrophobic, oleophobic)	x	x	
	Top coatings from separate thermal source			x
	In-chamber tinting full color (absortion coating)		x	x
	Gradient tinting color			
Technical data	Productivity HMC+ Ø 70 (avg. lenses/h) [both sides coated]			
	Process time [both sides coated] (minutes)	50	70	70
	Dome/segment number of sectors	1	1	3
	Full dome/segment capacity Ø 70	14	34	60
	Flip-over capacity segment Ø 70	8		
	High-vacuum pump system (capacity (L/s)	Turbo 2300	Turbo 2300	Turbo 2300
	Gate valve (in case of turbomolecular pump)			
	Roughing pump system (capacity (m3/h)			
	Cryogenic booster pump with Meissner trap	o	x	x
	Weight (kg / lbs)	895 / 1974	1345 / 2966	1650 / 3638
	Dimensions (w x d x h) / [mm / inches] (machine without conveyor)	700 x 1600 x 1950 / 28 x 63 x 77	800 x 1720 x 2000 / 32 x 68 x 79	1000 x 1998 x 2070 / 40 x 79 x 82
Process	Flip-over	x	/	/
	PVD (physical vapour deposition)	x	x	x
	CVD (chemical vapour deposition)	/	/	/
	Second distribution mask	/	/	/
	Sputter	/	/	/
Features	Electron beam gun (number of pockets/kW)	3 kW	3 kW	6 kW
	Ion source (kW)	1,6 kW	3,2 kW	3,2 kW
	Plasma source (kW)			
	Number of vacuum measurement systems	3	3	3
	Optional heater (kW)	x	x	x
	Monitoring by Quartz-crystal/optical	single	single / multiple	single / multiple
	Remote diagnostic	x	x	x
	LMS connectivity			
	Further information			

Legend: Yes = x, No = /, Optional = o

	OptoTech				Quantum Innovations
	www.optotech.de/en/coating				www.qtmi.net
					
	OAC 75 SP	OAC90 Plus	OAC 140	OAC 140SP	Fusion M
	x				x
	x	x			
			x	x	
		all materials			all materials
	x	x	x	x	x
	anti fog, mirror gradient	anti fog	anti fog	anti fog, mirror gradient	mineral glass
	x				x
		x	x	x	
	x	x	x	x	x
	x			x	
					20 lenses
	80	70	80	80	3
	4	3	6	6	1
	40/60	90	240	168/240	1
					n/a
	Turbo 2300	2 x Turbo 2300	Diffusion 20000	Diffusion 20000	Turbo pump
					Vat Valves
	x	x	x	x	
	2700 / 5953	1800 / 3969	4800 / 10583	4920 / 10847	1500 lbs
	1520 x 3200 x 2200 / 60 x 126 x 87	1500 x 2400 x 2250 / 60 x 95 x 89	2350 x 3550 x 2340 / 93 x 140 x 92	2350 x 3550 x 2340 / 93 x 140 x 92	72 x 45 x 64 inches
	/	/	/	/	continuous linear flow
	x	x	x	x	
	/	/	/	/	x
	x	/	/	x	
	/	/	/	/	x
	2 x 6 kW	6 kW	6 kW	2 x 6 kW	
	3,2 kW	3,2 kW	3,2 kW	3,2 kW	
					Sputter source
	4	3	4	4	3
	x	x	x	x	
	single / double / multiple	single / multiple	single / multiple	single / double / multiple	various
	x	x	x	x	x
					x
	Special version: gradient and mirror gradient possible			Special version: gradient and mirror gradient possible	Continuous, inline system. Coats 1 lens simultaniously on both sides. Gives complete flexibility.

AR coating machines

		Satisloh		
		www.satisloh.com/ophthalmic/ar-coating		
				
		1500-X	1200-DLX-2	MC-380-X
Application	Small labs (< 100 L/ shift)			
	Medium sized labs (100 - 3000 L/shift)			x
	Mass production labs (> 3.000 L/shift)	x	x	
	Lens materials	all materials	all materials	all materials
	AR coating including mirror coating	x	x	x
	Further special coatings (please specify)	/	anti fog, protect-blue, protect UV, protect complete	
	Top coatings (hydrophobic, oleophobic)	x	x	x
	Top coatings from separate thermal source	x	x	x
	In-chamber tinting full color (absortion coating)	/	x	/
	Gradient tinting color	x	x	x
Technical data	Productivity HMC+ Ø 70 (avg. lenses/h) [both sides coated]	246*	202* *Calculated on AR process with antistatic layer	67*
	Process time [both sides coated] (minutes)	30*	23* *Calculated with the formula: "2 x (door-close_to_door-open process time)" without considering handling	27*
	Dome/segment number of sectors	6	6	3
	Full dome/segment capacity Ø 70	305/246	209/168	60
	Flip-over capacity segment Ø 70	/	120	42
	High-vacuum pump system (capacity (L/s)	Diffusion pump 30000	Diffusion pump 20000	Turbo pump 1950 l/s N2
	Gate valve (in case of turbomolecular pump)	/	/	/
	Roughing pump system (capacity (m3/h)	roots + rotary double stage (2000)	roots + rotary double stage (2000)	rotary double stage (65)
	Cryogenic booster pump with Meissner trap	x	x	x
	Weight (kg / lbs)	3900 / 8598	3637 / 8018	1453 / 3203
	Dimensions (w x d x h) / [mm / inches] (machine without conveyor)	2384 x 3295 x 2765 / 94 x 130 x 109	2171 x 3145 x 2440 / 85.5 x 123.8 x 96	940 x 2250 x 2450 / 37 x 89 x 96
Process	Flip-over	/	x	x
	PVD (physical vapour deposition)	x	x	x
	CVD (chemical vapour deposition)	/	/	/
	Second distribution mask	/	/	/
	Sputter	/	/	/
Features	Electron beam gun (number of pockets/kW)	6 / 6kW	6 / 6kW	6 / 6 kW
	Ion source (kW)	1,5	1,5	0,6
	Plasma source (kW)	/	/	/
	Number of vacuum measurement systems	3	3	2
	Optional heater (kW)	18	22	9
	Monitoring by Quartz-crystal/optical	double crystal quartz head		single crystal quartz head
	Remote diagnostic	x	x	x
	LMS connectivity	x	x	x
	Further information			

Legend: Yes = x, No = /, Optional = o

	Schneider		
	www.schneider-om.com		
			
MC-280-X	EBC 600	EBC 900	EBC 1400
x	x		
		x	
			x
all materials	all materials	all materials	all materials
x	x	x	x
& protect high contrast	anti fog ...	anti fog ...	anti fog ...
x	x	x	x
/	x	x	x
/	x	x	x
x	/	/	/
27˚			
30˚ *time from 1st and 2nd side.*	70	70	70
3	1	3	5
30/27	42	96	240
14	/	72	140
Turbo pump 1250 l/s N2	Magnetic turbo 120.000 l/min.	Magnetic turbo 252.000 l/min.	Magnetic turbo 504.000l/min.
/	x	x	x
rotary double stage (65)	single (1080l/min.)	single (5000l/min.)	single (5000l/min.) / double (33.300l/min.)
x	x	x	x
1150 / 2535	1250 kg	1800 kg	5050 kg
1453 x 1481 x 2124 / 57 x 58 x 84	1572 x 1100 x 2700	1863 x 1937 x 2027	2741 x 1700 x 2640
x	x	x	x
x	x	x	x
/	/	/	/
/	x	x	x
/	/	/	/
6 / 6 kW	12 / 3 kW	12 / 3 kW	12 / 6 kW
0,6	0,2 kW / 0,4 kW	0,4 kW / 1 kW	1 kW
/	/	/	/
2	2 / 3	2 / 3	4 / 5
5	x (2 kW)	x (4,8,12 kW)	x (4,8,12,16 kW)
single crystal quartz head	quarz, single or double	quarz, single or double	quarz, single or double
x	x	x	x
x	x	x	x