

## capacitor winding machines overview

Since 1968, **METAR machines** develops and manufactures machines and equipment for the production of capacitors and batteries. Our products and services are the quality standard worldwide.

### **METAR machines products**

Automatic winding machines for

- metallized film capacitors (AC/DC)
- film-foil multilayer capacitors
- series capacitors applications
- Lithium metal batteries
- Lithium metal polymer batteries
- Li-ion batteries
- Li-ion polymer batteries



	twincap			ariane			pallas		
Windings	D mode	D10	D15	S31	S mode	D mode	S4 mode		
• number per cycle	2	2	2	1	1	2	1		
• diameter of the needles mm	2 to 8	(1.2)/1.6 to 3	(1.2)/1.6 to 6		2 to 10	2 to 10	2 to 10		
• minimum Ø mm	3.5	2.5	3	3	5	5	5		
• maximum Ø mm	28	10	18 (20)	18 (20)	40	40	40		
• minimum width mm	10	4.5	(5) 7.5	12.5	(10) 13	(10) 13	(10) 13		
• maximum width mm	27.5	8 (10)	15	31	65	31	65		
<b>Metallized films</b>									
• number reels	4	4	4	2	2	4	2		
• minimum width mm	9	4.0	(4) 7	12	(9) 12	(9) 12	(9) 12		
• maximum width mm	26.5	7.5 (9.5)	14	29	64	30	64		
• minimum thickness µm	2	1	1	1	2	2	2		
• maximum thickness µm	12	6	12	12	12 (20)	12 (20)	12 (20)		
• inside reel Ø mm	75	50/75	50/75	50/75	75	75	75		
• maximum outside reel Ø mm	240	180	180	180	350	350	350		
<b>Alu.-foils for demetallization</b>									
• number	2	2	2	2	2	2	2		
• thickness µm	20	20	20	20	20	20	20		
• width mm	70	28	38	38	70	70	70		
• inside reels Ø mm	40 or 33	40 or 33	40 or 33	40 or 33	40 or 33	40 or 33	40 or 33		
• outside reels Ø mm	150	150	150	150	150	150	150		
<b>General data</b>									
• power supply	3 x 400V ±10%, 50 or 60 Hz, 3.5 kVA	3 x 400V ±10%, 50 or 60 Hz, 2 kVA	3 x 400V ±10%, 50 or 60 Hz, 2 kVA		3 x 400V ±10%, 50 or 60 Hz, 3.5 kVA	3 x 400V ±10%, 50 or 60 Hz, 3.5 kVA	3 x 400V ±10%, 50 or 60 Hz, 3.5 kVA		
• air pressure	6 bar, 2m³/h	6 bar, 2m³/h	6 bar, 2m³/h		6 bar, 2m³/h	6 bar, 2m³/h	6 bar, 2m³/h		
• ambient temperature and humidity	Max. 30°C, 40 to 70%	Max. 30°C, 40 to 70%	Max. 30°C, 40 to 70%		Max. 30°C, 40 to 70%	Max. 30°C, 40 to 70%	Max. 30°C, 40 to 70%		
• net weight	800 kg	390 kg	390 kg		1150 kg	1150 kg	1150 kg		
<b>Features</b>									
• air guiding system	standard	standard	option	option	option	standard	standard		
• edge guiding system	no	no	no	no	no	no	no		
• cover film	option	option	option	option	option	option	option		
• measuring bridge	option	option	option	option	option	option	option		
• staggered cut system	no	no	no	no	no	no	no		
• concentric winding option (DCW,TCW)	no	no	no	no	no	no	no		



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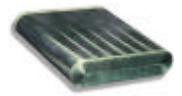
Worldwide leader in the manufacturing of

- winding machines for capacitors and batteries
- assembly lines for capacitors and batteries

Full range of production equipment for

- aluminium electrolytic capacitors
- AC capacitors
- film capacitors (box type, axial type)
- power capacitors
- Lithium and Li-ion batteries





	metronic		monostar		jumbolino		sigma
Windings	S (singel)	D (double)	standard	light	S (singel)	D (double)	
• number per cycle	1	2	1	1	1	2	1
• diameter of the needles mm	Stiff core OD 6 to 12 mm		Stiff core OD 4.5 to 12 mm		Stiff cores OD 9 to 50 mm		40 to 90
• minimum Ø mm	15	15	10	10	25	25	50
• maximum Ø mm	80	80	45	45	155	155	80
• minimum width mm	50	20	25	10	(32) 38	(32) 38	77
• maximum width mm	158	79	78	40	158	79	162
<b>Metallized films</b>							
• number reels	2	4	2	2	2	4	2 or (4, XL TYPE)
• minimum width mm	50	20	25	10	(31) 37.5	(31) 37.5	75
• maximum width mm	157	78	75	40	156	78	160
• minimum thickness µm	4	4	2	2	(4) 6	(4) 6	6
• maximum thickness µm	12	12	12	12	12	12	20
• inside reel Ø mm	75 to 76.5	75 to 76.5	75	75	75	75	75
• maximum outside reel Ø mm	350	350	350	350	350	350	350
<b>Alu.-foils for demetallization</b>							
• number	2 or 4	2 or 4	2	2	2	2	2
• thickness µm	20	20	20	20	20	20	20
• width mm	186	186	80	80	186	186	170
• inside reels Ø mm	40 or 33	40 or 33	40 or 33 or 75	40 or 33 or 75	40 or 33	40 or 33	40
• outside reels Ø mm	150	150	160	160	150	150	150
<b>General data</b>							
• power supply	3 x 400V ±10%, 50 or 60 Hz, 5-7 kVA		3 x 400V ±10%, 50 or 60 Hz, 3 kVA		3 x 400V ±10%, 50 or 60 Hz, 3 kVA		3 x 400V ±10%, 50 or 60 Hz, 3 kVA
• air pressure	6 bar, 5m³/h		6 bar, 3m³/h		6 bar		6 bar, 3m³/h
• ambient temperature and humidity	Max. 30°C, 40 to 70%		Max. 30°C, 40 to 70%		Max. 30°C, 40 to 70%		Max. 30°C, 40 to 70%
• net weight	2550 kg		1350 kg		3000 kg		1200 kg
<b>Features</b>							
• air guiding system	no	no	no	no	no	no	no
• edge guiding system	option	option	no	no	option	option	no
• cover film	standard	standard	standard	standard	standard	standard	no
• measuring bridge	no	No	no	no	no	no	no
• starggered cut system	standard	standard	no	no	standard	standard	no
• concentric winding option (DCW,TCW)	yes	yes	no	no	yes	no	no

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**Worldwide leader in the manufacturing of :**

- winding machines for capacitors and ultra-capacitors
- assembly lines for capacitors and ultra-capacitors
- winding machines for batteries
- assembly lines for batteries

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Edition 11/2004