

ES3M

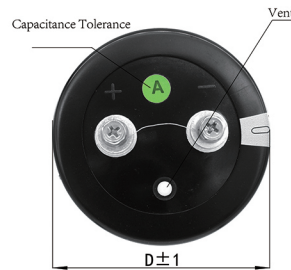
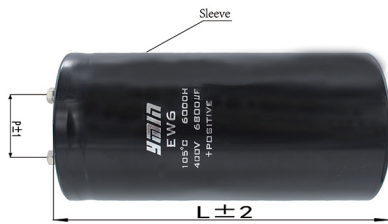
- ◆ 85°C 3000 Hours
- ◆ Designed For Power Supply, Inverter, Medium Frequency Furnace
- ◆ Welding Machine, DC Welder
- ◆ High Ripple Current, Small Size
- ◆ RoHS Compliant



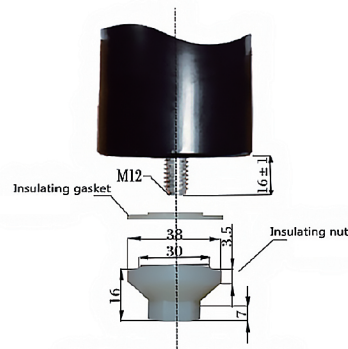
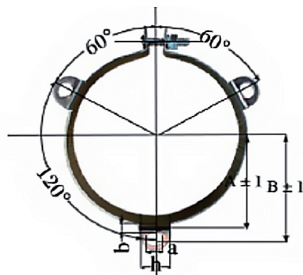
■ Specification

Items	Characteristics	
Temperature Range(°C)	-40 (-25) °C ~ +85°C	
Voltage Range(V)	200 ~ 500V.DC	
Capacitance Range(μF)	1000 ~ 39000μF (20°C 120Hz)	
Capacitance Tolerance	±20%	
Leakage Current(mA)	≤1.5mA or 0.01 \sqrt{CV} , 5 minutes test @20°C	
Maximum DF(20°C)	0.18 (20°C, 120HZ)	
Temperature Characteristics(120Hz)	200~450 C(-25°C)/C(+20°C)≥0.7 ; 500 C(-40°C)/C(+20°C)≥0.6	
Insulating Resistance	The value measured by applying DC 500V insulation resistance tester between all terminals and snap ring with insulating sleeve ≥ 100mΩ.	
Insulating Voltage	Apply AC 2000V between all terminals and snap ring with insulating sleeve for 1 minute and no abnormality appears.	
Endurance	Apply rated ripple current on capacitor with voltage not more than rated voltage under 85°C environment and apply rated voltage for 3000hours, then recover to 20°C environment and the test results should satisfy the requirements as below.	
	Capacitance change rate (ΔC)	≤initial value ±20%
	DF (tgδ)	≤200% of initial specification value
	Leakage current(LC)	≤initial specification value
Shelf Life	Capacitor kept in 85°C environment for 1000 hours, then tested in 20°C environment and the test result should satisfy the requirements as below.	
	Capacitance change rate (ΔC)	≤initial value ±20%
	DF (tgδ)	≤200% of initial specification value
	Leakage current(LC)	≤initial specification value
(Voltage pretreatment should be done before test: apply rated voltage on both ends of capacitor through a resistor of about 1000Ω for 1 Hrs, then discharge electricity through 1Ω / V resistor after pretreatment. Place under normal temperature for 24hrs after total discharging, then starts test.)		

■ Standard Size (Unit: mm)



D(mm)	51	64.00	77.00	90.00	101.00
P(mm)	22	28.30	32.00	32.00	41.00
Screw	M5	M5	M5	M6	M8
Terminal Diameter(mm)	13	13	13	17	17
Torque(n.m)	2.20	2.20	2.20	3.50	7.50

■ Product Lot Number System:
■ Tail Column Components And Dimensions:
Y type snap ring(Code:Y)


Screw end pin is M12,max torque is 10N.m

Diameter(mm)	A(mm)	B(mm)	a(mm)	b(mm)	h(mm)
51	31.8	36.50	7.00	4.50	14.00
64	38.1	42.50	7.00	4.50	14.00
77	44.5	49.20	7.00	4.50	14.00
90	50.8	55.60	7.00	4.50	14.00
101	56.5	63.40	7.00	4.50	14.00

■ Ripple Current Correction Factor
① Frequency Correction Coefficient Of Rated Ripple Current

Frequency(Hz)	50Hz	120Hz	300Hz	1KHz	≥10KHz
Coefficient	0.7	1.0	1.1	1.3	1.40

② Temperature Correction Coefficient Of Rated Ripple Current

Temperature(°C)	40°C	60°C	85°C
Coefficient	1.89	1.67	1.0

ES3M

■ Standard Size

Rated Voltage (Surge voltage) (V)	200(250)				250(300)				
	Items Capacitance (μF)	Size D×L(mm)	Ripple Current (40°C, 120Hz) Arms	Ripple Current (105°C, 120Hz) Arms	ESR (Max, mΩ/ 120Hz, 20°C)	Size D×L(mm)	Ripple Current (40°C, 120Hz) Arms	Ripple Current (105°C, 120Hz) Arms	ESR (Max, mΩ/ 120Hz, 20°C)
	3300					51×80	12.93	6.84	28.00
	3300					35×100	11.77	6.23	30.00
	3900					51×80	14.29	7.56	23.00
	3900					35×115(105)	12.93	6.84	26.00
	4700	51×75	14.52	7.68	24.00	51×90	16.10	8.52	22.30
	4700	35×100	11.02	5.83	28.00	35×115	14.44	7.64	25.00
	5600	51×80	17.24	9.12	21.00	64×75	17.18	9.09	19.00
	5600	35×115	15.46	8.18	23.00	51×115	17.69	9.36	18.80
	6800	64×65(70)	20.19	10.68	18.00	64×85	20.64	10.92	16.00
	6800	51×90 (95)	19.96	10.56	18.50	51×150(140)	22.11	11.70	15.00
	8200	64×75	19.62	10.38	15.70	77×80	22.53	11.92	14.00
	8200	51×130	21.32	11.28	15.50	64×96(105)	22.68	12.00	13.80
	10000	64×85	23.59	12.48	13.50	77×90	26.54	14.04	13.00
	10000	51×150(140)	22.00	11.64	14.20	64×110	26.54	14.04	13.00
	12000	77×80	27.25	14.42	13.00	77×100	29.60	15.66	11.90
	12000	64×115 (105)	27.44	14.52	12.70	64×125	29.26	15.48	12.00
	15000	77×90	32.11	16.99	12.00	77×115	34.25	18.12	10.80
	15000	64×120	32.66	17.28	11.60	64×145	34.72	18.37	10.60
	18000	77×105 (115)	36.99	19.57	11.20	90×100	41.66	22.04	9.60
	18000	64×125	37.42	19.80	11.10	77×130	40.14	21.24	9.80
	22000	90×90	42.83	22.66	9.50	90×115	46.63	24.67	9.00
	22000	77×120	44.45	23.52	9.10	77×155	47.40	25.08	8.70
	27000	90×105	50.60	26.77	7.60	90×135	49.44	26.16	8.00
	27000	77×140	48.76	25.80	8.00	77×180	49.90	26.40	7.90
	33000	90×120	56.44	29.86	7.30	101×160	53.85	28.49	6.80
	33000	77×160	57.38	30.36	7.10	90×190	54.43	28.80	6.60
	39000	90×140	64.56	34.16	6.30	101×180	67.72	35.83	6.20
	39000	77×185	65.77	34.80	6.20	90×210	68.04	36.00	6.00

ES3M

■ Standard Size

Rated Voltage (Surge voltage) (V)	350(400)				400(450)			
	Items Capacitance (μF)	Size D×L(mm)	Ripple Current (40°C, 120Hz) Arms	Ripple Current (105°C, 120Hz) Arms	ESR (Max, mΩ/ 120Hz, 20°C)	Size D×L(mm)	Ripple Current (40°C, 120Hz) Arms	Ripple Current (105°C, 120Hz) Arms
2200	51×75	14.08	7.45	42.00	51×90	14.08	7.45	38.00
2200	35×105	12.74	6.74	45.00	35×110	12.74	6.74	40.00
2700	51×90	16.90	8.94	36.00	64×75	16.18	8.56	33.50
2700	35×115	14.57	7.71	38.50	51×100	16.90	8.94	32.70
3300	64×75	17.69	9.36	33.00	64×85	19.66	10.40	31.50
3300	51×110	18.71	9.90	32.50	51×115	20.87	11.04	30.00
3900	64×75	21.39	11.32	27.50	64×96	23.13	12.24	27.00
3900	51×115	20.54	10.87	29.00	51×130	24.51	12.97	26.00
4700	77×75	25.27	13.37	26.00	77×80	27.29	14.44	23.40
4700	64×90	25.44	13.46	25.70	64×105	26.80	14.18	24.00
4700	51×130	25.59	13.54	25.70				
5600	77×80	29.39	15.55	22.70	77×90	30.86	16.33	20.50
5600	64×105	29.30	15.50	22.80	64×125	31.81	16.83	20.10
6800	77×96	32.77	17.34	18.00	77×105	32.77	17.34	16.00
6800	64×120	32.39	17.14	19.00	64×140	33.72	17.84	15.80
8200	77×105	37.78	19.99	16.00	90×95	40.82	21.60	14.00
8200	64×135	37.35	19.76	17.00	77×120	40.86	21.62	14.00
10000	90×95	43.96	23.26	13.50	90×105	40.73	21.55	12.10
10000	77×120	45.11	23.87	13.40	77×140	42.41	22.44	11.50
12000	90×110	46.46	24.58	12.00	90×125	50.31	26.62	10.70
12000	77×140	47.87	25.33	11.00	77×160	50.12	26.52	10.80

ES3M

■ Standard Size

Rated Voltage (Surge voltage) (V)	450(500)				500(550)				
	Items Capacitance (μF)	Size D×L(mm)	Ripple Current (40°C, 120Hz) Arms	Ripple Current (105°C, 120Hz) Arms	ESR (Max, mΩ/ 120Hz, 20°C)	Size D×L(mm)	Ripple Current (40°C, 120Hz) Arms	Ripple Current (105°C, 120Hz) Arms	ESR (Max, mΩ/ 120Hz, 20°C)
1000		51×65	7.47	3.95	81.50	51×75	7.07	3.74	118.00
1000		36×100	6.99	3.70	83.00	36×110	6.73	3.56	121.00
1200						51×85	8.13	4.30	101.00
1200						36×120	7.65	4.05	107.00
1500		51×80	8.41	4.45	57.00	64×70	10.02	5.30	90.00
1500		36×110	7.99	4.23	59.00	51×95	9.90	5.24	93.00
2200		64×70	13.91	7.36	36.50	64×85	13.68	7.24	59.00
2200		51×100	14.53	7.69	35.00	51×120	13.83	7.32	55.00
2700		64×80	16.03	8.48	31.50	77×80	16.42	8.69	41.00
2700		51×115	16.08	8.51	31.10	64×96	16.03	8.48	44.00
3300		64×96	19.22	10.17	30.00	77×90	19.56	10.35	36.00
3300		51×135	20.36	10.77	29.00	64×110	18.60	9.84	38.00
3900		77×85	22.38	11.84	27.00	77×100	21.39	11.32	33.00
3900		64×105	21.98	11.63	28.00	64×125	21.62	11.44	32.00
4700		77×90	26.86	14.21	23.00	64×145	24.61	13.02	30.00
4700		64×120	26.21	13.87	24.00	77×115	25.25	13.36	29.00
5600		77×105	29.64	15.68	16.80	90×105	29.75	15.74	26.00
5600		64×135	29.30	15.50	17.00	77×130	30.66	16.22	24.50
6800		90×100	33.60	17.78	15.00	90×120	32.51	17.20	23.60
6800		77×120	34.89	18.46	14.00	77×155	33.11	17.52	22.50
8200		90×110	36.06	19.08	12.50	101×120	36.97	19.56	20.00
8200		77×135	37.01	19.58	12.00	90×155	36.67	19.40	20.90
10000		90×125	41.86	22.15	11.60	101×145	43.56	23.05	16.10
10000		77×160	45.36	24.00	10.20	90×190	43.47	23.00	16.20