ALUMINUM ELECTROLYTIC CAPACITORS
LS Series: Snap-In Terminal Types

RoHS

FEATURES

- Has a snap-in terminal which can solder directly to a PCB
- Suitable for electronic equipment with medium-high voltage circuits
- Printed circuit board terminal snap-in type and lug terminal type available

SPECIFICATIONS

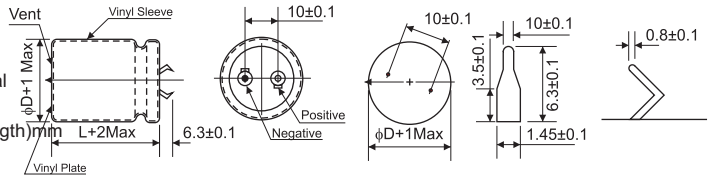
Items	Performance													
Operating Temperature Range	-40 °C ~ +85 °C													
Capacitance Tolerance	±20% (at 120Hz, 20 °C)													
Leakage Current (at 20°C)	I = 0.02CV or1.5 mA whichever is smaller (after 5 minutes) Where, C= rated capacitance in μF. V= rated DC working voltage in V.													
Dissipation Factor (Tan δ at 120Hz, 20°C)	Rated Voltage	16	25	35	50	63	100	160	200	250	350	400	450	
	Tan δ (max)	0.40	0.30	0.25	0.20	0.15	0.15	0.1	0.1	0.1	0.15	0.15	0.15	
	*: 0.15 for Φ D = 35mm													
Low Temperature Characteristics (at 120Hz)	Impedance ratio shall not exceed the values given in the table below.													
	Rated Voltage		16	25	35	50	63	100	160	200	250	350	400	450
	Impedance Ratio	Z (-25°C)/Z(+20°C)	4	3	3	2	2	2	4	4	4	4	8	8
		Z(-40°C)/Z(+20°C)	15	10	8	6	6	5	4	8	10	16	18	20
Load Life Test	Test Time	2,000 Hrs	* The specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied for 2,000 hrs at 85°C											
	Capacitance Change	≤ ± 20%												
	Dissipation Factor	Less than 200% of specified value												
	Leakage Current	Within specified value												
Shelf Life Test	Test Time	1,000 Hrs	* The specification shall be staisfied when the capacitors are restored to 20°C after exposing them for 2,000 hrs at 85°C											
	Capacitance Change	≤ ± 20%												
	Dissipation Factor	Less than 200% of specified value												
	Leakage Current	Within specified value												
Ripple Current & Frequency Multipliers	Freq. (Hz) / W. V. (V)	60	120	500	1k	10k up								
	Under 100	0.92	1.0	1.13	1.19	1.20								
	160 and Up	0.81	1.0	1.32	1.45	1.50								
	350 and Up	0.77	1.0	1.30	1.41	1.43								
Ripple Current & Temperature Multipliers	Temperature (°C)	40	55	70	85									
	Multiplier	2.1	1.8	1.5	1.0									
Other Standards	Satisfies Characteristic W fo JIS C 5141													

PART NUMBER EXAMPLE

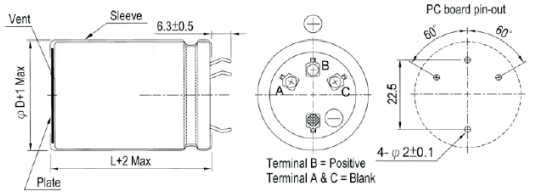
LS 101 M 2G 220 300

- LS — Series name
- 101 — Capacitance (100μF)
- M — Capacitance tolerance (±20%)
- 2G — Rate Voltage (400V)
- 220 — Case Size (Diameter X Length)mm
- 300 — Blank = Standard 2 Terminal, L4 for 4 Terminal Type
- Blank = 6.3mm Terminal, A = 4mm Terminal

SNAP-IN TERMINAL TYPE (2 TERMINAL)



SNAP-IN TERMINAL (4 TERMINAL)



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DIMENSIONS & PERMISSABLE RIPPLE CURRENT

Dimension: ΦDxL (mm); Ripple Current: A/RMS at 120Hz, 85°C

WV / μF \ D	16V(1C)								25V(1E)							
	22ϕ		25ϕ		30ϕ		35ϕ		22ϕ		25ϕ		30ϕ		35ϕ	
5,600									22 x 25	2.31						
6,800									22 x 25	2.38	25 x 25	2.78				
									22 x 30	2.56						
8,200	22 x 25	2.56							22 x 25	2.43	25 x 25	2.78				
									22 x 35	2.81						
10,000	22 x 25	2.6	25 x 25	2.81					22 x 30	2.97	25 x 25	2.93	30 x 25	3.21		
	22 x 30	2.81	25 x 30	3.03					22 x 35	3.18	25 x 30	3.16				
12,000	22 x 25	2.88	25 x 25	2.96					22 x 35	3.33	25 x 30	3.24	30 x 25	3.59	35 x 25	3.58
	22 x 30	3.13							22 x 40	3.53	25 x 35	3.48	30 x 30	3.86		
15,000	22 x 30	3.45	25 x 25	3.38	30 x 25	3.73			22 x 40	3.68	25 x 35	3.77	30 x 25	3.60	35 x 25	3.96
	22 x 35	3.69	25 x 30	3.64					22 x 50	4.08	25 x 40	4.00	30 x 35	4.12		
18,000	22 x 30	3.47	25 x 25	3.47					22 x 50	4.54	25 x 40	4.42	30 x 30	4.40	35 x 25	4.34
	22 x 40	3.98	25 x 35	3.98							25 x 45	4.68	30 x 35	4.66	35 x 30	4.68
22,000	22 x 35	3.84	25 x 30	3.93	30 x 25	4.08	35 x 25	4.15			25 x 45	4.71	30 x 35	4.70	35 x 25	4.60
	22 x 50	4.52	25 x 40	4.44	30 x 30	4.38							30 x 45	5.26	35 x 35	5.20
27,000	22 x 50	4.84														
33,000	22 x 50	5.2														

WV / μF \ D	35V(1V)								50V(1H							
	22ϕ		25ϕ		30ϕ		35ϕ		22ϕ		25ϕ		30ϕ		35ϕ	
2,200									22 x 25	1.93						
2,700									22 x 25	2.05						
									22 x 30	2.21						
3,300									22 x 30	2.41	25 x 25	2.38				
3,900									22 x 30	2.51	25 x 25	2.46				
									22 x 35	2.72	25 x 30	2.68				
4,700	22 x 25	2.21	25 x 25	2.42					22 x 35	2.83	25 x 30	3.03	30 x 25	3.01		
	22 x 30	2.41							22 x 40	3.01						
5,600	22 x 30	2.69	25 x 25	2.69					22 x 40	3.21	25 x 35	3.37	30 x 25	3.17	35 x 25	3.47
	22 x 35	2.79							22 x 45	3.43			30 x 30	3.43		
6,800	22 x 35	2.70	25 x 25	2.67	30 x 25	3.09			22 x 45	3.73	25 x 35	3.59	30 x 30	3.56	35 x 25	3.64
	22 x 40	2.89	25 x 30	2.89					22 x 50	3.94	25 x 40	3.87	30 x 35	3.87		
8,200	22 x 35	3.09	25 x 30	3.12	30 x 25	3.04					25 x 40	4.10	30 x 30	4.12	35 x 25	4.07
	22 x 45	3.47	25 x 35	3.33	30 x 30	3.29					25 x 45	4.37	30 x 35	4.42	35 x 30	4.41
10,000	22 x 40	3.22	25 x 35	3.37	30 x 25	3.36	35 x 25	3.32			25 x 50	4.91	30 x 35	4.68	35 x 30	4.59
	22 x 50	3.59	25 x 40	3.59	30 x 30	3.61							30 x 40	5.02	35 x 35	4.92
12,000	22 x 45	3.71	25 x 40	3.79	30 x 30	3.74	35 x 25	3.75					30 x 40	5.10	35 x 35	5.30
			25 x 45	4.01	30 x 35	4.01	35 x 30	4.02					30 x 50	5.60	35 x 40	5.60
15,000			25 x 45	4.55	30 x 35	4.54	35 x 25	4.37							35 x 40	6.03
					30 x 40	4.80	35 x 35	5.01							35 x 45	6.44
18,000			25 x 50	4.84	30 x 40	4.87	35 x 30	5.03								
					30 x 45	5.18	35 x 40	5.71								
22,000					30 x 45	5.79	35 x 35	5.71								
							35 x 45	6.38								

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Dimension: ΦDxL (mm); Ripple Current: A/RMS at 120Hz, 85°C

WV / μF \ D	35V(1V)								50V(1H							
	22ϕ		25ϕ		30ϕ		35ϕ		22ϕ		25ϕ		30ϕ		35ϕ	
2,200									22 x 25	1.93						
2,700									22 x 25	2.05						
									22 x 30	2.21						
3,300									22 x 30	2.41	25 x 25	2.38				
3,900									22 x 30	2.51	25 x 25	2.46				
									22 x 35	2.72	25 x 30	2.68				
4,700	22 x 25	2.21	25 x 25	2.42					22 x 35	2.83	25 x 30	3.03	30 x 25	3.01		
	22 x 30	2.41							22 x 40	3.01						
5,600	22 x 30	2.69	25 x 25	2.69					22 x 40	3.21	25 x 35	3.37	30 x 25	3.17	35 x 25	3.47
	22 x 35	2.79							22 x 45	3.43			30 x 30	3.43		
6,800	22 x 35	2.70	25 x 25	2.67	30 x 25	3.09			22 x 45	3.73	25 x 35	3.59	30 x 30	3.56	35 x 25	3.64
	22 x 40	2.89	25 x 30	2.89					22 x 50	3.94	25 x 40	3.87	30 x 35	3.87		
8,200	22 x 35	3.09	25 x 30	3.12	30 x 25	3.04					25 x 40	4.10	30 x 30	4.12	35 x 25	4.07
	22 x 45	3.47	25 x 35	3.33	30 x 30	3.29					25 x 45	4.37	30 x 35	4.42	35 x 30	4.41
10,000	22 x 40	3.22	25 x 35	3.37	30 x 25	3.36	35 x 25	3.32			25 x 50	4.91	30 x 35	4.68	35 x 30	4.59
	22 x 50	3.59	25 x 40	3.59	30 x 30	3.61							30 x 40	5.02	35 x 35	4.92
12,000	22 x 45	3.71	25 x 40	3.79	30 x 30	3.74	35 x 25	3.75					30 x 40	5.10	35 x 35	5.30
			25 x 45	4.01	30 x 35	4.01	35 x 30	4.02					30 x 50	5.60	35 x 40	5.60
15,000			25 x 45	4.55	30 x 35	4.54	35 x 25	4.37							35 x 40	6.03
					30 x 40	4.80	35 x 35	5.01							35 x 45	6.44
18,000			25 x 50	4.84	30 x 40	4.87	35 x 30	5.03								
					30 x 45	5.18	35 x 40	5.71								
22,000					30 x 45	5.79	35 x 35	5.71								
							35 x 45	6.38								

WV / μF \ D	63V(1J)								100V(2A)							
	22ϕ		25ϕ		30ϕ		35ϕ		22ϕ		25ϕ		30ϕ		35ϕ	
1,200									22 x 30	2.12	25 x 25					
1,500									22 x 35	2.45	25 x 30		30 x 25	2.46		
1,800	22 x 25	1.90							22 x 40	2.77	25 x 35		30 x 25	2.65		
2,200	22 x 30	2.35	25 x 25	2.30					22 x 45	3.12	25 x 40		30 x 30	3.10	35 x 25	3.14
2,700	22 x 35	2.50	25 x 25	2.29							25 x 45		30 x 35	3.60	35 x 30	3.71
	22 x 30		25 x 30	2.52												
3,300	22 x 35	2.62	25 x 30	2.69	30 x 25	2.78					25 x 50		30 x 40	4.05	35 x 35	4.07
3,900	22 x 40	2.90	25 x 35	3.09	30 x 30	3.09							30 x 45	4.60	35 x 35	4.50
	22 x 45	3.10														
4,700	22 x 50	3.49	25 x 40	3.37	30 x 30	3.37	35 x 25	3.36					30 x 50	5.13	35 x 40	5.12
5,600			25 x 45	3.77	30 x 35	3.75	35 x 30	3.88							35 x 45	5.75
6,800			25 x 50	4.41	30 x 40	4.41	35 x 30	4.04							35 x 50	6.01
						4.90	35 x 35	4.33								
8,200					30 x 45	5.49	35 x 35	4.80								
10,000					30 x 50		35 x 40	5.47								
12,000							35 x 45	5.97								
							35 x 50	6.30								

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RFE INTERNATIONAL

RoHS

DIMENSIONS & PERMISSABLE RIPPLE CURRENT

Dimension: ΦDxL (mm); Ripple Current: A/RMS at 120Hz, 85°C

WV / μF \ D	160V(2C)								200V(2D)							
	22 ϕ		25 ϕ		30 ϕ		35 ϕ		22 ϕ		25 ϕ		30 ϕ		35 ϕ	
150	22 x 25	0.95							22 x 25	0.95						
180	22 x 25	1.04							22 x 25	1.04						
220	22 x 25	1.15							22 x 25	1.15						
270	20 x 25	1.12														
	22 x 25	1.27							22 x 25	1.30						
330	20 x 30	1.28							22 x 30	1.40	25 x 25	1.43				
	22 x 25	1.4														
390	22 x 30	1.62							22 x 30	1.65	25 x 25	1.63				
									22 x 35	1.76	25 x 30	1.74				
470	22 x 30	1.77	25 x 25	1.77					22 x 35	1.88	25 x 30	1.86	30 x 25	1.85		
									22 x 40	1.97						
560	22 x 30	1.92	25 x 25	1.92	30 x 25	2.02			22 x 40	2.08	25 x 30	2.05	30 x 25	2.05		
	22 x 35	2.05	25 x 30	2.05					22 x 45	2.18	25 x 35	2.16	30 x 30	2.15		
680	22 x 35	2.12	25 x 30	2.22	30 x 25	2.22			22 x 45	2.36	25 x 35	2.36	30 x 30	2.36	35 x 25	2.10
	22 x 40	2.24	25 x 35	2.31					22 x 50	2.47	25 x 40	2.43	30 x 35	2.43		
820	22 x 40	2.32	25 x 30	2.32	30 x 25	2.31	35 x 25	2.50	22 x 50	2.68	25 x 40	2.66	30 x 30	2.62	35 x 30	2.72
	22 x 45	2.55	25 x 35	2.52	30 x 30	2.51					25 x 45	2.79	30 x 35	2.77	35 x 25	2.39
1,000	22 x 50	2.88	25 x 40	2.86	30 x 30	2.82	35 x 25	2.79			25 x 45	2.96	30 x 35	3.00	35 x 30	2.96
			25 x 45	2.98	30 x 35	2.94	35 x 30	2.92			25 x 50	3.12	30 x 40	3.10	35 x 35	3.09
1,200			25 x 45	3.27	30 x 35	3.25	35 x 30	3.24			25 x 50	3.44	30 x 40	3.44	35 x 35	3.40
			25 x 50	3.43	30 x 40	3.42	35 x 35	3.40					30 x 45	3.53	35 x 40	3.50
1,500					30 x 40	3.77	35 x 35	3.75					30 x 50	3.93	35 x 40	3.87
					30 x 45	3.92	35 x 40	3.90							35 x 45	3.95
1,800					30 x 45	4.10	35 x 35	4.08							35 x 45	4.37
					30 x 50	4.32	35 x 40	4.30							35 x 50	4.45
2,200							35 x 45	4.72							35 x 50	5.00
							35 x 50	4.88								

WV / μF \ D	250V(2E)								350V(2V)							
	22 ϕ		25 ϕ		30 ϕ		35 ϕ		22 ϕ		25 ϕ		30 ϕ		35 ϕ	
82									22 x 25	0.81						
100									22 x 25	0.90						
120									20 x 30	0.95	25 x 25	1.04				
									22 x 25	0.99						
									22 x 30	1.05						
150									20 x 35	1.05	25 x 25	1.16	30 x 25	1.24		
	22 x 25	0.91							22 x 30	1.14						
									22 x 35	1.24	25 x 30	1.24				
180	22 x 25	1.01							20 x 40	1.23	25 x 30	1.30	30 x 25	1.37		
									22 x 35	1.28						
									22 x 40	1.38	25 x 35	1.37				
220	22 x 25	1.18	25 x 25	1.24					20 x 45	1.36	25 x 35	1.46	30 x 25	1.47		
									22 x 40	1.40						
	22 x 30	1.27							22 x 45	1.49	25 x 40	1.51	30 x 30	1.52		
270	22 x 30	1.43	25 x 25	1.49					22 x 45	1.62	25 x 35	1.65	30 x 30	1.71	35 x 25	1.72
	22 x 35	1.52							22 x 50	1.69	25 x 40	1.73	30 x 35	1.76		
330	22 x 30	1.58	25 x 25	1.53	30 x 25	1.59			22 x 50	1.94	25 x 40	1.88	30 x 35	1.93	35 x 25	1.77
	22 x 35	1.67	25 x 30	1.62							25 x 45	1.96	30 x 40	1.98	35 x 30	1.96
390	22 x 35	1.79	25 x 30	1.79	30 x 25	1.77					25 x 45	2.04	30 x 35	2.12	35 x 30	2.19
	22 x 40	1.89	25 x 35	1.87	30 x 30	1.85							30 x 40	2.18	35 x 35	2.24
470	22 x 40	2.05	25 x 35	2.05	30 x 25	1.80							30 x 40	2.41	35 x 35	2.43
	22 x 45	2.14			30 x 30	2.03							30 x 45	2.48	35 x 40	2.50
560	22 x 50	2.43	25 x 40	2.32	30 x 30	2.24	35 x 25	2.21					30 x 45	2.60	35 x 35	2.62
			25 x 45	2.41	30 x 35	2.32	35 x 30	2.30							35 x 40	2.69
680			25 x 45	2.62	30 x 35	2.58	35 x 30	2.54							35 x 40	2.80
			25 x 50	2.70	30 x 40	2.65	35 x 35	2.62							35 x 45	3.08
820					30 x 40	2.92	35 x 35	2.90								
					30 x 45	3.00	35 x 40	2.98								
1,000					30 x 45	3.11	35 x 35	3.06								
					30 x 50	3.47	35 x 40	3.39								
							35 x 45	3.45								
1,200							35 x 40	3.39								
							35 x 45	3.74								
							35 x 50	3.81								

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DIMENSIONS & PERMISSABLE RIPPLE CURRENT

Dimension: ΦDxL (mm); Ripple Current: A/RMS at 120Hz, 85°C

WV / μF \ D	400V(2G)								450V(2W)							
	22 ϕ		25 ϕ		30 ϕ		35 ϕ		22 ϕ		25 ϕ		30 ϕ		35 ϕ	
56									20 x 25	0.57						
									22 x 25	0.68						
68	20 x 25	0.66							20 x 25	0.62						
	22 x 25	0.72							22 x 25	0.72						
									22 x 30	0.80						
82	20 x 25	0.72							20 x 30	0.74	25 x 25	0.85				
	22 x 25	0.80							22 x 30	0.87						
100	22 x 25	0.81							20 x 35	0.87	25 x 25	0.98				
	22 x 30	0.94	25 x 25	0.97					22 x 30	0.87						
									22 x 35	1.00						
120	22 x 30	1.04	25 x 25	1.08					20 x 40	0.96	25 x 30	1.09	30 25	1.10		
	22 x 35	1.12	25 x 30	1.16					22 x 35	1.05						
									22 x 40	1.15	25 x 35	1.12				
150	20 x 35	1.00	25 x 30	1.21					20 x 45	1.13	25 x 30	1.16	30 x 25	1.16		
	22 x 35	1.18			30 x 25	1.24			22 x 35	1.20	25 x 35	1.27	30 x 30	1.32		
	22 x 40	1.25							22 x 40	1.25	25 x 40	1.35				
180	20 x 40	1.17	25 x 30	1.23	30 x 25	1.45			20 x 50	1.29	25 x 35	1.31			35 x 25	1.35
	22 x 40	1.34	25 x 35	1.37	30 x 30	1.52	35 25	1.54	22 x 45	1.36	25 x 40	1.45	30 x 30	1.43	35 x 30	1.49
	22 x 45	1.40							22 x 50	1.51	25 x 45	1.50	30 x 35	1.49		
220	20 x 50	1.43	25 x 35	1.56	30 x 30	1.58	35 25	1.6			25 x 40	1.47	30 x 30	1.45	35 x 25	1.43
	22 x 50	1.56	25 x 40	1.62	30 x 35	1.64					25 x 45	1.65	30 x 35	1.63	35 x 30	1.61
	22 x 50	1.56									25 x 50	1.73	30 x 40	1.72		
270	22 x 50	1.74	25 x 40	1.70	30 x 30	1.56	35 x 25	1.53			25 x 45	1.59	30 x 35	1.65	35 x 30	1.71
			25 x 45	1.76	30 x 35	1.73	35 x 30	1.75			25 x 50	1.72	30 x 40	1.83	35 x 35	1.86
					30 x 40	1.79							30 x 45	1.95		
330			25 x 45	1.76	30 x 35	1.76	35 x 30	1.95			25 x 50	1.76	30 x 40	1.93	35 x 30	1.88
			25 x 50	1.90	30 x 40	1.97	35 x 35	2.02					30 x 45	2.10	35 x 35	2.06
					30 x 45	2.02							30 x 50	2.19	35 x 40	2.13
390			25 x 50	1.95	30 x 40	2.15	35 x 30	1.97					30 x 45	2.03	35 x 35	2.00
					30 x 45	2.22	35 x 35	2.17					30 x 50	2.24	35 x 40	2.11
							35 x 40	2.24							35 x 45	2.34
470					30 x 45	2.23	35 x 35	2.20					30 x 50	2.33	35 x 45	2.43
					30 x 50	2.40	35 x 40	2.42							35 x 50	2.63
							35 x 45	2.48								
560					30 x 50	2.44	35 x 40	2.49							35 x 45	2.60
							35 x 45	2.71								
							35 x 50	2.78								
680							35 x 45	2.68							35 x 50	2.91
							35 x 50	2.95								

WV / μF \ D	500V(2H)							
	22 ϕ		25 ϕ		30 ϕ		35 ϕ	
56	22 x 25	0.70						
68	22 x 30	0.82						
82	22 x 35	0.96	25 30	0.97				
100	22 x 40	1.14	25 35	1.15	30 x 30	1.16		
120	22 x 45	1.30	25 35	1.25	30 x 30	1.26	35 x 25	1.20
150	22 x 50	1.52	25 40	1.48	30 x 35	1.50	35 x 30	1.34
180			25 50	1.65	30 x 40	1.60	35 x 30	1.55
220					30 x 45	1.90	35 x 30	1.85
270							35 x 40	1.95
330							35 x 45	2.00

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DIMENSIONS & PERMISSABLE RIPPLE CURRENT

Dimension: ΦDxL (mm); Ripple Current: A/RMS at 120Hz, 85°C

Items below available only in 4 Terminal Types (L4)

WV / μF / D	160V(2C)				200V(2D)				160V(2C)			
	35 ϕ		40 ϕ		35 ϕ		40 ϕ		35 ϕ		40 ϕ	
1,500											40 x 40	4.04
1,800									35 x 70	4.60	40 x 50	4.5
2,200							40 x 40	4.92	35 x 80	4.90	40 x 60	4.90
2,700					35 x 70	5.40	40 x 50	5.00	35 x 90	5.40	40 x 80	6.30
3,300	35 x 70	4.80	40 x 60	5.00	35 x 80	5.90	40 x 60	5.90	35 x 90	6.10	40 x 80	7.00
3,900	35 x 80	5.40	40 x 70	5.60	35 x 80	6.30	40 x 80	6.40	35 x 100	7.47	40 x 90	8.00
4,700			40 x 80	6.60	35 x 90	7.10	40 x 80	7.38			40 x 100	8.88
5,600					35 x 100	8.90	40 x 90	8.00				
6,800							40 x 100	8.65				

WV / μF / D	400V(2G)				420V(2P)				450V(2W)			
	35 ϕ		40 ϕ		35 ϕ		40 ϕ		35 ϕ		40 ϕ	
680	35 x 60	3.70	40 x 50	3.7	35 x 60	3.7	40 x 50	3.7	35 x 70	4.0	40 x 50	3.7
820	35 x 60	4.10	40 x 50	4.0	35 x 70	4.4	40 x 60	4.3	35 x 80	4.6	40 x 60	4.3
1,000	35 x 70	4.80	40 x 60	4.8	35 x 80	5.1	40 x 60	4.8	35 x 100	5.6	40 x 70	5.1
1,200	35 x 100	6.10	40 x 70	5.5			40 x 70	5.5			40 x 80	5.8
1,500	35 x 100	6.80	40 x 80	6.5			40 x 100	7.2			40 x 100	7.2
1,800			40 x 100	7.8			40 x 100	7.8				