ALUMINUM ELECTROLYTIC CAPACITORS

LZR series LOW IMPEDANCE, LONG LIFE

低阻抗，長壽命

- Low impedance at 100KHz
  高頻低阻
- Load life:105℃ 4000~10000 hours
  壽命：105℃ 4000~10000 小時
- HIGH QUALITY
  高品質

SPECIFICATIONS

Item 項目	Performance Characteristics 特性
Operating Temperature Range 工作溫度範圍	-55℃~105℃
Rated Voltage Range 額定電壓範圍	6.3~100W.V.
Capacitance Range 靜電容量範圍	1~18000uF
Capacitance Tolerance 靜電容量誤差	±20%, 120Hz , 20℃
Leakage Current 洩漏電流	I=0.01CV or 3uA whichever is greater.(After 2 minutes) I=0.01CV or 3μA 取較大值.(2 分鐘後) I=Leakage Current(μA) , C=Nominal Capacitance(μF) , V=Rated Voltage(V) I=洩漏電流 (μA) , C=額定容量(μF) , V=額定電壓(V)
Dissipation Factor (tanδ) 散逸因素 (損失角正切值)	When nominal capacitance is over 1000uF, tan δ shall be added 0.02 to the listed value with increase of every 1000uF, 額定容量超過 1000μF 時，額定容量每增加 1000μF，以下損失角增加 0.02.

Rated voltage 額定電壓 (V)	6.3	10	16	25	35	50	63	80	100	MAX
Tan δ 損失角正切值	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.08	(20℃ 120Hz)

Low Temperature Stability Impedance Ratio(MAX) 低溫特性阻抗比率										
Rated Voltage 額定電壓(V)	6.3	10	16	25	35	50	63	80	100	
Z(-25℃)/Z(+20℃)	4	3	2	2	2	2	2	2	2	MAX
Z(-55℃)/Z(+20℃)	8	6	4	3	3	3	3	3	3	(120Hz)

ALUMINUM ELECTROLYTIC CAPACITORS

<table>
<tr>
<td>Load Life
負荷壽命</td>
<td>After life test at conditions stated in the table below, the capacitors shall meet the following requirement.
依據以下壽命要求印加額定紋波電流後，電容需符合以下要求。
<table>
<tr><td>Capacitance Change
容量變化率</td><td>within ±25% of the initial value
初始值±25%以內</td></tr>
<tr><td>Dissipation Factor
散逸因素</td><td>Not more than 200% of the specified value.
不超出規格值的 2 倍</td></tr>
<tr><td>Leakage Current
洩漏電流</td><td>Not more than the specified value.
不超出規格值.</td></tr>
</table>
<table>
<tr><td rowspan="2">Case Dia</td><td colspan="2">Life Time(hrs)</td></tr>
<tr><td>6.3~10WV</td><td>16~100WV</td></tr>
<tr><td>φD≦6.3</td><td>4000</td><td>5000</td></tr>
<tr><td>φD=8、10</td><td>6000</td><td>7000</td></tr>
<tr><td>φD≧12</td><td>8000</td><td>10000</td></tr>
</table>
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</tr>
<tr>
<td>Shelf Life
放置壽命</td>
<td>After leaving capacitors under no load at 105℃ for 1000 hours , the capacitors shall meet the following requirements.
電容放置在 105℃無印加電壓的情況下儲存 1000 小時後，電容需符合以下要求。
<table>
<tr><td>Capacitance Change
容量變化率</td><td>within ±25% of the initial value
初始值±25%以內</td></tr>
<tr><td>Dissipation Factor
散逸因素</td><td>Not more than 200% of the specified value.
不超出規格值的 2 倍</td></tr>
<tr><td>Leakage Current
洩漏電流</td><td>Not more than the specified value.
不超出規格值.</td></tr>
</table>
</td>
</tr>
<tr>
<td>Standard
參照標準</td>
<td>According to JIS C 5101
依據 JIS C 5101 標準</td>
</tr>
</table>

Frequency coefficient

頻率系數

Frequency(Hz) Cap(uF)	120	1k	10k	≧100k
1-33	0.42	0.70	0.90	1.00
39-270	0.50	0.73	0.92	1.00
330-680	0.55	0.77	0.94	1.00
820-1800	0.60	0.80	0.96	1.00
2200-18000	0.70	0.85	0.98	1.00

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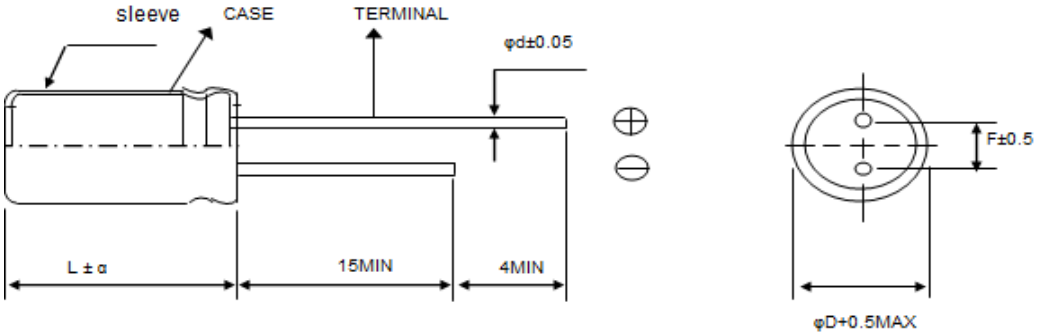
LZR series

DIMENSIONS (mm)



φD	5	6.3	8	10	12/12.5/13	16	18
φd	0.5		0.6			0.8	
F	2.0	2.5	3.5	5.0		7.5	
α	L≦19: α=1.5 , L≧20: α=2.0						

STANDARD SIZE , RIPPLE CURRENT,IMPEDANCE

尺寸,紋波電流及阻抗標準

Ripple Current (mA 105℃,100KHz) r.m.s

Rated voltage 6.3V(OJ)				
Nominal capacitance (μF)	Size φDxL(mm)	Ripple Current (mA)	Impedance Ω(MAX) 25℃,100KHz	Impedance Ω(MAX) -10℃,100KHz
150	5 x11	210	0.580	2.262
330	6.3 x11	340	0.220	0.858
680	8 x11.5	640	0.130	0.507
820	10 x12.5	865	0.080	0.312
1000	8 x16	840	0.087	0.339
1200	8 x20	1050	0.069	0.269
	10 x16	1210	0.060	0.234
1500	10 x20	1400	0.046	0.179
1800	10 x16	1420	0.060	0.200
	12.5 x16	1450	0.049	0.171
2200	8 x25	1500	0.060	0.200
	10 x23	1650	0.042	0.163
2700	10 x28	1910	0.031	0.120
	16 x16	1940	0.042	0.126
3300	12.5 x20	1900	0.035	0.122
3900	12.5 x25	2230	0.030	0.104
4700	12.5 x30	2650	0.028	0.097
5600	12.5 x35	2880	0.027	0.093
	16 x20	2530	0.027	0.093
6800	12.5 x40	3350	0.027	0.093

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	16 x25	2930	0.027	0.093
	18 x20	2860	0.026	0.090
8200	16 x31.5	3450	0.026	0.090
10000	16 x35.5	3610	0.026	0.086
	18 x25	3140	0.025	0.086
12000	16 x40	4080	0.024	0.083
	18 x31.5	4170	0.024	0.083
15000	18 x35.5	4220	0.023	0.079
18000	18 x40	4280	0.022	0.076

LZR series

Rated voltage 10V (1A)				
Nominal capacitance (uF)	Size	Ripple Current (mA)	Impedance (ΩMAX)	
	φD×L(mm)		25℃,100KHz	-10℃,100KHz
220	6.3 x11	340	0.300	0.920
330	6.3 x11	500	0.200	0.786
470	8 x11.5	640	0.130	0.507
680	8 x11.5	800	0.108	0.436
	8 x16	840	0.087	0.339
	10 x12.5	865	0.080	0.312
1000	8 x20	1050	0.069	0.269
	10 x12.5	1100	0.080	0.312
1200	10 x20	1400	0.046	0.179
1500	8 x20	1280	0.060	0.234
	10 x16	1400	0.055	0.196
	10 x23	1650	0.042	0.163
	12.5 x16	1450	0.049	0.171
1800	10 x20	1760	0.050	0.165
2200	10 x20	1850	0.045	0.170
	10 x28	1910	0.031	0.121
	12.5 x20	1900	0.035	0.122
	16 x16	1940	0.042	0.126
2700	10 x25	2000	0.038	0.123
3300	12.5 x25	2230	0.030	0.104

ALUMINUM ELECTROLYTIC CAPACITORS

3900	12.5 x30	2650	0.028	0.097
	16 x20	2530	0.027	0.093
4700	12.5 x35	2880	0.027	0.093
5600	12.5 x40	3350	0.027	0.093
	16 x25	2930	0.027	0.093
	18 x20	2860	0.026	0.090
6800	16 x31.5	3450	0.026	0.090
	18 x25	3140	0.026	0.090
8200	16 x35.5	3610	0.025	0.086
	18 x31.5	4170	0.025	0.086
10000	16 x40	4080	0.024	0.083
	18 x35.5	4220	0.023	0.079
12000	18 x40	4280	0.022	0.076

LZR series

Rated voltage 16V (1C)				
Nominal capacitance (uF)	Size	Ripple Current (mA)	Impedance (ΩMAX)	
	φD×L(mm)		25℃,100KHz	-10℃,100KHz
47	5 x11	180	0.650	3.236
56	5 x11	210	0.580	2.262
100	5 x11	280	0.400	2.000
	6.3 x11	320	0.300	1.500
120	5 x11	310	0.380	1.750
	6.3 x11	340	0.220	0.858
220	6.3 x11	420	0.250	0.998
330	8 x11.5	640	0.130	0.507
	10 x12..5	800	0.100	0.350
470	8 x11.5	820	0.130	0.507
	8 x15	840	0.087	0.339
	10 x12.5	865	0.080	0.312
680	8 x15	1000	0.075	0.312
	8 x20	1050	0.069	0.269
	10 x12.5	1150	0.075	0.312
	10 x16	1210	0.060	0.234

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820	8 x20	1200	0.060	0.234
1000	8 x20	1300	0.055	0.200
	10 x16	1350	0.052	0.183
	10 x20	1400	0.050	0.179
	12.5 x16	1450	0.050	0.171
1200	10 x16	1580	0.050	0.173
	10 x23	1650	0.050	0.173
1500	8 x25	1720	0.050	0.175
	10 x20	1910	0.045	0.129
	10 x25	1910	0.040	0.123
	12.5 x20	1900	0.035	0.122
	16 x16	1940	0.042	0.126
1800	10 x23	2100	0.040	0.123
	10 x28	2150	0.036	0.113
	12.5 x20	2200	0.035	0.100
2200	10 x20	2100	0.040	0.123
	12.5 x20	2200	0.035	0.100
	12.5 x25	2230	0.030	0.104
	18 x16	2210	0.043	0.129
2700	12.5 x25	2500	0.028	0.097
	12.5 x30	2650	0.028	0.097
	16 x20	2530	0.027	0.093
3300	12.5 x25	2720	0.032	0.106
	12.5 x35	2880	0.027	0.093
	16 x20	2850	0.035	0.100
3900	12.5 x40	3350	0.027	0.093
	16 x25	2930	0.027	0.093
	18 x20	2860	0.026	0.090
4700	16 x31.5	3450	0.026	0.090
	18 x25	3140	0.026	0.090
5600	16 x35.5	3610	0.025	0.086
	18 x31.5	4170	0.025	0.086
6800	16 x40	4080	0.024	0.083
8200	18 x35.5	4220	0.023	0.079
10000	18 x40	4280	0.022	0.076

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LZR series

Rated voltage 25V (1E)				
Nominal capacitance (uF)	Size	Ripple Current (mA)	Impedance (ΩMAX)	
	φD×L(mm)		25℃,100KHz	-10℃,100KHz
22	5 x11	170	0.760	3.500
47	5 x11	210	0.580	2.262
68	5 x11	250	0.480	1.963
100	6.3 x11	340	0.250	0.858
	8 x10	500	0.230	0.830
150	6.3 x11	430	0.250	0.858
220	6.3 x11	500	0.220	0.800
	8 x11.5	640	0.150	0.510
270	8 x11.5	700	0.130	0.507
330	8 x11.5	750	0.120	0.468
	8 x20	940	0.085	0.330
	10 x12.5	865	0.088	0.342
390	10 x12.5	875	0.080	0.300
470	8 x15	1250	0.075	0.312
	8 x20	1360	0.069	0.269
	10 x12.5	1150	0.080	0.323
	10 x20	1400	0.060	0.256
560	8 x20	1400	0.065	0.262
680	10 x11.5	1400	0.076	0.295
	10 x20	1400	0.052	0.182
	12.5 x16	1450	0.049	0.171
820	10 x16	1550	0.065	0.265
	10 x23	1650	0.060	0.163
1000	10 x20	1850	0.050	0.205
	12.5 x20	1900	0.045	0.165
	16 x16	1940	0.042	0.126
1200	10 x25	1900	0.050	0.205
	18 x16	2210	0.043	0.129
1500	12.5 x16	2150	0.043	0.129
	12.5 x25	2230	0.034	0.117

ALUMINUM ELECTROLYTIC CAPACITORS

	16 x20	2400	0.034	0.117
1800	12.5 x30	2650	0.028	0.097
	13 x20	2300	0.035	0.120
	16 x20	2530	0.027	0.093
2200	12.5 x35	2880	0.030	0.093
	16 x20	2800	0.033	0.100
	18 x20	2860	0.026	0.090
2700	12.5 x40	3350	0.026	0.090
	16 x25	2930	0.026	0.090
3300	16 x31.5	3450	0.026	0.090
	18 x25	3140	0.026	0.090
	18 x35	3500	0.025	0.088
3900	16 x35.5	3610	0.025	0.086
	18 x31.5	4170	0.025	0.086
4700	16 x40	4080	0.034	0.116
	18 x35.5	4220	0.023	0.079
5600	18 x40	4280	0.022	0.076
10000	18 x45	7000	0.020	0.070

LZR series

Rated voltage 35V (1V)				
Nominal capacitance (uF)	Size	Ripple Current (mA)	Impedance (ΩMAX)	
	φD×L(mm)		25℃,100KHz	-10℃,100KHz
6.8	5 x11	100	0.880	3.000
22	5 x11	200	0.600	2.400
	6.3 x11	235	0.580	2.262
33	5 x11	210	0.580	2.262
39	6.3 x11	245	0.460	1.560
47	5 x11	230	0.580	2.262
	6.3 x11	280	0.350	0.936
56	6.3 x11	340	0.220	0.858
68	6.3 x11	360	0.220	0.858
82	6.3 x11	340	0.220	0.858

ALUMINUM ELECTROLYTIC CAPACITORS

100	6.3 x11	340	0.220	0.858
	8 x11.5	520	0.150	0.507
120	6.3 x11	380	0.200	0.800
	8 x11.5	575	0.150	0.507
150	8 x11.5	640	0.130	0.507
220	8 x11.5	750	0.115	0.443
	8 x15	840	0.095	0.344
	10 x12.5	865	0.080	0.312
270	8 x16	950	0.087	0.339
	8 x20	950	0.084	0.330
330	8 x20	1150	0.065	0.300
	10 x12.5	1200	0.062	0.285
	10 x20	1280	0.060	0.234
390	8 x20	1210	0.060	0.234
	10 x16	1300	0.058	0.185
	12.5 x16	1400	0.055	0.179
470	10 x16	1350	0.056	0.188
	10 x23	1450	0.055	0.179
	12.5 x16	1450	0.049	0.171
560	8 x20	1360	0.056	0.188
	10 x23	1650	0.042	0.163
	12.5 x16	1600	0.050	0.179
680	10 x20	1850	0.042	0.165
	10 x28	1910	0.035	0.152
	12.5 x20	1900	0.044	0.170
	16 x16	1940	0.042	0.166
820	12.5 x16	2060	0.046	0.168
	12.5 x25	2150	0.035	0.152
1000	12.5 x20	2150	0.040	0.154
	13 x18	2150	0.040	0.154
	18 x16	2210	0.043	0.162
1200	12.5 x30	2650	0.028	0.097
	16 x20	2530	0.027	0.093
1500	12.5 x35	2880	0.027	0.093
	16 x20	2900	0.026	0.090

ALUMINUM ELECTROLYTIC CAPACITORS

1800	12.5 x40	3350	0.026	0.090
	16 x25	2930	0.026	0.090
	18 x20	2860	0.026	0.090
2200	12.5 x35	3000	0.030	0.122
	16 x25	3050	0.030	0.122
	16 x31.5	3450	0.026	0.090
	18 x25	3140	0.026	0.090
2700	16 x35.5	3610	0.025	0.086
	18 x31.5	4170	0.025	0.086
3300	16 x35	3950	0.028	0.106
	18 x35	4050	0.025	0.086
	18 x35.5	4220	0.023	0.079
3900	16 x35.5	4000	0.030	0.122
	18 x40	4280	0.022	0.076

LZR series

Rated voltage 50V (1H)				
Nominal capacitance (uF)	Size	Ripple Current (mA)	Impedance (ΩMAX)	
	φD ×L(mm)		25℃,100KHz	-10℃,100KHz
1	5 x11	70	3.780	18.90
2.2	5 x11	90	3.780	18.90
3.3	5 x11	105	2.560	15.60
4.7	5 x11	120	0.960	5.800
6.8	5 x11	120	0.960	5.800
8.2	5 x11	130	0.960	5.800
10	5 x11	140	0.920	4.600
15	5 x11	160	0.850	2.920
22	5 x11	180	0.700	2.730
33	6.3 x11	245	0.500	1.560
47	6.3 x11	256	0.400	1.560
56	6.3 x11	295	0.300	1.170
	8 x11.5	300	0.350	1.250
100	8 x11.5	555	0.170	0.663
120	8 x16	730	0.120	0.468
150	10 x12.5	760	0.120	0.468

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180	8 x20	910	0.091	0.354
	10 x20	1000	0.100	0.450
220	8 x23	950	0.087	0.396
	10 x12.5	950	0.096	0.452
	10 x20	1120	0.084	0.327
270	10 x20	1220	0.060	0.234
	12.5 x16	1260	0.061	0.238
330	10 x20	1400	0.072	0.265
	12.5 x16	1440	0.058	0.250
390	10 x20	1350	0.060	0.234
	12.5 x20	1550	0.055	0.200
470	10 x20	1640	0.043	0.167
	10 x28	1690	0.043	0.167
	12.5 x16	1350	0.055	0.172
	16 x16	1690	0.055	0.165
560	12.5 x25	1950	0.037	0.124
680	12.5 x20	2100	0.040	0.160
	12.5 x30	2310	0.032	0.105
	16 x20	2100	0.040	0.160
820	12.5 x30	2450	0.030	0.100
	16 x20	2210	0.034	0.102
	16 x31.5	2700	0.033	0.100
1000	12.5 x40	2920	0.027	0.093
	16 x25	2555	0.027	0.093
	18 x20	2490	0.036	0.108
1200	16 x25	2800	0.032	0.098
	16 x31.5	3010	0.026	0.090
	18 x25	2740	0.026	0.090
1500	12.5 x40	3000	0.026	0.090
	16 x35.5	3150	0.025	0.086
	18 x25	3150	0.026	0.090
1800	16 x40	3280	0.024	0.083
	18 x31.5	3300	0.025	0.086
2200	18 x35.5	3680	0.025	0.086
2700	18 x40	3800	0.022	0.076

ALUMINUM ELECTROLYTIC CAPACITORS

LZR series

Rated voltage 63V (1J)				
Nominal capacitance (uF)	Size φD×L(mm)	Ripple Current (mA)	Impedance (ΩMAX) 25℃,100KHz	Impedance (ΩMAX) -10℃,100KHz
15	5 x11	62	1.800	7.020
22	6.3 x11	85	1.500	5.900
33	6.3 x11	126	1.000	3.900
47	6.3 x11	240	0.800	2.800
56	8 x11.5	260	0.500	1.950
68	8 x11.5	300	0.450	1.850
82	8 x16	335	0.360	1.404
	10 x12.5	325	0.340	1.326
100	8 x11.5	325	0.400	1.560
	8 x15	360	0.330	1.368
120	8 x15	325	0.280	1.260
	10 x16	410	0.250	1.146
150	8 x20	458	0.220	1.014
180	8 x20	475	0.220	1.014
	10 x16	505	0.180	0.663
	12.5 x16	527	0.180	0.630
220	8 X20	520	0.170	0.620
	10 x16	550	0.220	1.014
	12.5 x20	700	0.160	0.614
270	10 x20	730	0.120	0.468
	10 x28	740	0.120	0.468
	12.5 x20	765	0.130	0.455
	16 x16	895	0.110	0.330
330	10 x20	750	0.120	0.340
	13 x15	850	0.098	0.322
	12.5 x16	835	0.120	0.340
	12.5 x25	875	0.096	0.336
390	12.5 x20	900	0.095	0.332
470	12.5 x20	875	0.100	0.338

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	12.5 x30	900	0.085	0.300
	12.5 x35	1010	0.080	0.280
	16 x20	1130	0.077	0.231
560	12.5 x25	1000	0.088	0.282
	12.5 x35	1140	0.070	0.245
	13 x20	1000	0.090	0.330
	16 x25	1350	0.062	0.186
	18 x25	1400	0.060	0.183
680	12.5 x25	1100	0.082	0.280
	12.5 x40	1280	0.060	0183
	16 x25	1400	0.052	0.175
	18 x20	1300	0.072	0.216
820	12.5 x30	1300	0.065	0.196
	16 X25	1500	0.046	0.155
	16 x31.5	1650	0.049	0.147
	18 x25	1560	0.052	0.156
1000	12.5 x40	1500	0.050	0.151
	16 x25	1600	0.052	0.156
	16 x35.5	1900	0.040	0.120
	18 x31.5	1720	0.042	0.126
1200	12.5 x40	1720	0.050	0.170
	16 x40	2130	0.036	0.108
	18 x35.5	1890	0.036	0.108
1500	16 x30	2100	0.040	0.120
	18 x40	2470	0.032	0.096
1800	18 x31.5	2450	0.034	0.100
2200	18 x40	2820	0.030	0.092
2700	18 x40	3000	0.027	0.084
3300	18 x55	3200	0.027	0.084

ALUMINUM ELECTROLYTIC CAPACITORS

LZR series

Rated voltage 80V (1K)				
Nominal capacitance (uF)	Size φD×L(mm)	Ripple Current (mA)	Impedance (ΩMAX) 25℃,100KHz	Impedance (ΩMAX) -10℃,100KHz
47	8 x11.5	280	0.750	3.220
220	10 x25	750	0.140	0.470
	12.5 x20	765	0.128	0.450
330	12.5 x25	820	0.120	0.416
	12.5 x30	850	0.100	0.390
390	12.5 x30	885	0.096	0.336
470	12.5 x31.5	1000	0.090	0.300
	16 x25	1000	0.093	0.315
560	12.5 x35	1100	0.088	0.282
680	16 x25	1150	0.088	0.282
820	16 x31.5	1550	0.073	0.262
1000	18 x31.5	1900	0.050	0.126

LZR series

Rated voltage 100V (2A)				
Nominal capacitance (uF)	Size φD×L(mm)	Ripple Current (mA)	Impedance (ΩMAX) 25℃,100KHz	Impedance (ΩMAX) -10℃,100KHz
4.7	5 x11	120	6.500	13.200
8.2	5 x11	145	4.800	10.200
10	6.3 x11	165	3.850	8.700
15	6.3 x11	180	2.250	5.800
18	6.3 x11	230	1.650	3.720
27	8 x11.5	250	0.900	3.160
33	8 x11.5	280	0.850	2.950
47	8 x16	320	0.720	2.450
	10 x16	380	0.600	2.260
56	8 x20	380	0.600	2.260

ALUMINUM ELECTROLYTIC CAPACITORS

68	8 x20	400	0.600	2.260
	10 x16	430	0.550	2.000
82	10 x16	500	0.480	1.950
	10 x20	550	0.430	1.900
100	12.5 x18	650	0.250	0.975
120	10 x23	600	0.350	1.420
220	10 x30	800	0.230	0.932
	12.5 x25	880	0.200	0.876
270	12.5 x25	1000	0.150	0.526
	12.5 x30	1100	0.120	0.468
330	12.5 x35	1320	0.098	0.425
	18 x20	1250	0.085	0.285
470	16 x30	1450	0.080	0.280
	16 x31.5	1500	0.078	0.240
	18 x31.5	1650	0.075	0.228