

# Capacitor Specifications

## Recommended Capacitors for Bi-level Dimming of Specified HID Lamps\* on CWA Ballasts

\* For Ceramic Metal Halide lamps, please consult the lamp manufacturer for the recommended dimming level.

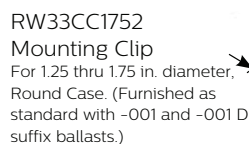
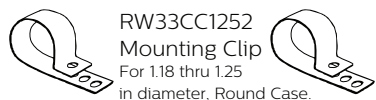
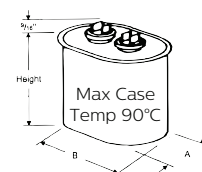
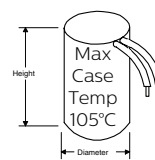
Philips Advance Ballast Family	Nominal Lamp Watts	ANSI Code	Lamp Watts at Low Light	Full Light Capacitance Mfd.	Low Light Capacitance Mfd.	Primary Capacitor	Secondary Capacitor	Capacitor Connection
<b>Quartz Metal Halide 60Hz CWA/Super CWA Ballasts</b>								
71A53_3	100 Pulse-Start	M90/140	60	10.0	8.0	10.0 mfd, 400V (7C100M40R)	40.0 mfd, 300V (7C400P30RA)	Series
71A54A3	150 Pulse-Start	M102/142	85	22.0	14.0	22.0 mfd, 240V (7C220M24RA)	40.0 mfd, 300V (7C400P30RA)	Series
71A5493	150 Pulse-Start	M102/142	80	16.0	12.0	16.0 mfd, 300V (72160M30RA)	40.0 mfd, 300V (7C400P30RA)	Series
71A55_0	175	M57	110	10.0	8.0	10 mfd, 400V (7C100M40-R)	40.0 mfd, 300V (7C400P30RA)	Series
71A55_3	175 Pulse-Start	M137 or M152	110	11.0	8.5	11 mfd, 400V (7C110M40)	40.0 mfd, 300V (7C400P30RA)	Series
71A56_2 or 71A56_3	200 Pulse-Start	M136	120	15.0	11.0	15 mfd, 330V (7C150M33)	40.0 mfd, 300V (7C400P30RA)	Series
71A57_0 or 71A57_1	250	M58	150	15.0	11.0	15 mfd, 400V (7C150P40-R)	40.0 mfd, 300V (7C400P30RA)	Series
71A57_2	250 Pulse-Start	M138 or M153	150	17.0	12.0	17 mfd, 400V (7C170P40)	40.0 mfd, 300V (7C400P30RA)	Series
71A58_2	320 Pulse-Start	M132 or M154	175	21.0	14.0	21 mfd, 400V (7C210P40R)	40.0 mfd, 300V (7C400P30RA)	Series
71A59_3	350 Pulse-Start	M131	205	22.5	14.5	22.5 mfd, 400V (7C225P40)	40.0 mfd, 300V (7C400P30RA)	Series
71A60_1	400	M59	220	24.0	17.0	24 mfd, 400V (7C240P40-R)	48 mfd, 300V (7C480P30RA)	Series
71A60_2	400 Pulse-Start	M135 or M155	210	26.0	18.0	26 mfd, 330V (7C260P33R)	48 mfd, 300V (7C480P30RA)	Series
71A63_3	450 Pulse-Start	M144	235	26.5	20.0	26.5 mfd, 400V (7C265P40R)	75.0 mfd, 280V (7C280S28RA)	Series
71A64_0 or 71A64_2	750 Pulse-Start	M149	420	28.0	18.0	28 mfd, 400V (7C280S40)	48 mfd, 300V (7C480P30RA)	Series
71A64_8	875 Pulse-Start	M166	485	21.0	14.0	21 mfd, 480V (MD2100-030)	40.0 mfd, 300V (7C400P30RA)	Series
71A65_0, 71A65_1, 71A65_2, or 71A65_3	1000 Probe or Pulse-Start	M47 or M141	575	24.0	15.0	24 mfd, 480V (MD2409-100)	40.0 mfd, 300V (7C400P30RA)	Series
<b>High Pressure Sodium 60Hz CWA Ballasts</b>								
71A80_8	100	S54	60	34.0	28.0	28.0 mfd, 300V (7C280P30RA)	6.0 mfd, 300V (7C060L30RA)	Parallel
71A81_8	150	S55	90	55.0	45.0	45 mfd, 300V (7C450P30RA)	10 mfd, 300V (7C100M30RA)	Parallel
71A82_1	250	S50	175	35.0	28.0	28 mfd, 300V (7C280P30-RA)	7 mfd, 300V (7C070L30RA)	Parallel
71A84_3	400	S51	260	55.0	40.0	40 mfd, 300V (7C400P30-RA)	15 mfd, 300V (7C150M30RA)	Parallel
71A86_5	750	S111	570	75.0	64.0	64 mfd, 280V (7C640S28RA)	11 mfd, 400V (7C110M40R)	Parallel
<b>71A87_3</b>	<b>1000</b>	<b>S52</b>	<b>660</b>	<b>26.0</b>	<b>17.7</b>	<b>26 mfd, 525V (MD2602100)</b>	55 mfd, 240V (7C550P24RA)	Series
71A89_1	200	S66	120	24.0	18.0	24 mfd, 280V (7C240P30RA)	72 mfd, 120V (7C720P12RA)	Series
71A89_1	200	S66	120	24.0	18.0	18 mfd, 400V (7C180P40R)	6 mfd, 300V (7C060L30RA)	Parallel

### Dry-Film Capacitors

Dimensions (in)		
Letter	Diameter	Height
L	1.18	2.2 or 2.7
M	1.58	2.7 or 3.7
P	1.77	3.7 or 4.9
S	1.97	5.0

### Oil-Filled Capacitors

Dimensions (in)			
Oval	A	B	Height
1.25	1.30	2.15	As Shown in Tables
1.25	1.55	2.70	
1.75	1.90	2.90	
2.00	1.95	3.65	



**Dry-Film Capacitors Thermal Plastic Case**  
Dry-film capacitors contain no oil, are furnished with 8" leads and include integral resistor where required.

**Oil-Filled Capacitor**  
Furnished with appropriate leads and/or resistors where required. Case must be grounded.

Note: Capacitor boots available, order catalog number CB-100.

# Capacitor Specifications HID Non-PCB Capacitors

Mfd.	Voltage	Capacitor Part Number <sup>2</sup>	Dia/Oval	Height	Ballast family where used
5	300	7C050L30RA	1.25	2.25	71A02x0, 5037, 5081, 5137, 78x1 (60 Hz)
6	300	7C060L30RA	1.25	2.75	71A5181, 78R1
7	300	7C070L30RA	1.25	2.75	71A1580, 50x7 (50 Hz. only), 79x1 (60 Hz)
7.5	400	7C075M40	1.50	2.90	Bi-Level, 71A5283
8	300	7C080L30RA	1.25	2.75	71A20x0, 52x0, 52x2 (60 Hz. only), 5237, 5281
8.4	300	7C084L33R	1.25	2.90	71A79x1 (50 Hz)
10	300	7C100M30RA	1.65	2.75	71A25x1 (60 Hz), 50Y1, 52Y1, 52Y2, 5337, 5340-T, 5383, 53Y3, 80x1 (60 Hz)
10	400	7C100M40R	1.40	3.75	71A55x0 (60 Hz)
11	400	7C110M40	1.65	3.75	71A55x3
12	300	7C120M30RA	1.65	2.75	71A25x1 (50 Hz), 29D1, 50x1 (50 Hz), 53x0 (60Hz, except 5340-T), 5637, 80x1 (50 Hz)
12	450	MD1204-100	1.75	2.90	71A55x0 (50 Hz)
13	525	MD1300-100	1.75	3.90	71A57E6
14	120	7C140L12RA	1.25	2.25	71A7707
14	300	7C140M30RA	1.65	2.75	71A04x0, 29R0, 52x1 (50 Hz), 52x2 (50 Hz), 5437, 5737, 81x2 (60 Hz)
15	330	7C150M33	1.65	2.75	71A56x2, 56x3
15	400	7C150P40R	1.75	3.75	71A57x0 (60 Hz), 57x1
16	300	7C160M30RA	1.65	2.75	71A05F0, 54x0, 54x2, 80x0
16	400	7C160P40	1.75	3.75	71A81x0, 07x0
16	525	MD1606-100	1.75	3.90	71A57x4, 82x0
16	525	MD1606-100	1.75	3.90	71A43x0
17	400	7C170P40	1.75	3.75	71A55x4, 5634, 57x2
17	550	MD1701-000	1.75	3.90	71A83x0
17.5	300	7C175M30RA	1.65	3.75	71A0590, 30x2, 53N0, 5837, 81x2 (50 Hz)
18	400	7C180P40R	1.75	3.75	56x3 (50 Hz), 71A57x0 (50 Hz), 89x4
20	120	7C200M12RA	1.25	2.75	71A0201, 7705, 7807
20	330	7C200P33R	1.75	3.75	71A57x2 (50 Hz), 53M0, 5880, 5937, 6037, 6137, 79x0, 81R6, 8146, 8176, 8196
20	450	MD2006-100	1.75	3.90	71A60x6
21	400	7C210P40R	1.75	4.80	71A58x2 (60 Hz)
21	525	MD2100-030	1.75	3.90	71A59x4, 60x4 (60 Hz), 6334, 64x8
22	240	7C220M24RA	1.65	2.75	71A54A3
22.5	300	7C225P30RA	1.65	3.75	71A35x2 (60 Hz), 5486, 6337
22.5	400	7C225P40	1.75	3.75	71A59x3
24	300	7C240P30RA	1.65	3.75	71A79x6, 89x1
24	400	7C240P40R	1.75	4.80	71A58x2 (50 Hz), 60x1 (60 Hz), 63x2
24	480	MD2409-000	1.75	3.90	71A84x0, 65x3 (60 Hz), 65x1
24	480	MD2409-100	1.75	3.90	71A50x0, 60N1, 65x2 (60 Hz), 65x0
25	345	7C250P34	1.75	4.80	71A59x3 (50 Hz)
26	330	7C260P33R	1.75	4.80	71A60x2 (60 Hz), 61E6
26	330	7C260S33R	2.00	4.80	Alternative to 7C260P33R
26	540	MD2602-100	1.75	5.30	71A60M2, 65x2 (50 Hz), 65x3 (50 Hz only)
26.5	400	7C265P40R	1.75	4.80	71A63x3 (60 Hz)
27.5	240	7C275P24RAT1	1.75	3.75	71A79J9
28	120	7C280M12RA	1.65	2.75	71A5005, 5105, 7805, 7907
28	300	7C280P30RA	1.75	3.75	71A35R2, 54x2 (50 Hz), 79x8, 82x6, 89x0
28	400	7C280S40	2.00	4.80	71A64x0, 64x2 (60 Hz)
28	580	MD1408-230	1.50	3.90	71A87x3 (50 Hz only, uses two 14mfd-580 volt capacitors in parallel)
30	345	7C300S34	1.75	4.80	71A60N2
32	525	MD3202-100	2.00	3.75	71A67x2 (60 Hz)
34	240	7C340P24RA	1.65	3.75	71A80x3, 71A80x8
35	240	7C350P24RA	1.65	3.75	71A54M2, 80x6, 82x1 (60 Hz)
35	300	7C350P30RA	1.65	4.75	71A40x1 (60 Hz)
36	120	7C360M12RA	1.65	2.75	71A5205, 8007, 50Y5
40	300	7C400P30RA	1.75	4.75	71A40R1, 65E6 (two in series), 82x1 (50 Hz only), 65Y6 (two in series)
45	120	7C450P12RA	1.65	2.75	71A8005
45	300	7C450P30RA	1.75	4.75	71A65M6, 83x1
48	300	7C480P30RA	1.75	4.75	71A84x6, 85x6
52	240	7C520P24RA	1.75	3.75	71A8156, 81E6
52	280	7C520S28RA	2.00	4.00	Bi-Level
55	120	7C550P12RA	1.65	3.75	71A8107
55	240	7C550P24RA	1.75	3.75	71A81x8, 84x3 (60 Hz)
58	240	7C580P24RA	1.75	3.75	71A8593
60	240	7C600P24RA	1.75	3.75	71A99x2, 71A9968
64	280	7C640S28RA	2.00	5.00	71A84x3 (50 Hz), 85x5
66	280	7C660S28RA	2.00	5.00	71A9942, 71A9943
75	280	7C750S28RA	2.00	5.00	71A86x5

1. "R" suffix denotes capacitors with a discharge resistor where required by UL.  
 2. MD\_ denotes 90° Oil Filled, 7C\_ denotes 105° Dry Film with leads.