

Typical Minimum Wire Size for DC LED Lighting Fixtures

The numbers in these tables will vary dependent on the specific wire used.

Notes on these calculations:

The wire length is a straight run from the power source to the lamphead. It does not take into account losses due to terminal connections, switches, relay contacts, plugs, etc.

The wire size is calculated for 125% of maximum lamphead current and not to exceed a 10% voltage drop.

12 VDC LED Lighting Fixtures Typical Minimum Wire Size

Wire Length (Distance in feet from power source.)	20	30	40	50	60	70	80	90	100	120	140	160	180	200	250
Typical Wire Size (AWG)															
Spectra SPA900-Q70	16	16	14	14	12	12	12	10	10	10	10	10	10	10	8
Spectra-Q15/ MS-R14 Lamphead	12	12	12	10	10	8	8	8	8	6	6	6	4	2	2
Spectra-Q20/ MAX-Q28 Lamphead	10	10	10	8	8	8	6	6	6	4	4	4	4	2	2
Evolution-V15 Lamphead	12	12	12	10	10	8	8	8	8	6	6	6	4	4	2

24 VDC LED Lighting Fixtures Typical Minimum Wire Size

Wire Length (Distance in feet from power source.)	20	30	40	50	60	70	80	90	100	120	140	160	180	200	250
Typical Wire Size (AWG)															
Spectra SPA900-Q70	18	18	18	18	18	16	16	16	16	16	14	14	14	12	12
Spectra-Q15/ MS-R14 Lamphead	18	18	16	16	16	14	14	14	14	12	12	10	10	10	10
Spectra-Q20/ MAX-Q28 Lamphead	16	16	16	14	14	12	12	12	12	10	10	10	10	8	8
Evolution-V15 Lamphead	18	18	16	16	16	14	14	14	14	12	12	10	10	10	10

Typical Current Required and Light Output for LED Lighting Fixtures

Lamphead Style	Voltage	Current	Light Output
-K15-T14	120 Volts AC	2 Amps	15,000/14,000 Lumens
B28-K20-K28	120 Volts AC	3 Amps	20,000/28,000 Lumens
-J15-U14	240 Volts AC	1 Amps	15,000/14,000 Lumens
C28-J20-J28	240 Volts AC	1.5 Amp	20,000/28,000 Lumens
-Q15-R14	12/24 Volts DC	13/6.5 Amps	15,000/14,000 Lumens
A28-Q20-Q28	12/24 Volts DC	18/9 Amps	20,000/28,000 Lumens
-Q70	12/24 Volts DC	6/3 Amps	7,000 Lumens
-V08	12/24 Volts DC	7.5/3.75 Amps	8000 Lumens
-V12	12/24 Volts DC	11/5.5 Amps	12,000 Lumens
-V15	12/24 Volts DC	13/6.5 Amps	15,000 Lumens

American Wire Gauge (AWG) to Metric Wire Gauge (mm²) Sizes

Closest equivalent cross-section.

AWG	mm ²
18	1.0
16	1.5
14	2.5
12	4.0
10	6.0
8	10
6	16
4	25
2	32

Note 1: Do not use GFI protection with an AC LED light, as the breaker will trip when the light is powered.

Note 2: Using a lower voltage at the lamphead will increase the current draw to be higher than the outputs indicated in the above table.

Note 3: All values are at 77°F (25°C) ambient temperature. Higher ambient temperatures will reduce the power to keep lights in safe operating condition and may decrease the current draw.