

The BIRNS Quantum-Q™ nuclear LED floodlight delivers powerful illumination for demanding low-bay applications inside containment and throughout nuclear facilities. Emitting nearly 5,400 lumens of 5000K daylight illumination, it provides safer, more comfortable, and more efficient working conditions. Its low 55W power use, high 97.5 lm/W efficiency, and long >51,000-hour lamp life all combine to deliver huge savings.



### High Performance . . . Under Pressure®

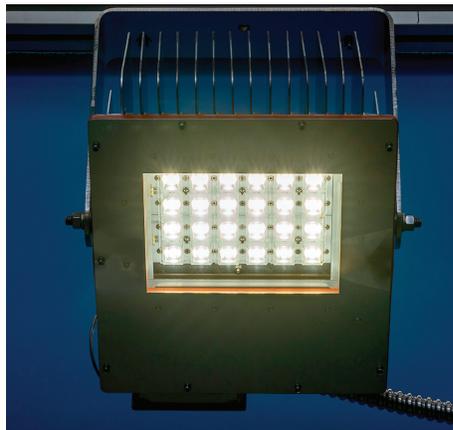
The BIRNS Quantum-Q™ provides superb illumination that dramatically improves the safety and productivity of important work areas inside nuclear power plants while significantly reducing labor and power costs. The BIRNS Quantum-Q is constructed of all nuclear-compatible materials and all-captivated parts. Its sealed (IP56) housing is made of Type 430 stainless steel that provides smooth surfaces for safe and easy cleaning and decontamination, and rounded corners and edges for worker safety. The fixture allows for wall or ceiling mount, is impervious to ILRT pressures, and has an integral junction box for quick and easy electrical connection.

### KEY FEATURES

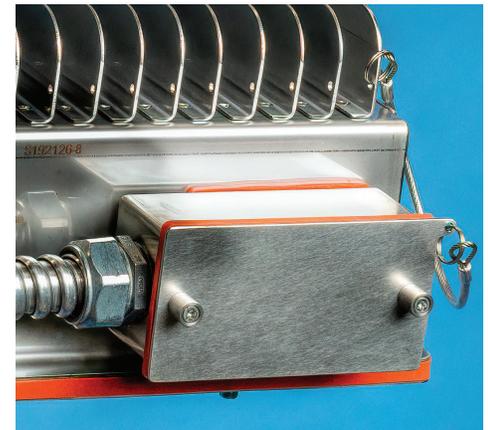
- Powerful, low bay 5,300+ lumen LED lighting
- >51,000 hour lamp life; low 55W power draw
- Daylight 5,000K color temperature
- Wide input voltage range (110, 120, 220, 240, 277)
- Radiation tolerance  $2.5 \times 10^5$  Gy ( $2.5 \times 10^7$  R)
- Robust, compact 430 stainless steel housing
- Containment-grade materials and construction
- Versatile ceiling and wall installation
- Four lens options, two mount options



The BIRNS Quantum-Q™ on a Tall mount. Note the ILRT pressure compensator by the technician's thumb.



The unit swiveled up approximately 75°. The Tall mount permits full 90° tilting whether ceiling or wall mounted.

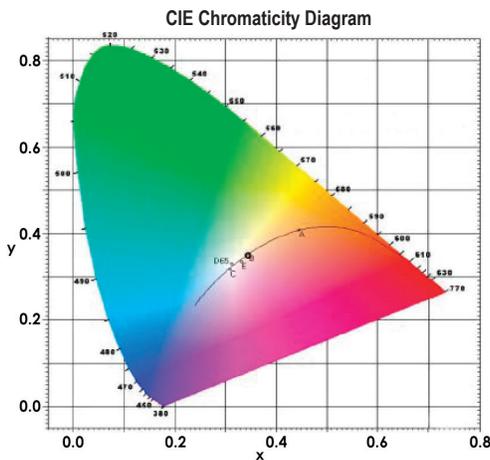


The integral SS junction box. Captivated silicone rubber gaskets preclude water ingress. Note the all-SS construction, captivated parts, and rounded corners and edges throughout.

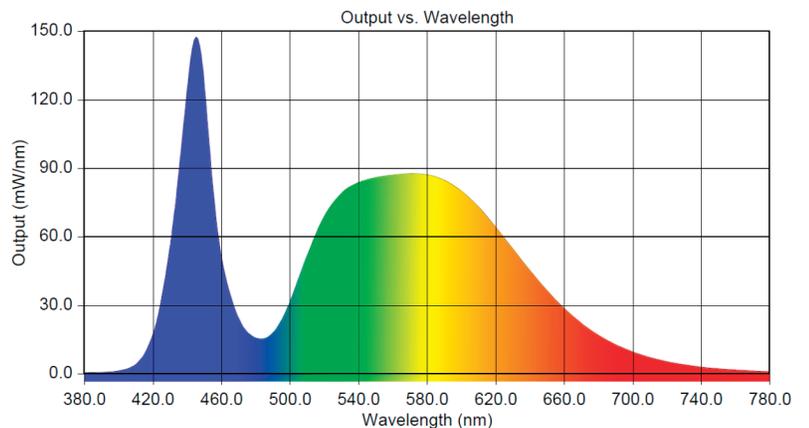
**High Performance . . .  
Under Pressure®**

The BIRNS Quantum-Q operates in the hottest plant locations. Over 8,500 hours of ANSI/IES LM-80 testing at 25°C, 45°C, 50°C, 55°C, and 57°C derived the IES TM-21 Lumen Maintenance data tabulated below, proving that the Quantum-Q still emits >92% of its initial light output even after 51,000 hours of operation. (BIRNS conforms to the most stringent IESNA standards, which restrict LED luminaire lifetime projection to 6 times the LM-80 test period.)

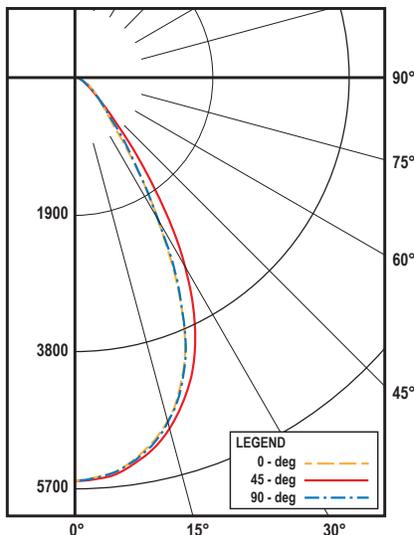
|   |           |           |           |           |           |
|---|-----------|-----------|-----------|-----------|-----------|
| <b>Ambient Temp. (° C):</b>                 | <b>25</b> | <b>45</b> | <b>50</b> | <b>55</b> | <b>57</b> |
| <b>Input Voltage (VAC):</b>                 | 120       | 120       | 120       | 120       | 120       |
| <b>Input Current (A):</b>                   | 0.469     | 0.461     | 0.458     | 0.456     | 0.455     |
| <b>Input Power (W):</b>                     | 55.3      | 54.4      | 54.1      | 53.7      | 53.7      |
| <b>Input Power Factor (%):</b>              | 98.42     | 98.34     | 98.3      | 98.25     | 98.24     |
| <b>Input Current THD (%ATHD):</b>           | 12.7      | 13.1      | 13.3      | 13.6      | 13.6      |
| <b>Input Voltage THD (%VTHD):</b>           | 0.1       | 0.1       | 0.1       | 0.2       | 0.1       |
| <b>Lumen Maintenance @51,000 hours (%):</b> | 96.5      | 94.6      | 93.7      | 92.6      | 92.4      |



Chromaticity Coordinate data per ANSI C78.377. Color Rendering Index (CRI) data for indices Ra-R15 are available on request.



Spectral Power Distribution (SPD) data. Specific output values (mW/nm) in 5nm increments are available on request.



Goniophotometry data per IESNA LM-79-19. Candela distribution, Zonal lumen summary, Luminance and Coefficients of Utilization data are available on request.

| DISTANCE (m) | ILLUMINANCE (Lux) |              | DISTANCE (ft) | ILLUMINANCE (Fc) |               |
|--------------|-------------------|--------------|---------------|------------------|---------------|
|              |                   | Ø to 50% (m) |               |                  | Ø to 50% (ft) |
| 6            | 156               | 6            | 6             | 156              | 6             |
| 8            | 88                | 7            | 8             | 88               | 7             |
| 10           | 56                | 9            | 10            | 56               | 9             |
| 12           | 39                | 11           | 12            | 39               | 11            |
| 14           | 29                | 13           | 14            | 29               | 13            |
| 16           | 16                | 15           | 16            | 16               | 15            |

Illuminance at a distance (data rounded to the nearest integer). The candela values used to generate this data were obtained by averaging the photometric data into a single plane.

## High Performance . . . Under Pressure®

The BIRNS Quantum-Q's compact design—less than 33x36 cm (14"x13") and 16.3cm (6.4") high on low-profile mount—increases functionality in a wide range of low-bay applications such as walkways and under cable trays.

Both Tall and Short mounts can be ceiling or wall mounted. The Tall allows tilting in any angle, while the low-profile Short is perfect for tight spaces. Further, the versatile BIRNS Quantum-Q is available with four different lens options to seamlessly integrate with the plant's specific needs.

## SPECIFICATIONS

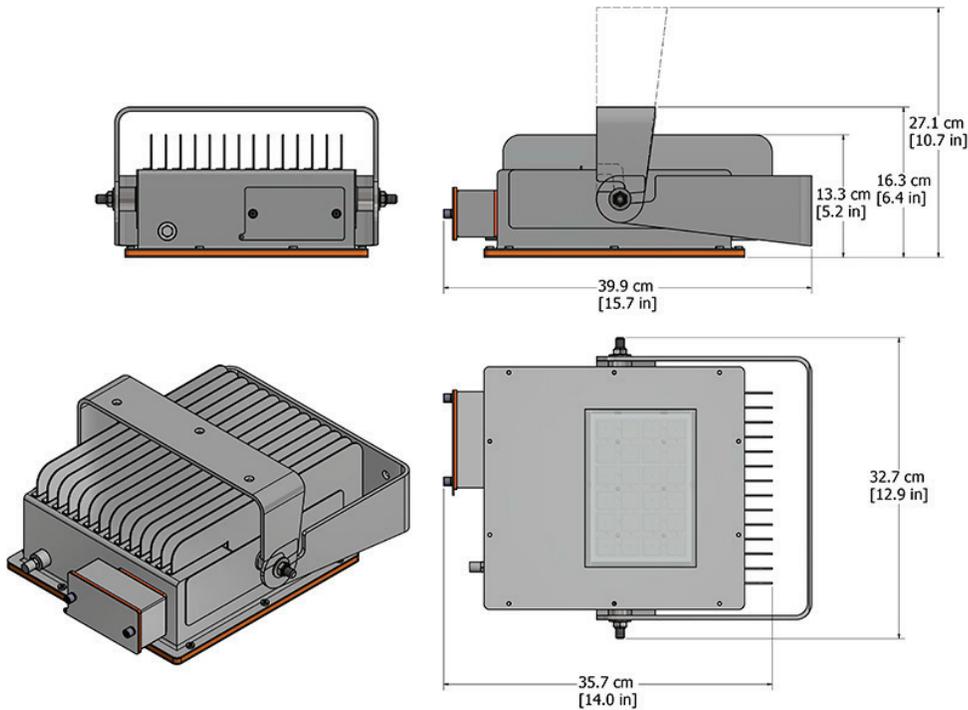
### 4312-T S

#### MOUNT

T: Tall  
S: Short

#### LENS

S: Tempered Borosilicate glass  
P: Glass with Polycarbonate protector  
L: Laminated safety glass  
Q: Quartz



#### ELECTRICAL

|                        |          |
|------------------------|----------|
| Mains Input (VAC):     | 110-277  |
| Frequency (Hz):        | 50 or 60 |
| Power (W):             | 55.3     |
| Power Factor (%):      | 98.5     |
| Input Current THD (%): | 12.5     |
| Input Voltage THD (%): | 0.1      |

#### LIGHTING/PHOTOMETRIC

|                                |                          |
|--------------------------------|--------------------------|
| Lamp Type:                     | High-power LED           |
| Luminous Flux (lm):            | 5,389                    |
| Correlated Color Temperature:  | 5044 K                   |
| Lamp Life (hours):             | >51,000                  |
| CRI (Ra):                      | 73                       |
| Efficacy (lm/W):               | 97.5                     |
| Scotopic/Photopic Lumen Ratio: | 1.795                    |
| Operating Position:            | Universal (any position) |
| Fixture Type:                  | Flood                    |

#### MODEL NUMBER

|               |      |
|---------------|------|
| Model Number: | 4312 |
|---------------|------|

#### MATERIALS

|                    |                            |
|--------------------|----------------------------|
| Housing:           | 430 Stainless              |
| Mounting Hardware: | 300-series stainless steel |
| Gaskets:           | Silicone rubber            |
| Window:            | Tempered glass             |
| Window Frame:      | 300-series stainless steel |

#### ENVIRONMENTAL & QUALIFICATIONS

|                        |  |
|------------------------|--|
| Protection Level:      | IP5X   |
| Radiation Tolerance:   | 2.5 x 10 <sup>5</sup> Gy (2.5 x 10 <sup>7</sup> R) |
| Operating Temperature: | 57°C   |

#### MOUNTING

|              |                                |
|--------------|--------------------------------|
| Mount Style: | Universal wall/ceiling bracket |
| Weight:      | 10.9 kg (24 lbs)               |

#### DIMENSIONS

|            |                    |
|------------|--------------------|
| Length:    | 39.8 cm (15.7 in)  |
| Height:    | 13.46 cm (5.3 in)  |
| Width max: | 32.76 cm (12.9 in) |