



SEAM WELDED ALUMINUM OR STEEL CONSTRUCTION

BIO-SEAL™

- Waterproof
- Dust-Tight
- Class1 Division 2 Listed
- ETL Listed for IP66
- Corrosion Resistant
- NSF Certified
- Surface Mount
- Grid Mount
- Flange Mount
- Top Access

GUTH®

LIGHTING FOR DEMANDING ENVIRONMENTS



VPL option-sealed parabolic louver.

BIO-SEAL™

Bio-Seal™ is designed for the most demanding biological, chemical, immunological or food chemistry laboratories. It is suitable for hot, cold and hazardous locations with bio-safety levels of 1, 2 or 3 and cleanrooms from class10 to 10,000. It may be mounted in either a grid or sheet rock ceiling with positive or negative plenum pressure. The fixture is certified by ETL to prevent the ingress of heavy duty streams of water and dust.

Bio-Seal's standard aluminum construction has the following benefits:

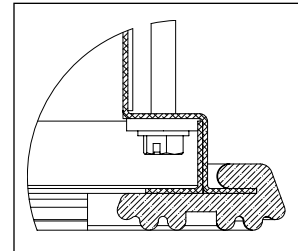
1. The fixture weighs 16 pounds versus steel's 55 pounds.
2. The lightly loaded ceiling resists sagging. Seals remain more stable over time.
3. A leading ballast manufacturer's tests show 3°C to 5°C cooler ballast operation than in a steel housing. Life is increased by 1 to 2 years.
4. Installation requires less man-hours.
5. The potential for corrosion is eliminated.

Applications include:

- Laboratories
- Cleanrooms
- Schools
- Chemical Plants
- Treatment Plants
- Food Processing
- Food Preparation
- Coastal Areas
- Animal Containment
- High Heat Areas
- Hospitals
- Offshore Platforms

Projects:

- USC Biomedical Laboratory
- University of Alabama – Tucker Hall – NIH Laboratory



One-piece seam welded housing, continuous silicone gasket, sealed lens and captive screws provide an ETL listed Class 1 Division 2 and IP66 dust-tight and waterproof fixture.



12 captive and gasketed stainless steel screws draw door frame tight to seal out contaminants.



Fixture door frame, supporting hardware and gasket permanently seal the lens.

SPECIFICATIONS/FEATURES

GENERAL

- Available in 1'x4', 2'x2', 2'x4' and custom sizes
- Uses 2 to 6 lamps
- Available with acrylic or tempered glass lens
- Suitable for 1", 1.5" grid and flange mounting
- 16 pound aluminum housing lowers installed cost; eliminates corrosion
- Overlap door may be 1 piece painted steel, stainless steel or aluminum

CONSTRUCTION

- Housing may be seam welded aluminum, CRS or 304 stainless steel
- Finish is NSF listed polyester powder white paint
- Fixture has 1/2" conduit Knock-Outs
- Seismic support mounting is standard
- One piece silicone gasket seals door frame and flange fixture to ceiling
- Class I Div 2 fixture includes 1/2" hubs (3/4" hubs available-consult factory)

FRAME/LENS

- Lens is .125 virgin acrylic with inverted prismatic optics; sealed to door frame with silicone. (optional lens available)
- Optional Vision Plus louver eliminates glare on computer screens and increases visual comfort
- Door is secured to housing with captive stainless steel screws on 12" centers; door frame is chain hung for maintenance

LISTINGS

Standard Listings

- ETL wet location listed for U.S. and Canada
- ETL IP 66 listed:
 - Dust-tight: no penetration of talcum powder under vacuum for 8 hours
 - Waterproof: no penetration of water with a 1/2" nozzle at 26 gpm flow rate for 3 minutes

Optional Listings

- ETL listed for Class1 Division 2
- National Sanitation Foundation (NSF) International Certified (plastic lens only)

ELECTRICAL

- HPF instant start electronic ballast standard
- Optional dimming, rapid start and high output ballasts available
- Ballasts mounted to housing with stake in screws
- Available with internal battery back-up
- 2x4 troffers use up to 6 lamps



Surface Mount



Laboratories



Cleanrooms

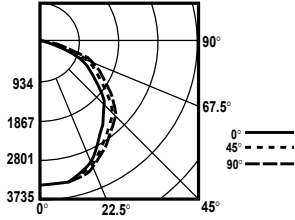


Animal Containment

Photometrics

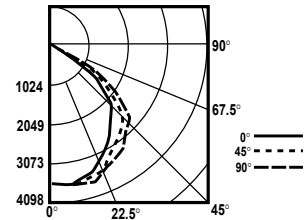
Coefficients of Utilization
4 Lamp, 32W T8
BA-24-4F32 G3-AP3-1

| Ceiling Refl. | 80% | | | 50% | | | 10% | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 |
| RCR 20% Effective Floor Cavity Reflectance | | | | | | | | | |
| 1 | .84 | .81 | .78 | .79 | .76 | .74 | .69 | .69 | .69 |
| 2 | .73 | .68 | .63 | .69 | .65 | .61 | .57 | .57 | .57 |
| 3 | .64 | .58 | .53 | .61 | .56 | .51 | .48 | .48 | .48 |
| 4 | .57 | .50 | .45 | .54 | .48 | .44 | .41 | .41 | .41 |
| 5 | .51 | .44 | .38 | .48 | .42 | .38 | .35 | .35 | .35 |
| 6 | .46 | .39 | .33 | .44 | .38 | .33 | .31 | .31 | .31 |
| 7 | .42 | .34 | .29 | .40 | .34 | .29 | .27 | .27 | .27 |
| 8 | .38 | .31 | .26 | .36 | .30 | .26 | .24 | .24 | .24 |
| 9 | .35 | .28 | .24 | .33 | .28 | .23 | .22 | .22 | .22 |
| 10 | .32 | .26 | .21 | .31 | .25 | .21 | .20 | .20 | .20 |



Coefficients of Utilization
4 Lamp, 32W T8
BA-24-4F32 G3-VPL-1

| Ceiling Refl. | 80% | | | 50% | | | 10% | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 |
| RCR 20% Effective Floor Cavity Reflectance | | | | | | | | | |
| 1 | .78 | .76 | .74 | .74 | .72 | .71 | .66 | .66 | .66 |
| 2 | .70 | .66 | .63 | .67 | .64 | .61 | .58 | .58 | .58 |
| 3 | .63 | .58 | .54 | .60 | .56 | .53 | .50 | .50 | .50 |
| 4 | .57 | .51 | .47 | .54 | .50 | .46 | .44 | .44 | .44 |
| 5 | .51 | .45 | .41 | .49 | .44 | .40 | .38 | .38 | .38 |
| 6 | .46 | .40 | .36 | .44 | .39 | .36 | .34 | .34 | .34 |
| 7 | .42 | .36 | .32 | .40 | .35 | .32 | .30 | .30 | .30 |
| 8 | .38 | .33 | .29 | .37 | .32 | .29 | .27 | .27 | .27 |
| 9 | .35 | .30 | .26 | .34 | .29 | .26 | .24 | .24 | .24 |
| 10 | .33 | .27 | .23 | .31 | .27 | .23 | .22 | .22 | .22 |



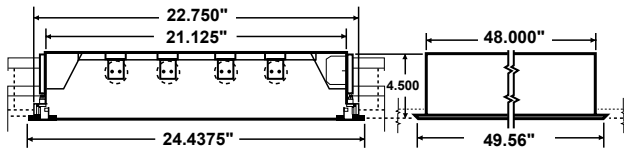
S/MH Ratio 1.3:1
Total Lamp Lumens 11,800
Fixture Efficiency 77.5%

S/MH Ratio 1.4:1
Total Lamp Lumens 11,800
Fixture Efficiency 71%

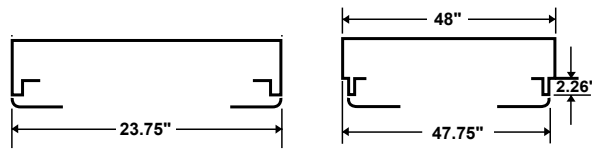
Dimensions

| CEILING CUT DIMENSIONS FOR FLANGE UNITS | |
|---|-----------------|
| 2 X 4 | 22-7/8 x 48-1/8 |
| 2 X 2 | 22-7/8 x 24-1/8 |
| 1 X 4 | 10-7/8 x 48-1/8 |

FLANGE



GRID



BIO-SEAL™ Ordering Data

BA 24-4 F32-F 5 AP3-IS

- SERIES**
BA - Painted Aluminum
B4 - 304 Stainless Steel
BS - Painted Steel

- SIZE**
14 - 1 x 4
24 - 2 x 4
22 - 2 x 2

- NUMBER OF LAMPS**
2 - 2 Lamp
3 - 3 Lamp
4 - 4 Lamp
6 - 6 Lamp

- LAMP TYPE**
F17 - T8 17w
F32 - T8 32w
F44 - T8 High Output 44w
U31 - T8 31w U-Lamp - 1-5/8" Spacing
U32 - T8 32w U-Lamp - 6" spacing
F14 - T5 14w
F28 - T5 28w
F54 - T5 HO 54w

- ELECTRONIC BALLAST**
(120, 277V - Internally Fused)
IS - Instant Start
RS - Rapid Start
DIM 1 - 0-10 Volt Dimmer
DIM 2 - Powerline Dimmer

- LENS**
AP3 - .125 Acrylic Prismatic. Other lens available. See technical section.
VPL - Sealed Louver
C73 - Tempered Glass

- OVERLAP DOOR FRAME (1 piece)**
3 - CRS painted white
5 - Brushed 304 stainless
7 - Aluminum painted white

- MOUNTING**
G - 1", 1-1/2" Grid Tee
F - Flange
SM - Surface Mount

Options

- "/2EB" - 2 Electronic Ballasts
- "/TP" - Tamper Resistant Screws
- "/DN" - Lens Furnished With Prisms Down
- "/RM" - Flange Row Mounting Hardware
- "/HZ" - Class 1 Div 2 Listing (NA with Surface Mount)
- "/HZ-BEF" - Hazardous Battery Operated Emergency System
- "/BEF" - Battery Operated Emergency System B-70A Not suitable for applications below 0°C (32°F)
- "/347" - 347 Volts (Canadian)
- "/NSF" - National Sanitation Foundation Certified Not available with C73 lens
- "/TOP" - Top access (Consult Factory)

| FIXTURE SIZE | LAMP TYPE | NO. OF LAMPS |
|--------------|-----------|--------------------|
| 1 x 4 | F32, F28 | 2LT, 3LT |
| 2 x 4 | F32, F28 | 2LT, 3LT, 4LT, 6LT |
| 2 x 4 | F44, F54 | 2LT, 3LT, 4LT |
| 2 x 2 | U32 | 2LT |
| 2 x 2 | U31 | 2LT, 3LT |
| 2 x 2 | F14, F17 | 2LT, 3LT, 4LT |

Refer to corrosion resistance charts for suitability to any application. Guth utilized the services of U.L. and ETL for listing products. Specifications and data are subject to change without notice.

Project Name:

| Type | Catalogue Number | Lamp | Comments |
|------|------------------|------|----------|
| | | | |