

DESCRIPTION

The CFS Series is designed for use in non-laminar air flow clean rooms. This surface mounted clean room luminaire has a hole-free design and is enclosed and gasketed to protect against infiltration of particles and airborne bacteria. The sealed housing and door frame allow relamping without contamination of the clean areas. An emergency battery pack is available as an option. These luminaires are U.L. listed and C.S.A. certified for wet locations and are manufactured in accordance with U.S.D.A. and F.D.A. All fixtures have been tested and reported in compliance with Federal Standard 209E, Class 100 (M3.5). 200 PSI Rating is standard.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Application

The CFS Series is suitable for use in I.E.S. Class 100, 1,000, 10,000 and 100,000 clean room environments. Applications include clean rooms, technical and biomedical labs, food processing/testing centers and pharmaceutical labs. Manufactured to IP65 Rating.

A ... Lens

(To be specified.) One-piece, clear extruded lens with internal prism pattern. Choice of prismatic acrylic, prismatic polycarbonate, Radialens or prismatic tempered glass on environmental side. See Lens Options.

B ... Fasteners

Flush mounted, stainless steel machine screws secure through captive cage nuts in housing and are evenly spaced to compress gasketing on all sides.

C ... Housing

Die-formed, 20 ga. CRS with tightly butted and seam welded, sealed

Housing Cont.

end caps. Contains no holes that would allow air passage. Standard white high reflectance polyester powder coat finish. Gloss: 85%; Reflectance: 93%; Hardness: 2H; Salt Spray: 500 Hours.

D ... Lamps

(By Others)

E ... Lens Retention

Unique, Particulock(TM) lens retention system utilizes continuous, 18 ga. media clampdowns to sandwich gasketing and integrate lens and door frame for even environmental seal.

F ... Hinge

Two braided, stainless steel cables on one side of door provide hinging.

G ... Door

(To be specified.) One-piece, 18 ga., fully gasketed, outside door

Door Cont.

with die-formed and beveled edges eliminates seams which could entrap microscopic contaminants.

H ... Ballast

Standard Class P, CBM/ETL ballast.

I ... Gasket

White, closed cell, Flexiseal(TM) triple gasketing system surrounds perimeter of lens to seal lens to door frame and around perimeter of door to seal door to housing. Sealing from fixture to ceiling by others.

J ... Access

A gasketed access plate on top of the housing with two flattened, 7/8" diameter knockouts allows connection of vapor tight conduit fitting.

Labels

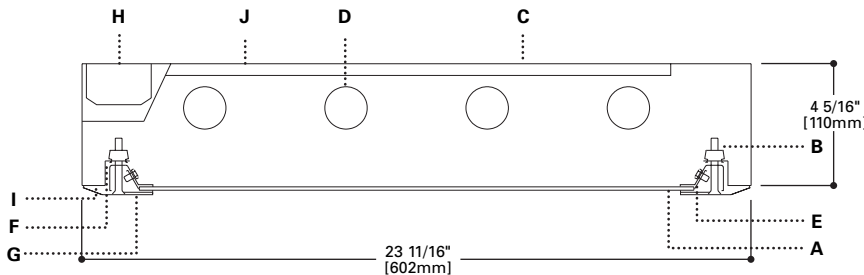
U.L. listed, C.S.A. certified, standard wet label.



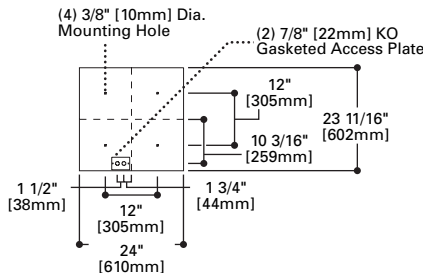
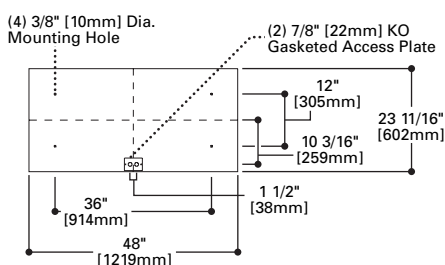
CFS

34W - 160W
Fluorescent

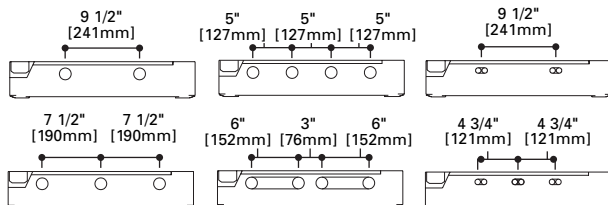
2' X 2'
2' X 4'
FLUORESCENT SURFACE
One-Piece Door



MOUNTING DIMENSIONS

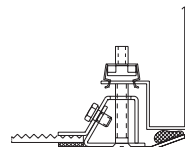


LAMP CONFIGURATIONS



DOOR FRAME

Surface Type-One-piece Door



TORX® is a registered trademark of Camcar Division of Textron Inc.

ENERGY DATA

Input Watts:

STD Ballasts & STD Lamps

- (2) 20W T12 Fluorescents: 53W
- (3) 20W T12 Fluorescents: 85W
- (4) 20W T12 Fluorescents: 106W
- (2) 40W Bi axial Fluorescents: 82W
- (3) 40W Bi axial Fluorescents: 127W

ES Ballasts & STD Lamps

- (2) 17W T8 Fluorescents: 45W
- (3) 17W T8 Fluorescents: 68W
- (4) 17W T8 Fluorescents: 90W
- (2) 32W T8 Fluorescents: 71W
- (3) 32W T8 Fluorescents: 108W
- (4) 32W T8 Fluorescents: 142W
- (2) 40W T12 Fluorescents: 86W
- (3) 40W T12 Fluorescents: 136W
- (4) 40W T12 Fluorescents: 172W
- (2) 40W U-Lamps: 86W

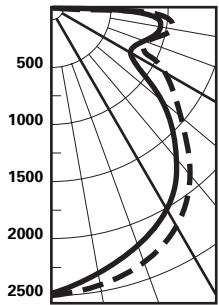
ES Ballasts & ES Lamps

- (2) 40W T12 Fluorescents: 76W
- (3) 40W T12 Fluorescents: 120W
- (4) 40W T12 Fluorescents: 152W
- (2) 40W U-Lamps: 76W

Electronic Ballast Data
Consult Factory

PHOTOMETRICS

Candlepower Distribution



Test No. ITL36036
CFS-24-440-1K12
 Lamp=(4) 40WT12
 Lumens=8526
 Spacing Criteria
 I=1.4 II=1.2
 Efficiency=67.7%

--- I
 — II

Average Luminance

Deg.	I	II
45	1595	1323
55	1154	980
65	822	779
75	871	857
85	1018	933

Zonal Lumen Summary

Zone	Lumens	%Lamp	%Luminaire
0-30	2728	21.7	32.0
0-40	4499	35.7	52.8
0-60	7316	58.1	85.8
0-90	8526	67.7	100.0
90-180	0	0.0	0.0
0-180	8526	67.7	100.0

Coefficient of Utilization

rc	80%				70%			50%		30%		10%		0%
	70	50	30	10	50	30	10	50	10	50	10	50	10	0
RCR														
0	81	81	81	81	79	79	79	75	75	72	72	69	69	68
1	75	72	69	67	70	68	66	67	64	65	62	62	60	59
2	69	64	60	57	63	59	56	61	55	58	54	56	52	51
3	64	58	53	49	57	52	48	55	48	53	47	51	46	45
4	59	52	46	42	51	46	42	49	42	48	41	46	40	39
5	54	46	41	37	46	40	36	44	36	43	36	42	35	34
6	50	42	36	32	41	36	32	40	32	39	31	38	31	30
7	46	38	32	28	37	32	28	36	28	35	28	34	28	26
8	43	34	28	25	33	28	24	33	24	32	24	31	24	23
9	39	30	25	21	30	25	21	29	21	29	21	28	21	20
10	37	28	22	19	27	22	19	27	19	26	19	25	19	17

rc=Ceiling reflectance, rw=Wall reflectance, RCR=Room cavity ratio
 CU Data Based on 20% Effective Floor Cavity Reflectance.

ORDERING INFORMATION

SAMPLE NUMBER: CFS-24-440-120-IP12-LE3-SSP-EBP

Product Family	Width	No. of Lamps	Lamp Type	Voltage ³	Lens Type	Ballast ³	Door/Finish Options	Options
CFS	24							
CFS=Fluorescent Surface Type	24=12" (3 Lamps Max.)		2' Fixture Length T8 Fluorescents 217=(2) 17W Lamps 417=(4) 17W Lamps T12 Fluorescents 220=(2) 20W Lamps 420=(4) 20W Lamps Biaxial Fluorescents 240BX=(2) 40W Lamp 340BX=(3) 40W Lamps 4' Fixture Length T8 Fluorescents 232=(2) 32W Lamps 332=(3) 32W Lamps 432=(4) 32W Lamps T12 Fluorescents 240=(2) 40W Lamps 340=(3) 40W Lamps 440=(4) 40W Lamps	120=120V 277=277V 347=347V	IK12=K-12 Prismatic Acrylic IP12=K-12 Prismatic Polycarbonate KSH25 ¹ =Bat Wing Distribution 93=Prismatic Tempered Glass	LE3=Energy Saving Ballast for use with T12 Lamp LEOC8=Energy Saving Ballast for use with T8 Lamp Electronic Ballast² EB81=(1) Ballast for use with T8 Lamp EB82=(2) Ballasts for use with T8 Lamp EB21=(1) Ballast for use with T12 Lamp EB22=(2) Ballasts for use with T12 Lamp EBX1=(1) Ballast for use with Biaxial Lamp EBX2=(2) Ballasts for use with Biaxial Lamp	CRP=CRS/Polyester Powder Finish (standard) SSN=Stainless Steel Door/Brushed 304 Finish SSP=Stainless Steel Door/Polyester Powder Coat Finish ALP=Aluminum Door/Polyester Powder Finish ALX=Extruded Aluminum/Anodized ⁴ ALXP=Extruded Aluminum/Polyester Powder Coat Finish ⁴	
1, 2, 3, or 4							EBP=Emergency Battery Pack GLR=Fuse and Holder RIF=Radio Frequency Interference Filter DLS1=Digital Lighting System Dimming Housing Options SHN=Stainless Steel, Brushed 304 Finish SHP=Stainless Steel Polyester Powder Finish ALH=Aluminum, Polyester Powder Finish	

Notes:
 For additional options, consult your Cooper Lighting Representative. Specifications and Dimensions subject to change without notice.
¹ The KSH25 provides improved visual performance and wide angle distribution. This lens has an integral prism pattern designed so that prisms face the lamp cavity and still supply superior photometrics. Highly recommended for all high tech manufacturing environments.
² For specific electronic ballast, specify brand and catalog number.
³ Products also available in non-US voltages and 50Hz for international markets. Consult your Cooper Lighting Representative for availability and ordering information.
⁴ Not rated for 200 PSI hose down.

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