FREND LIGHTING INDUSTRIES PTY. LTD.
ABN 76 072 502 311

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MANUFACTURERS OF SUPERIOR FLUORESCENT LUMINAIRES

PROJECT LUMINAIRE TYPE

SURFACE MOUNTED WEATHERPROOF

HPP / HPA

Q-Build Type FW

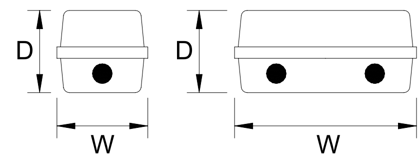
FEATURES

- IP65 Weatherproof Luminaire.
- Stainless Steel Toggle Clip Fixings.
- 2 diffuser types available
  - UV stabilized high impact polycarbonate
  - Acrylic
- Heat-hardened polyester base with polyurethane gasket
- Tamper proof clips with self tapping screws available upon request.

Specifications

Length	680mm - 18W / 14W 1280mm - 36W / 28W 1590mm - 58W / 35W
Width (W)	100mm Single Lamp 170mm Twin Lamp
Depth (D)	115mm

Specifications subject to change without notice



ORDERING INFORMATION

Example: HPP236/TS SSEL

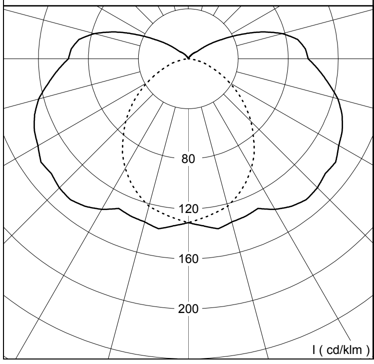
HP_

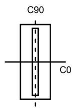
Series	No. of Lamps	Lamp Type	Tamper Proof Option	ECG Options
HPP Polycarbonate Diffuser	**1**	**18** 18W T8	**TS** Tamper Proof Screws	**SSEL** Soft Start Electronic Ballast
HPA Acrylic Diffuser	**2**	**36** 36W T8		**1-10V** 1-10V Dimming Ballast
		58 58W T8		**DIG** Digital Dimming Ballast
		14 14W T5		**DALI** DALI Dimming Ballast
		28 28W T5		
		35 35W T5		

FREND LIGHTING INDUSTRIES PTY LTD

Photometric Data for HPP136 with 1 x 36W Col 84 tube

Light Distribution Curve (LDC)





C0-C180

C90-C270

LOR	
down	60 %
up	13 %
total	73 %

Lamp : 1 x 36W Fl.

γ	C0	C45	C90
0°	131	131	131
10°	138	132	125
20°	134	128	116
30°	139	122	101
40°	147	120	81
50°	143	118	60
60°	139	107	38
70°	131	93	19
80°	114	77	6
90°	96	61	0
100°	89	55	0
110°	63	32	0
120°	31	11	0
130°	9	3	0
140°	5	2	0
150°	2	0	0
160°	0	0	0
170°	0	0	0
180°	0	0	0

HPP136.IES

Utilisation Table (TM5) HPP136.IES

Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	N/A	39	44	47	52	55	58	61	63
70	30	10	N/A	34	38	42	47	51	54	57	60
70	10	10	N/A	29	34	38	43	47	50	54	57
50	50	10	N/A	37	41	44	48	51	54	57	59
50	30	10	N/A	32	36	39	44	48	50	54	56
50	10	10	N/A	28	32	36	41	44	47	51	54
30	50	10	N/A	34	38	41	45	48	50	53	55
30	30	10	N/A	30	34	37	41	45	47	50	53
30	10	10	N/A	26	31	34	39	42	44	48	51
0	0	0	N/A	23	27	30	34	37	40	43	45
BZ-class			N/A	6	6	6	6	6	6	6	6

SHRnom : 1.75 SHRmax : 1.906

Number of Luminaires in Rooms : (Refl. 70/ 50/ 20)

Em in lx	Lph in m	1 x 36W Fl. / 3350 lm			Frend/K-lite HPP136				
		Room Area / m²							
		20	30	40	50	70	80	90	100
240	1.70	5	7	8	10	13	14	15	17
	2.00	6	7	9	10	13	15	16	18
	2.30	6	8	9	11	14	16	17	19
320	1.70	7	9	11	13	17	18	20	22
	2.00	7	9	12	14	18	20	21	23
	2.30	8	10	12	14	19	21	23	25
400	1.70	8	11	13	16	21	23	25	27
	2.00	9	12	14	17	22	24	27	29
	2.30	10	13	15	18	23	26	28	31

Maintained eh Lux. (Maintenance Factor = 0.80)

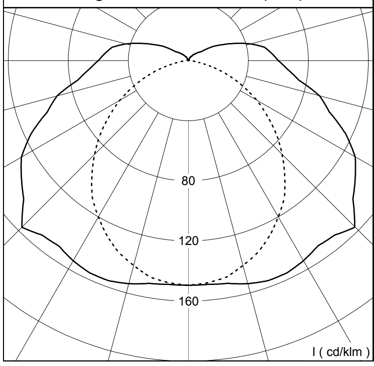
Glare Evaluation to AS1680.1 1990 (TM10) HPP136.IES

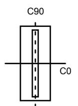
ρ-ceiling		70	70	50	50	30	70	70	50	50	30
ρ-wall		50	30	50	30	30	50	30	50	30	30
ρ-floor		20	20	20	20	20	20	20	20	20	20
room size X	Y	viewed crosswise to lamp axis					viewed parallel to lamp axis				
2H	2H	16.5	18.3	17.3	19.1	20.0	11.2	13.0	12.0	13.8	14.7
	3H	20.3	22.0	21.1	22.8	23.7	12.9	14.6	13.7	15.4	16.3
	4H	22.3	23.9	23.1	24.7	25.7	13.5	15.1	14.3	15.9	16.9
	6H	24.5	26.0	25.3	26.8	27.8	14.0	15.4	14.8	16.3	17.3
	8H	25.7	27.1	26.5	27.9	28.9	14.1	15.5	14.9	16.3	17.3
	12H	27.0	28.4	27.8	29.2	30.2	14.1	15.5	14.9	16.3	17.3
4H	2H	17.2	18.8	18.0	19.6	20.6	13.8	15.3	14.6	16.2	17.1
	3H	21.3	22.7	22.1	23.5	24.5	15.9	17.3	16.7	18.2	19.1
	4H	23.5	24.7	24.3	25.6	26.6	16.9	18.1	17.7	19.0	20.0
	6H	25.8	27.0	26.7	27.9	28.9	17.5	18.6	18.4	19.5	20.6
	8H	27.2	28.2	28.0	29.1	30.2	17.7	18.8	18.6	19.7	20.7
	12H	28.7	29.7	29.6	30.6	31.7	17.9	18.9	18.8	19.8	20.9
8H	4H	23.9	25.0	24.8	25.9	26.9	19.1	20.1	19.9	21.0	22.1
	6H	26.5	27.4	27.4	28.3	29.4	20.1	21.1	21.0	22.0	23.0
	8H	28.1	28.9	29.0	29.8	30.9	20.7	21.5	21.6	22.4	23.5
	12H	29.8	30.5	30.7	31.5	32.6	21.0	21.7	21.9	22.7	23.8
12H	4H	24.0	25.0	24.9	25.9	27.0	19.9	20.9	20.8	21.8	22.9
	6H	26.7	27.5	27.6	28.5	29.6	21.3	22.1	22.2	23.1	24.1
	8H	28.3	29.0	29.2	30.0	31.0	21.9	22.7	22.9	23.6	24.7

Corrected-Values for a Lamp Flux of 3350lm

Photometric Data for HPP236 with 2 x 36W Col 84 tubes

Light Distribution Curve (LDC)





C0-C180

C90-C270

LOR	
down	59 %
up	8 %
total	67 %

Lamp : 2 x

γ	C0	C45	C90
0°	149	149	149
10°	151	146	146
20°	156	144	136
30°	154	142	120
40°	152	133	100
50°	143	124	77
60°	128	101	53
70°	100	80	28
80°	75	56	7
90°	60	39	2
100°	52	32	1
110°	34	19	1
120°	19	9	0
130°	8	4	0
140°	5	2	0
150°	3	1	0
160°	1	1	0
170°	0	0	0
180°	0	0	0

HPPP236.IES

Utilisation Table (TM5) HPPP236.IES

Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	N/A	39	43	46	51	54	56	58	60
70	30	10	N/A	34	39	42	47	50	52	56	58
70	10	10	N/A	30	35	38	43	47	49	53	56
50	50	10	N/A	37	41	44	48	51	53	55	57
50	30	10	N/A	33	37	40	45	48	50	53	55
50	10	10	N/A	30	34	37	42	45	47	51	53
30	50	10	N/A	35	39	42	45	48	50	52	54
30	30	10	N/A	32	35	38	43	45	48	51	52
30	10	10	N/A	29	33	36	40	43	45	49	51
0	0	0	N/A	26	30	33	37	40	42	45	47
BZ-class			N/A	5	5	5	5	6	6	6	6

SHRnom : 1.75 SHRmax : 1.893

Number of Luminaires in Rooms : (Refl. 70/ 50/ 20)

Em in lx	Lph in m	2 x 36w/840 / 6700 lm							
		Room Area / m²							
		20	30	40	50	70	80	90	100
240	1.70	3	4	4	5	7	7	8	9
	2.00	3	4	5	5	7	8	8	9
	2.30	3	4	5	6	7	8	9	10
320	1.70	4	5	6	7	9	10	11	11
	2.00	4	5	6	7	9	10	11	12
	2.30	4	5	6	7	10	11	12	13
400	1.70	4	6	7	8	11	12	13	14
	2.00	5	6	7	9	11	13	14	15
	2.30	5	7	8	9	12	13	14	16

Maintained eh Lux. (Maintenance Factor = 0.80)

Glare Evaluation to AS1680.1 1990 (TM10) HPPP236.IES

ρ-ceiling		70	70	50	50	30	70	70	50	50	30
ρ-wall		50	30	50	30	30	50	30	50	30	30
ρ-floor		20	20	20	20	20	20	20	20	20	20
room size X	Y	viewed crosswise to lamp axis					viewed parallel to lamp axis				
2H	2H	18.7	20.5	19.3	21.2	22.0	15.6	17.4	16.2	18.1	18.9
	3H	21.9	23.6	22.6	24.3	25.1	17.7	19.4	18.3	20.1	20.8
	4H	23.6	25.2	24.3	26.0	26.8	18.4	20.0	19.1	20.7	21.6
	6H	25.5	27.0	26.2	27.7	28.5	19.0	20.5	19.7	21.2	22.1
	8H	26.4	27.9	27.2	28.6	29.5	19.1	20.6	19.8	21.3	22.2
	12H	27.7	29.1	28.4	29.8	30.7	19.3	20.7	20.0	21.4	22.3
4H	2H	19.6	21.2	20.3	22.0	22.8	17.6	19.2	18.3	19.9	20.7
	3H	23.2	24.6	23.9	25.3	26.2	20.0	21.4	20.8	22.2	23.0
	4H	25.1	26.4	25.9	27.2	28.1	21.1	22.4	21.9	23.2	24.0
	6H	27.2	28.3	27.9	29.1	30.0	21.9	23.1	22.7	23.9	24.7
	8H	28.3	29.4	29.1	30.2	31.1	22.2	23.3	23.0	24.1	25.0
	12H	29.8	30.8	30.6	31.6	32.5	22.5	23.5	23.3	24.3	25.3
8H	4H	25.8	26.9	26.6	27.7	28.6	22.9	23.9	23.7	24.8	25.7
	6H	28.1	29.1	28.9	29.9	30.8	24.1	25.1	24.9	25.9	26.8
	8H	29.6	30.4	30.5	31.3	32.2	24.8	25.6	25.6	26.5	27.4
	12H	31.3	32.0	32.2	32.9	33.8	25.4	26.1	26.2	26.9	27.9
12H	4H	26.0	27.0	26.8	27.8	28.7	23.5	24.5	24.3	25.3	26.2
	6H	28.5	29.3	29.3	30.2	31.1	25.1	25.9	25.9	26.8	27.7
	8H	30.0	30.7	30.9	31.6	32.5	25.9	26.6	26.8	27.5	28.5

Corrected-Values for a Lamp Flux of 6700lm

Everybody needs a FREND

Full Photometric data is available electronically if required