

A3ID100-SUR-SYS COMPONENTS SURFACE

PROJECT TYPE NOTES QUANTITY DATE

A32401-

DESCRIPTION

Idaho 100 - Surface Profile - Max 3,000mm / 118 1/8" max Aluminum Profile

GENERAL

Series: Idaho Subseries: Idaho 100	
Brand: Prolicht	
Division: Architectural	
Mounting Type: Surface	
Mounting Location: Ceiling	
Subcategory: Profile	

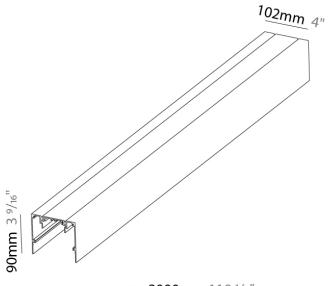
Division: Architectural
Mounting Type: Surface
Mounting Location: Ceiling
Subcategory: Profile
PHYSICAL
Shape: Rectangle
Length (mm): 1000
Length (in): 39 3/8
Width (mm): 102
Width (in): 4
Height (mm): 90
Height (in): $3\frac{9}{16}$
Weight (kg): 2.25
Weight (lbs): 4.96
Fixture Finish: ANA / SSR / BKV / CWI / CRY / HAB /MSR / UFT / ITA / RUA / OGR / FTG / MYG / RWR / LOD / PUS / FRO / FUP / KIA / POP / BLS / SPG / MEY / GOH / GUM / CHC / COM / ABZ / JAG / OBR / MOS / ROR

Fixture Material: Aluminum

RATINGS AND CERTIFICATIONS

Certified By: Certified for North American Standards





max. 3000mm 118 1/8"





A380009-

DESCRIPTION

Idaho 100 System - Surface/Suspension Profile End Cap

GENERAL

PHYSICAL
Shape: Rectangle
Length (mm): 102
Length (in): 4
Width (mm): 6
Width (in): 1/4
Height (mm): 90
Height (in): 3 ⁹ / ₁₆
Weight (kg): 0.179
Weight (lbs): 0.39
Fixture Finish: SSR / BKV / CWI / CRY / HAB / LAG / UFT / ITA / RUA / RUR / MIC / FTG / MYG / TWT / LOD / PUS / FRO / FUP / KIA / POP / RUR / MIC / FTG / MYG / CRY / CRY / CRY / ARZ / AR

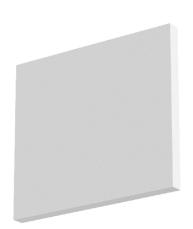
 ${\tt BLS\,/\,SPG\,/\,MEY\,/\,GOH\,/\,GUM\,/\,CHC\,/\,COM\,/\,ABZ\,/\,JAG\,/\,OBR\,/\,MOS\,/}$

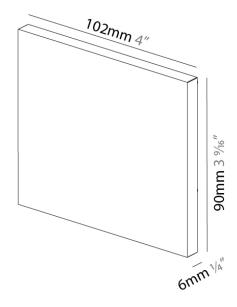
Fixture Material: Aluminum

RATINGS AND CERTIFICATIONS

Certified By: Certified for North American Standards

PROJECT
ТҮРЕ
NOTES
QUANTITY
DATE









A3817100

DESCRIPTION

Idaho 100 System - Trimless Micro-Prism Diffuser per Meter -Max 3000mm / 118 1/8"

GENERAL

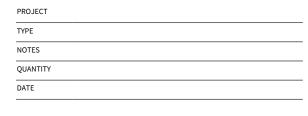
Series: Idaho
Subseries: Idaho 100
Brand: Prolicht
Division: Architectural
PHYSICAL
Shape: Rectangle
Length (mm): 1000
Length (in): $39\frac{3}{8}$
Width (mm): 99
Width (in): $3\frac{7}{8}$
Height (mm): 27
Height (in): 1 ½
Weight (kg): 0.73
Weight (lbs): 1.61
Diffuser: PMMA - Micro-Prism
Fixture Material: Metal

ELECTRICAL

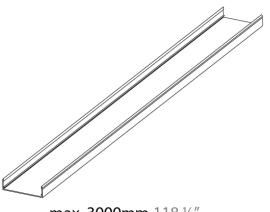
Lamp Type: LED (Zhaga Standard)

RATINGS AND CERTIFICATIONS

Certified By: Certified for North American Standards







max. 3000mm 118 1/8"





A38172-

DESCRIPTION

Idaho 100 System - Light Insert - 1140mm - 20W / 12.8W [O/P] (3500K) - LED (Zhaga Standard) - 3000K / 3500K / 4000K

GENERAL

Series: Idaho
Subseries: Idaho 100
Brand: Prolicht
Division: Architectural

PHYSICAL
Shape: Rectangle
Length (mm): 1140
Length (in): $44^{\frac{7}{6}}$ Width (mm): 87
Width (in): $3^{\frac{7}{16}}$ Height (in): $2^{\frac{9}{16}}$ Light Distribution: Direct
Weight (kg): 2.424
Weight (lbs): 5.34

ELECTRICAL

Fixture Material: Metal

Input Wattage Range: 20 - 29 W
Lamp Type: LED (Zhaga Standard)
Input Wattage (W): 20
Total Output Wattage (W): 16 / 12.8 (3500K)
Dimming: Non-Dimming / Phase Dimming (120Vac only) / 0-10V
Dimming
Driver Included: Yes
Driver Location: Integrated
Driver Type: Constant Current - 120 / 277Vac
Driver Class: Class 2
Input Voltage (V): 120 - 277
Constant Current (MA): 350 / 400 (3500K)

LED

Delivered Lumen Range: 2000 - 2999 lm

Color Temperature (°K): 3000 / 3500 / 4000

Max. Delivered Lumen (lm): 2175 / 2252 / 2298

Nominal Lumen (lm): 2840 / 2940 / 3000

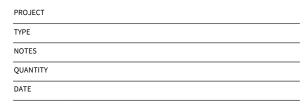
CRI: >80 CRI

Efficiency (%): 0.72

Lamp Life (hrs): 50000

Upon Request: Special Color Temperature RGB-W Tunable White CRI (no minimum qty) price increase + longer lead time

RATINGS AND CERTIFICATIONS













A38176-

DESCRIPTION

Idaho 100 System - Light Insert - 1420mm/55 7/8" - 25W / 16W [O/P] (3500K) - LED (Zhaga Standard) - 3000K / 3500K / 4000K

GENERAL

Series: Idaho
Subseries: Idaho 100
Brand: Prolicht
Division: Architectural
PHYSICAL
Shape: Rectangle
Length (mm): 1420

Length (in): $55\frac{7}{8}$ Width (mm): 87Width (in): $3\frac{7}{16}$ Height (mm): 65Height (in): $2\frac{9}{16}$

Light Distribution: Direct
Weight (kg): 2.75
Weight (lbs): 6.06
Fixture Material: Metal

ELECTRICAL

Input Wattage Range: 20 - 29 W
Lamp Type: LED (Zhaga Standard)
Input Wattage (W): 25
Total Output Wattage (W): 20 / 16 (3500K)

Dimming: Non-Dimming / Phase Dimming (120Vac only) / 0-10V Dimming

Driver Included: Yes
Driver Location: Integrated
Driver Type: Constant Current - 120 / 277Vac

Driver Class: Class 2
Input Voltage (V): 120 - 277
Constant Current (MA): 350 / 500 (3500K)

LED

Delivered Lumen Range: 2000 - 2999 lm

Color Temperature (°K): 3000 / 3500 / 4000

Max. Delivered Lumen (lm): 2719 / 2815 / 2872

Nominal Lumen (lm): 3550 / 3675 / 3750

CRI: >80 CRI

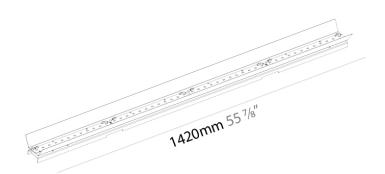
Efficiency (%): 0.72

Lamp Life (hrs): 50000 Upon Request: Special Color Temperature RGB-W Tunable White CRI (no minimum qty) price increase + longer lead time

RATINGS AND CERTIFICATIONS













A38180-

DESCRIPTION

Idaho 100 System - Light Insert - 1700mm - 30W / 19.2W [O/P] (3500K) - LED (Zhaga Standard) - 3000K / 3500K / 4000K

GENERAL

Series: Idaho
Subseries: Idaho 100
Brand: Prolicht
Division: Architectural

PHYSICAL

Shape: Rectangle

Length (mm): 1700

Length (in): 66 15/16

Width (mm): 87

Width (in): 3 7/16

Height (mn): 65

Height (in): 2 9/16

Light Distribution: Direct

Weight (kg): 3.2

Weight (lbs): 7.05

Fixture Material: Metal

ELECTRICAL

Input Wattage Range: 30 - 49 W
Lamp Type: LED (Zhaga Standard)
Input Wattage (W): 30
Total Output Wattage (W): 24 / 19.2 (3500K)
Dimming: Non-Dimming / Phase Dimming (120Vac only) / 0-10V
Dimming
Driver Included: Yes
Driver Location: Integrated
Driver Type: Constant Current - 120 / 277Vac
Driver Class: Class 2
Input Voltage (V): 120 - 277

LED

Delivered Lumen Range: 2000 - 3999 lm

Color Temperature (°K): 3000 / 3500 / 4000

Max. Delivered Lumen (lm): 3263 / 3378 / 3447

Nominal Lumen (lm): 4260 / 4410 / 4500

CRI: >80 CRI

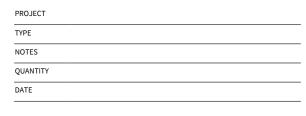
Efficiency (%): 0.72

Lamp Life (hrs): 50000

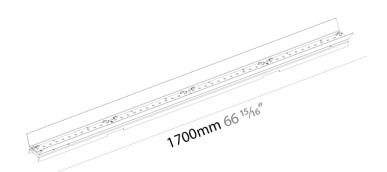
Upon Request: Special Color Temperature RGB-W Tunable White CRI (no minimum qty) price increase + longer lead time

RATINGS AND CERTIFICATIONS

Constant Current (MA): 350 / 600 (3500K)













A38184-

DESCRIPTION

Idaho 100 System - Idaline Light Insert - 1980mm / 77 15/16" -34.3W / 22.4W [O/P] (3500K) - LED (Zhaga Standard) - 3000K / 3500K / 4000K - Dimmable.

GENERAL

Series: Idaho Subseries: Idaho 100 Brand: Prolicht Division: Architectural

PHYSICAL

Shape: Rectangle

Length (mm): 1980 Length (in): 77 15/16 Width (mm): 87 Width (in): 3 1/16 Height (mm): 65 Height (in): 2 % 16 Light Distribution: Direct Weight (kg): 3.7

Weight (lbs): 8.16

Fixture Material: Metal

Input Voltage (V): 120 - 277

Constant Current (MA): 350 / 700 (3500K)

ELECTRICAL

Input Wattage Range: 30 - 49 W Lamp Type: LED (Zhaga Standard) Input Wattage (W): 34.3 Total Output Wattage (W): 28 / 22.4 (3500K) Dimming: 0-10V Dimming / Phase Dimming (120Vac Only) Driver Included: Yes Driver Location: Integrated Driver Type: Constant Current - 120 / 277Vac Driver Class: Class 2

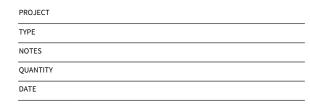
LED

Delivered Lumen Range: 2000 - 3999 lm Color Temperature (°K): 3000 / 3500 / 4000 Max. Delivered Lumen (lm): 3467 / 3529 / 3601 Nominal Lumen (lm): 4527 / 4608 / 4702 CRI: >90 CRI Efficiency (%): 0.72 Lamp Life (hrs): 50000 Upon Request: Special Color Temperature RGB-W Tunable White

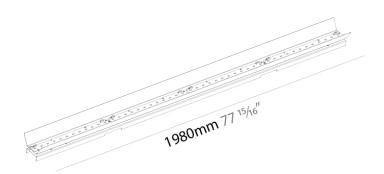
RATINGS AND CERTIFICATIONS

Certified By: Certified for North American Standards IP rating: IP20

CRI (no minimum qty) price increase + longer lead time













A38188-

DESCRIPTION

Idaho 100 System - Light Insert - 2270mm/ 89 3/8" - 39.2W LED (Zhaga Standard) - 3000K / 3500K / 4000K - Dimmable

GENERAL

Series: Idaho
Subseries: Idaho 100
Brand: Prolicht
Division: Architectural
PHYSICAL
Shape: Rectangle

Length (mm): 2270

Length (in): 89 $\frac{3}{6}$ Width (mm): 87

Width (in): 3 $\frac{7}{16}$ Height (mm): 65

Height (in): 2 %₁₆
Light Distribution: Direct
Weight (kg): 4.181
Weight (lbs): 9.22
Fixture Material: Metal

Constant Current (MA): 350 / 800 (3500K)

ELECTRICAL

Input Wattage Range: 30 - 49 W
Lamp Type: LED (Zhaga Standard)
Input Wattage (W): 39.2

Total Output Wattage (W): 32 / 22.4 (3500K)
Dimming: 0-10V Dimming / Phase Dimming (120Vac Only)
Driver Included: Yes
Driver Location: Integrated
Driver Type: Constant Current - 120 / 277Vac
Driver Class: Class 2
Input Voltage (V): 120 - 277

LED

Delivered Lumen Range: 3000 - 4999 lm

Color Temperature (°K): 3000 / 3500 / 4000

Max. Delivered Lumen (lm): 3963 / 4034 / 4116

Nominal Lumen (lm): 5173 / 5266 / 5373

CRI: >90 CRI

Efficiency (%): 0.72

Lamp Life (hrs): 50000

Upon Request: Special Color Temperature RGB-W Tunable White CRI (no minimum qty) price increase + longer lead time

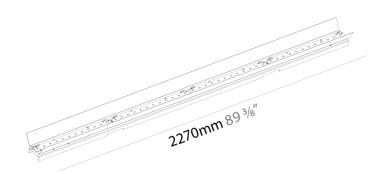
OPTICAL

Beam Angle: 78

RATINGS AND CERTIFICATIONS

PROJECT		
TYPE		
NOTES		
QUANTITY		
DATE		











A38608-

DESCRIPTION

ldaho 100 System - 1 Spot Light Insert - 9.9W LED (Zhaga Standard) - 2700K / 3000K / 3500K / 4000K - Reflectors 20° / 40° / 60°

GENERAL

Series: Idaho
Subseries: Idaho 100
Brand: Prolicht

Division: Architectural

Subcategory: Spots

PHYSICAL

Length (mm): 350

Length (in): 13 \(^{3}\)/₄
Width (mm): 86

Width (in): 3 3/8

Height (mm): 68

Height (in): 2 11/16

Light Distribution: Direct

Weight (kg): 0.459

Weight (lbs): 1.01

Fixture Finish: SSR / BKV / CWI / CRY / HAB / LAG / UFT / ITA / RUA / RUR / MIC / FTG / MYG / TWT / LOD / PUS / FRO / FUP / KIA / POP / BLS / SPG / MEY / GOH / GUM / CHC / COM / ABZ / JAG / OBR / MOS / ROR

Fixture Material: Aluminum Die Cast

ELECTRICAL

Input Wattage Range: 10 - 19 W

Lamp Type: LED (Zhaga Standard)

Input Wattage (W): 9.9

Total Output Wattage (W): 8.9

Dimming: Non-Dimming / Phase Dimming (120Vac only) / 0-10V

Dimming

Driver Included: Yes

Driver Location: Integrated

Driver Type: Constant Current - Universal

Driver Class: Class 2

Input Voltage (V): 120 - 277

Constant Current (MA): 350

LED

Delivered Lumen Range: 500 - 999 lm

Color Temperature (°K): 2700 / 3000 / 3500 / 4000

Max. Delivered Lumen (lm): 660 / 680 / 715 / 730

Nominal Lumen (lm): 983 / 1020 / 1072 / 1094

CRI: >90 CRI

Efficiency (%): 0.884

Lamp Life (hrs): 50000

OPTICAL

Reflector°: 20 / 40 / 60

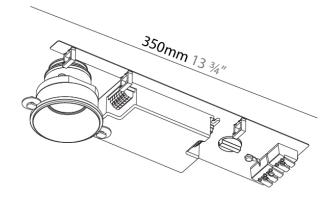
RATINGS AND CERTIFICATIONS

Certified By: Certified for North American Standards

IP rating: IP20

PROJECT
TYPE
NOTES
QUANTITY
DATE









A38611-

DESCRIPTION

ldaho 100 System - 2 Spot Light Insert - 19.8W LED (Zhaga Standard) - 2700K / 3000K / 3500K / 4000K - Reflectors 20° / 40° / 60°

GENERAL

Series: Idaho
Subseries: Idaho 100
Brand: Prolicht
Division: Architectural

PHYSICAL

Length (mm): 450

Length (in): 17 11/16

Width (mm): 86

Width (in): 3 ³/₈ Height (mm): 68

Subcategory: Spots

Height (in): 2 11/16
Light Distribution: Direct

Weight (kg): 0.66 Weight (lbs): 1.46

Fixture Finish: SSR / BKV / CWI / CRY / HAB / LAG / UFT / ITA / RUA / RUR / MIC / FTG / MYG / TWT / LOD / PUS / FRO / FUP / KIA / POP / BLS / SPG / MEY / GOH / GUM / CHC / COM / ABZ / JAG / OBR / MOS / ROR

Fixture Material: Aluminum

ELECTRICAL

Input Wattage Range: 10 - 19 W Lamp Type: LED (Zhaga Standard)

Input Wattage (W): 19.8

Total Output Wattage (W): 17.8

Dimming: Non-Dimming / Phase Dimming (120Vac only) / 0-10V Dimming

Driver Included: Yes

Driver Location: Integrated

Driver Type: Constant Current - Universal

Driver Class: Class 2

Input Voltage (V): 120 - 277

Constant Current (MA): 350

LED

Delivered Lumen Range: 1000 - 1999 lm

Color Temperature (°K): 2700 / 3000 / 3500 / 4000

Max. Delivered Lumen (lm): 1320 / 1370 / 1441 / 1470

Nominal Lumen (lm): 1966 / 2040 / 2144 / 2188

CRI: >90 CRI

Efficiency (%): 88.4

Lamp Life (hrs): 50000

OPTICAL

Reflector°: 20 / 40 / 60

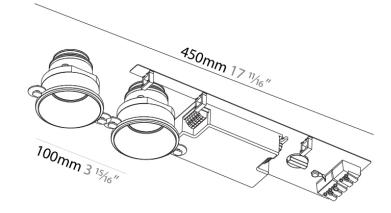
RATINGS AND CERTIFICATIONS

Certified By: Certified for North American Standards

IP rating: IP20

PROJECT
TYPE
NOTES
QUANTITY
DATE









A39034-

DESCRIPTION

Idaho 75 System - Surface/Suspension - Wall Fastening Spacer

GENERAL

Series: Idaho	
Subseries: Idaho 100	
Brand: Prolicht	
Division: Architectural	

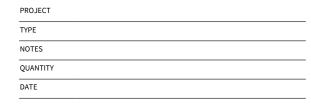
Division: Architectural
PHYSICAL
Shape: Round
Diameter (mm): 38
Diameter (in): 1 ½
Width (mm): 10
Width (in): 3/8
Height (mm): 10
Height (in): 3/8
Fixture Finish: ANA / SSR / BKV / CWI / CRY / HAB /MSR / UFT / ITA /
RUA / OGR / FTG / MYG / RWR / LOD / PUS / FRO / FUP / KIA / POP /
BLS / SPG / MEY / GOH / GUM / CHC / COM / ABZ / JAG / OBR / MOS /

RATINGS AND CERTIFICATIONS

Fixture Material: Aluminum

Certified By: Certified for North American Standards

IP rating: IP20







max. distance: 1500mm 59 1/16"





A3903500

DESCRIPTION

Idaho 75 System - Surface/Suspension - Wall Fastening Key Hole Milling

GENERAL

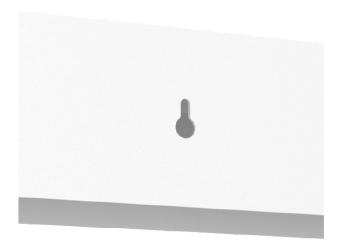
Series: Idaho	
Subseries: Idaho 100	
Brand: Prolicht	
Division: Architectural	

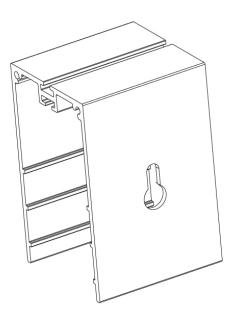
PHYSICAL

Shape: Rectangle	
Installation Requirement: Max Distance: 1500mm / 59 1/16"	
Fixture Material: Aluminum	

RATINGS AND CERTIFICATIONS







max. distance: 1500mm 59 1/16"





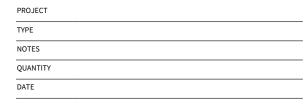
A3992300

DESCRIPTION

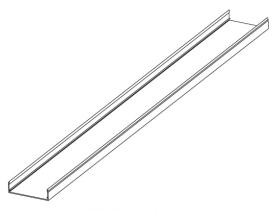
Idaho 100 System - Opal Diffuser per Meter - Max 3000mm / 118 1/8"

GENERAL

RATINGS AND CERTIFICATIONS







max. 3000mm 118 1/8"





A3ID100-SUR-SYS COMPONENTS RECESSED

PROJECT		
TYPE		
NOTES		
QUANTITY		
DATE		

A39924-

DESCRIPTION

Idaho 100 System - Recessed / Surface / Suspension Aluminum Cap Profile - Max 3000mm / 118 1/8"

GENERAL

Series: Idaho	
Subseries: Idaho 100	
Brand: Prolicht	
Division: Architectural	
Mounting Type: Recessed	
Mounting Location: Ceiling	
Subcategory: Profile	

Mounting Location: Ceiling
Subcategory: Profile
PHYSICAL
Shape: Rectangle
Length (mm): 1000
Length (in): 39 3/8
Width (mm): 99
Width (in): 3 $\frac{7}{8}$
Height (mm): 27
Height (in): 1 ½
Weight (kg): 0.363
Weight (lbs): 0.8
Fixture Finish: ANA / SSR / BKV / CWI / CRY / HAB /MSR / UFT / ITA / RUA / OGR / FTG / MYG / RWR / LOD / PUS / FRO / FUP / KIA / POP /

RUA / OGR / FTG / MYG / RWR / LOD / PUS / FRO / FUP / KIA / POP / BLS / SPG / MEY / GOH / GUM / CHC / COM / ABZ / JAG / OBR / MOS / ROR

Fixture Material: Aluminum

RATINGS AND CERTIFICATIONS

Certified By: Certified for North American Standards





max. 3000mm 118 1/8"





ASIDIOU-SUK-STS COMPONENTS

A3992500

	ION

Idaho 100 System - Linear Coupler

GENERAL

Series: Idaho
Subseries: Idaho 100
Brand: Prolicht
Division: Architectural
PHYSICAL
Shape: Rectangle
Length (mm): 200
Length (mm): 200 Length (in): $7 \frac{7}{8}$

Width (in): $3\frac{7}{8}$ Height (mm): 50Height (in): $1\frac{15}{16}$ Weight (kg): 0.1Weight (lbs): 0.22Fixture Material: Aluminum

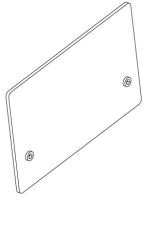
RATINGS AND CERTIFICATIONS

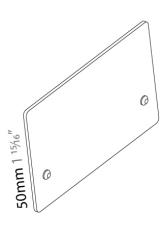
Certified By: Certified for North American Standards















PROJECT		
TYPE		
NOTES		
QUANTITY		
DATE		

LEGEND

100				-	1 1 1 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
<u></u>	floor-mounted	¥	pivotable	⊛	special LED (upon request) RGB, RGBW, tunable, gold+, meat+, art+, fashion+
7	wall and ceiling: recessed and surface mounted	C	rotating	0	warm dim / natural dimming LED
\uparrow	ceiling-mounted and wall-mounted	Œ	illuminate tilted	0	rechargeable battery powered
\rightarrow	wall-mounted	I	color of suspension cable	in the second	fixture with natural vivid LED (upon request)
Y	omni-directional light distribution	1	length of suspension cable	CRI	color rendering index
À	direct light distribution	Δ	reflector degree selection	℃	color temperature
X	direct/indirect light distribution	s s	super spot	(LM)	lumen (luminous flux)
Y	indirect light distribution	*	lens	₩	efficacy (lumens per watt)
	asymmetric light distribution	8	lens pack	UGR	Unified Glare Rating (UGR) range from 5-40
$\overline{\Lambda}$	aura light distribution	0	shine ring	*	marine grade (AISI 316 stainless steel)
R	round wall or ceiling cut-out	\odot	integrated shine ring with diffuser	30	walk on
\Box	square wall or ceiling cut-out		free individual colors 01-29	②	drive on
4	the supplied jig specifies the cutout dimensions	Ĉ	individual colors: 00 (free of charge), 01-25 (extra charge)	DSC	Dark Sky Compliance
□ ←,→	minimum distance (meters) lamp - object	♦	luminaire part to be colored (F1)	Ġ	Americans with Disabilities Act (less than 4" off the wall located between 27"-84" from floor)
$\hat{\pm}$	recessed depth		luminaire part to be colored (F2)		lamp protected against explosion
<u></u>	ceiling thickness in mm		luminaire part to be colored (F3)	4	blown glass using traditional methods by master glass blower
1	ceiling thickness selection		luminaire part to be colored (F4)	()	acoustic material
	dimmable DP (phase), DV (0-10V), DD (dali), DS (step-dim)	•	luminaire part to be colored (F5)		protection class I, protection insulation
	included or excluded LED driver/transformer/ control gear	•	color of 3-circuit adaptor		protection class II, protection insulation
8	separately switchable	\odot	indirect diffuser		ETL Certified to UL and CSA Standards
•	sensor	0	direct diffuser	շ (Մ) սո	UL Certified to UL and CSA Standards
	remote control	1	ball-proof (upon request)	(II)	CSA Certified to UL and CSA Standards
9	available upon request	O	accessory	Z	Certified for North American Standards

IP RATING

9	
IP20	protected against ingress of solid bodies greater than 12.5mm (finger)
IP33	protected against ingress of solid bodies greater than 2.5mm protected against sprays of water up to 60 degrees from the vertical (rain)
IP40	protected against ingress of solid bodies greater than 1mm (wire) no protection against the ingress of moisture
IP43	protected against ingress of solid bodies greater than 1mm (wire) protected against sprays of water up to 60 degrees from the vertical (rain)
IP44	protected against ingress of solid bodies greater than 1mm (wire) protected against water splashed from all directions
IP54	protected against limited ingress of dust (wet rooms/covered outdoor areas) protected against water splashed from all directions
IP65	protected against ingress of dust protected against jets of water
IP66	protected against ingress of dust protected against powerful jets of water or heavy seas
IP67	protected against ingress of dust protected against immersion of water between 15cm - 1m for 30 minutes
IP68	protected against ingress of dust protected against immersion of water under pressure for long periods

IK RATING

above the surface)

IK02	above the surface)
IK03	protected against 0.35 joules impact (equivalent to 0.25kg mass dropped from 140mm above the surface)
IK04	protected against 0.5 joules impact (equivalent to 0.25kg mass dropped from 200mm above the surface)
IK05	protected against 0.7 joules impact (equivalent to 0.25kg mass dropped from 280mm above the surface)
IK06	protected against 1 joules impact (equivalent to 0.25kg mass dropped from 400mm above the surface)
IK07	protected against 2 joules impact (equivalent to 0.5kg mass dropped from 400mm above the surface)
IKOB	protected against 5 joules impact (equivalent to 1.7kg mass dropped from 300mm above the surface)
IK09	protected against 10 joules impact (equivalent to 5.0kg mass dropped from 200mm above the surface)
IK10	protected against 20 joules impact (equivalent to 5.0kg mass dropped from 400mm above the surface) $$

protected against 0.14 joules impact (equivalent to 0.25kg mass dropped from 56mm

protected against 0.2 joules impact (equivalent to 0.25kg mass dropped from 80mm