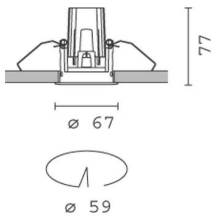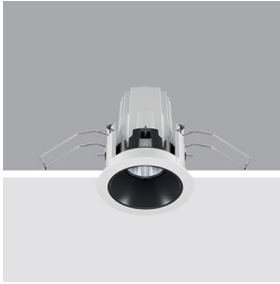# Laser

Last information update: June 2018

Fixed round recessed luminaire - LED - flood - Super Comfort

Product code
P320

Technical description
Round recessed luminaire with contact frame. Fixed Super Comfort version: the LEDs are set a long way back to minimize glare and guarantee a high level of visual comfort. The main body is made of die-cast aluminium with a radiant surface that guarantees optimum heat dissipation. Metallised, thermoplastic, high definition reflector - flood optic (40°). Structure with die-cast aluminium external contact frame with a single white finish. The internal ring is made of thermoplastic available in a range of painted and metallised finishes. Safety glass included Quick and easy tool free assembly. High color rendering index 2700K LED. Power unit available with a separate code no.

Installation
Recessed in a false ceiling by means of an anti-fall steel wire spring - minimum thickness of false ceiling: 1 mm - preparation hole Ø 59 mm.

Dimension (mm)
Ø67x77

Colour
White (01) | White/Brass (41) | Black/Black (43) | Black/White (47) | White/Chrome (E4) | (E7) | (E9)

Weight (Kg)
0.13

Mounting
wall recessed|ceiling recessed

Wiring
Direct current ballasts are available with a separate code no.: ON-OFF / 1-10V dimmable / DALI dimmable / Trailing Edge dimmable - the recessed fitting includes a cable and a quick-coupling connector to connect it to the connector on the ballast.

Notes
A wide range of decorative accessories and diffusers is available.

Complies with EN60598-1 and pertinent regulations

| ⟨III⟩ | IP20 | IP44 | On the visible part of the product once installed |

C03   CE   CIDET   EAC   A++

Product configuration: P320.01

Product characteristics

Total lighting output [Lm]: 502	Total luminous flux at or above an angle of 90° [Lm]: 0
Total power [W]: 7.3	Emergency luminous flux [Lm]: /
Luminous efficacy [Lm/W]: 68.7	Voltage [V]: -
Life Time: > 50,000h - L80 - B10 (Ta 25°C)	Number of optical assemblies: 1

Optical assembly Characteristics Type 1

Light Output Ratio (L.O.R.) [%]: 76	Number of lamps for optical assembly: 1
Lamp code: LED	Socket: /
ZVEI Code: LED	Ballast losses [W]: 0
Nominal power [W]: 7.3	Colour temperature [K]: 2700
Nominal luminous [Lm]: 660	CRI: 90
Lamp maximum intensity [cd]: /	Wavelength [Nm]: /
Beam angle [°]: 40°	MacAdam Step: 3

Polar

Imax=1192 cd	CIE	Lux			
	nL 0.76	h	d	Em	Emax
	99-100-100-100-76				
	UGR <10-<10	1	0.7	925	1192
	DIN A.61				
	UTE	2	1.5	231	298
	0.76A+0.00T				
	F"1=993				
	F"1+F"2=1000	3	2.2	103	132
	F"1+F"2+F"3=1000				
	CIBSE				
	LG3 L<1500 cd/m² at 65°	4	2.9	58	75
α=40°	UGR<10 l L<1500 cd/mq @65°				
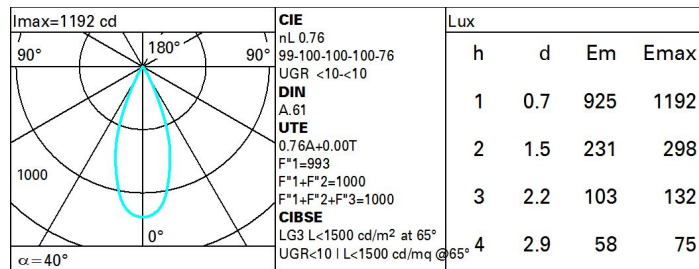
Utilisation factors

R	77	75	73	71	55	53	33	00	DRR
K0.8	68	65	62	60	64	62	62	59	78
1.0	71	68	66	64	68	65	65	63	83
1.5	75	73	71	69	72	70	69	67	88
2.0	77	76	74	73	75	73	73	70	93
2.5	79	78	77	76	76	75	75	73	96
3.0	80	79	78	77	78	77	76	74	98
4.0	81	80	80	79	79	78	77	75	99
5.0	81	81	80	80	79	79	78	76	100

Luminance curve limit

QC	A	G	1.15	2000		1000	500		<=300		
	B		1.50		2000		1000	750	500	<=300	
	C		1.85			2000			1000	500	<=300

C0-180   C90-270
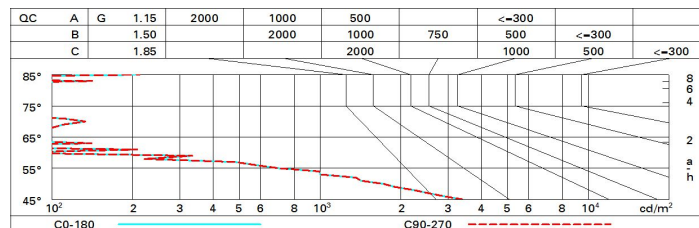
UGR diagram

Corrected UGR values (at 660 lm bare lamp luminous flux)

Riflect.: ceil/cav walls work pl.		0.70 0.50 0.20	0.70 0.30 0.20	0.50 0.50 0.20	0.50 0.30 0.20	0.30 0.30 0.20	0.70 0.50 0.20	0.70 0.30 0.20	0.50 0.50 0.20	0.50 0.30 0.20	0.30 0.30 0.20
Room dim x	y	viewed crosswise					viewed endwise				
2H	2H	8.8	9.3	9.0	9.6	9.8	8.8	9.3	9.0	9.6	9.8
	3H	8.6	9.1	8.9	9.4	9.7	8.6	9.1	8.9	9.4	9.7
	4H	8.6	9.0	8.9	9.3	9.6	8.6	9.0	8.9	9.3	9.6
	6H	8.5	8.9	8.8	9.2	9.6	8.5	8.9	8.8	9.2	9.6
	8H	8.4	8.9	8.8	9.2	9.5	8.4	8.9	8.8	9.2	9.5
	12H	8.4	8.8	8.8	9.1	9.5	8.4	8.8	8.8	9.1	9.5
4H	2H	8.6	9.0	8.9	9.3	9.6	8.6	9.0	8.9	9.3	9.6
	3H	8.4	8.8	8.8	9.1	9.5	8.4	8.8	8.8	9.1	9.5
	4H	8.3	8.7	8.7	9.0	9.4	8.3	8.7	8.7	9.0	9.4
	6H	8.2	8.5	8.6	8.9	9.4	8.2	8.5	8.6	8.9	9.4
	8H	8.2	8.5	8.6	8.9	9.3	8.2	8.5	8.6	8.9	9.3
	12H	8.1	8.4	8.6	8.8	9.3	8.1	8.4	8.6	8.8	9.3
8H	4H	8.2	8.5	8.6	8.9	9.3	8.2	8.5	8.6	8.9	9.3
	6H	8.1	8.3	8.6	8.8	9.2	8.1	8.3	8.6	8.8	9.2
	8H	8.0	8.2	8.5	8.7	9.2	8.0	8.2	8.5	8.7	9.2
	12H	8.0	8.2	8.5	8.6	9.2	8.0	8.2	8.5	8.6	9.2
12H	4H	8.1	8.4	8.6	8.8	9.3	8.1	8.4	8.6	8.8	9.3
	6H	8.0	8.2	8.5	8.7	9.2	8.0	8.2	8.5	8.7	9.2
	8H	8.0	8.2	8.5	8.6	9.2	8.0	8.2	8.5	8.6	9.2

Variations with the observer position at spacing:

S =			
1.0H	6.0 / -14.5	6.0 / -14.5
1.5H	8.8 / -22.2	8.8 / -22.2
2.0H	10.8 / -22.9	10.8 / -22.9