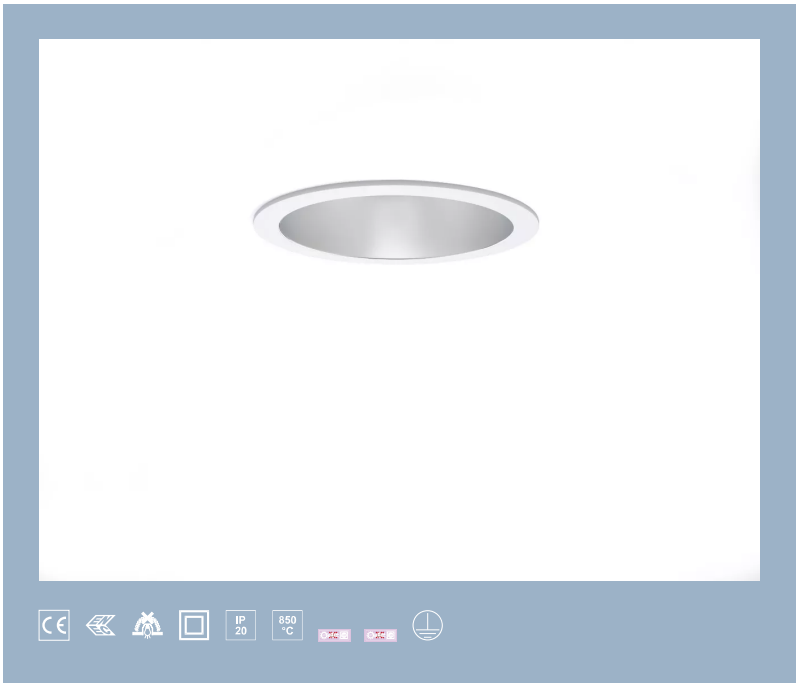
D90/LEDN20SX1



recessed luminaire • round

Application : General office area’s, Auditoria, General education area’s, Patient rooms, General healthcare area’s

housing: polycarbonate

light source : LED • 4000 K

optics : reflector and lens • polycarbonate (PC) with aluminium thin film, satin look • wide-angle

UGR classification : <=19

luminous flux: 2150 lm

luminous efficacy : 116 lm/W

LLMF: 98% @ 50khrs (Tq=25°C)

Product information

Mechanical properties

dimensions : 190 mm x 100 mm

cut-out size : 175 mm x 100 mm

colour: RAL9003-signalwhite

trim: flat trim

type : individual luminaire

IP: IP20

Electrical properties

driver: not dimmable

power : 18.5 W

voltage : 220-240V

frequency : 50-60Hz AC/DC

photobiological safety : EN 62471: RISK GROUP 1 UNLIMITED

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Luminance

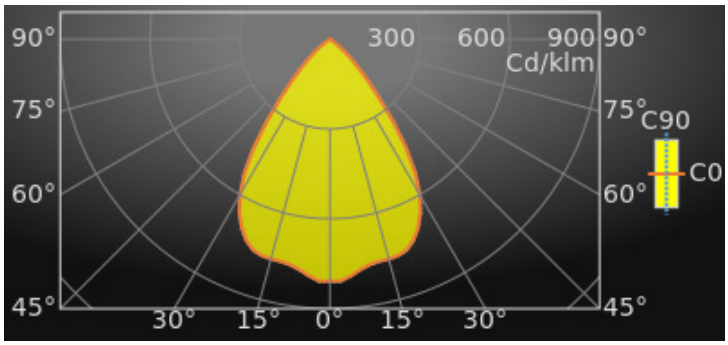
luminous flux : 2150 lm

luminous efficacy : 116 lm/W

luminance @ 65° = : 1000 cd/m²

UGR classification =: <=19

luminous area : 0.02 m²



Average Luminances (Cd/m²) for 2150lm

Gamma	C0	C30	C45	C60	C90
45°	21651	21651	21651	21651	21651
50°	10690	10690	10690	10690	10690
55°	1910	1910	1910	1910	1910
60°	200	200	200	200	200
65°	38	38	38	38	38
70°	4	4	4	4	4
75°	0	0	0	0	0
80°	0	0	0	0	0
85°	0	0	0	0	0

Classifications

CIE: 900 / 1000 / 1000 / 1000 / 1000

CIE FLUXCODE : 0.90 / 1.00 / 1.00 / 1.00 / 1.00

BZ: BZ1

CAE: Symmetrical

DIN: A60 (Nach Arbeitsblatt 7)

DIN_U: Phi u = 1.00

DIN_SU: Phi su = 0.81

UTE: 1.00 A + 0.00 T

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Lifetime Data (Tq=25.0°C)

Time(khrs)	LLMF(%)	Cx(%)
10	100	2
20	100	4
30	99	6
40	99	8
50	99	10
60	99	12

Luminous intensities in cd

Intensity for 2150lm

Gamma	C0	C45	C90
0°	1737.6	1737.6	1737.6
5°	1706.3	1706.3	1706.3
10°	1643.7	1643.7	1643.7
15°	1633.0	1633.0	1633.0
20°	1610.1	1610.1	1610.1
25°	1495.4	1495.4	1495.4
30°	1288.5	1288.5	1288.5
35°	951.3	951.3	951.3
40°	545.4	545.4	545.4
45°	292.6	292.6	292.6
50°	131.3	131.3	131.3
55°	20.9	20.9	20.9
60°	1.9	1.9	1.9
65°	0.3	0.3	0.3
70°	0.0	0.0	0.0
75°	0.0	0.0	0.0
80°	0.0	0.0	0.0
85°	0.0	0.0	0.0
90°	0.0	0.0	0.0

UGR classification =

Corrected Glare Ratings for a Total Lamp Flux of 2150lm (S = 0.25H)

	Room Reflection Factors (%)									
Ceiling	70	70	50	50	30	70	70	50	50	30
Walls	50	30	50	30	30	50	30	50	30	30
Floor	20	20	20	20	20	20	20	20	20	20
Room Dimensions	**Viewed Crosswise**					**Viewed Endwise**				
X = 2H Y = 2H	19.1	20.5	19.4	20.7	21.0	19.1	20.5	19.4	20.7	21.0
Y = 3H	18.9	20.2	19.3	20.4	20.7	18.9	20.2	19.3	20.4	20.7
Y = 4H	18.9	20.0	19.2	20.3	20.6	18.9	20.0	19.2	20.3	20.6
Y = 6H	18.8	19.8	19.1	20.1	20.4	18.8	19.8	19.1	20.1	20.4
Y = 8H	18.7	19.7	19.1	20.1	20.4	18.7	19.7	19.1	20.1	20.4
Y = 12H	18.7	19.7	19.1	20.0	20.3	18.7	19.7	19.1	20.0	20.3
X = 4H Y = 2H	18.9	20.0	19.2	20.3	20.6	18.9	20.0	19.2	20.3	20.6
Y = 3H	18.7	19.7	19.1	20.0	20.3	18.7	19.7	19.1	20.0	20.3
Y = 4H	18.6	19.5	19.0	19.8	20.2	18.6	19.5	19.0	19.8	20.2
Y = 6H	18.6	19.3	19.0	19.7	20.1	18.6	19.3	19.0	19.7	20.1
Y = 8H	18.5	19.2	19.0	19.6	20.0	18.5	19.2	19.0	19.6	20.0
Y = 12H	18.5	19.1	18.9	19.5	20.0	18.5	19.1	18.9	19.5	20.0
X = 8H Y = 4H	18.5	19.2	19.0	19.6	20.0	18.5	19.2	19.0	19.6	20.0
Y = 6H	18.5	19.0	18.9	19.5	19.9	18.5	19.0	18.9	19.5	19.9
Y = 8H	18.4	18.9	18.9	19.4	19.8	18.4	18.9	18.9	19.4	19.8
Y = 12H	18.4	18.8	18.9	19.3	19.8	18.4	18.8	18.9	19.3	19.8
X = 12H Y = 4H	18.5	19.1	18.9	19.5	20.0	18.5	19.1	18.9	19.5	20.0
Y = 6H	18.4	18.9	18.9	19.4	19.8	18.4	18.9	18.9	19.4	19.8
Y = 8H	18.4	18.8	18.9	19.3	19.8	18.4	18.8	18.9	19.3	19.8
	UGR Variations with Observer Position for Luminaire Spacings S									
S = 1.0H	+3.7		-16.0			+3.7		-16.0		
S = 1.5H	+6.4		-36.1			+6.4		-36.1		
S = 2.0H	+8.4		-48.5			+8.4		-48.5		

Colour properties

Correlated Colour Temperature : 4000

Ra: CRI (Ra) 80

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Efficiency

Utilisation Factors according to IES (%)

	Room Reflection Factors (%)									
Ceiling	80	80	80	50	50	50	30	30	30	0
Walls	50	30	10	50	30	10	50	30	10	0
Floor	20	20	20	20	20	20	20	20	20	0
RCR = 1	110	109	107	104	103	102	100	99	98	93
2	102	99	96	97	94	92	94	92	90	85
3	94	90	87	90	87	84	87	85	82	78
4	87	82	78	84	80	77	81	78	75	72
5	81	75	71	78	73	70	76	72	69	66
6	75	69	65	73	68	64	71	67	64	61
7	70	64	60	68	63	59	67	62	59	56
8	65	59	55	64	58	55	62	58	54	52
9	61	55	51	60	54	51	59	54	50	49
10	57	51	47	56	51	47	55	50	47	45

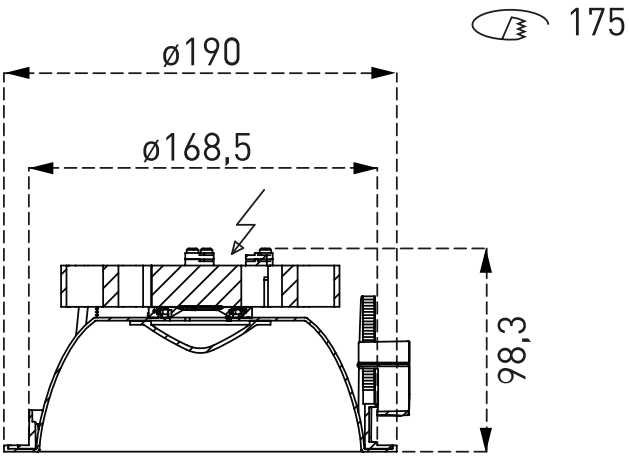
Utilisation Factors according to LiTG (%)

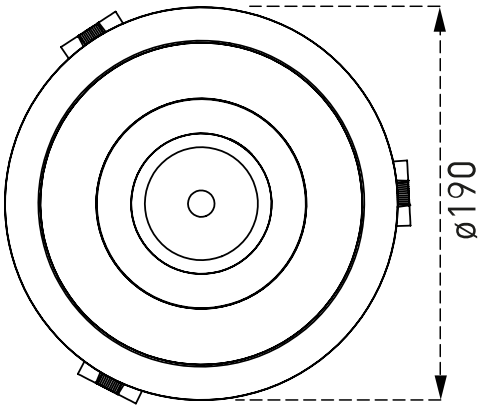
	Room Reflection Factors (%)									
Ceiling	80	80	80	50	50	50	50	50	30	0
Walls	50	30	50	30	50	30	50	30	30	0
Floor	30	30	10	10	30	30	10	10	10	0
k = 0.60	71	65	68	63	69	64	67	62	62	58
0.80	82	75	77	72	79	73	75	71	71	67
1.00	89	82	83	78	85	80	81	77	77	72
1.25	98	92	90	86	94	89	88	85	85	81
1.50	103	97	93	90	97	93	91	89	88	84
2.00	109	104	97	95	102	99	95	93	92	88
2.50	113	108	100	98	105	102	97	96	94	91
3.00	117	113	102	100	108	106	100	98	97	94
4.00	119	116	103	102	110	107	100	99	98	94
5.00	122	119	104	103	112	110	102	101	99	96

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Dimensional drawing





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