

LIBUS SBL13WB LWS-BL IP20

DESCRIPTION : Libus® *high efficacy - standard* version luminaire configuration with TR95% white optical matt angled reflector louver & without underlay cover characterized by low glare levels, high energy efficiency and effective beam control.

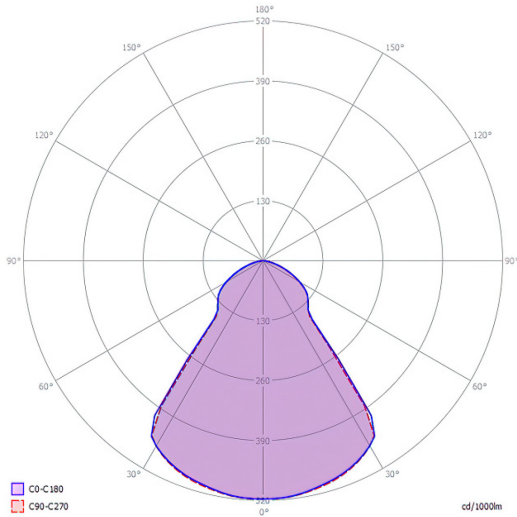
Light output ratio – L.O.R.	87,6%
Efficacy – lm/w (range depending on the luminaire driving power)	134 - 144
Utilization factor (TM5 UF table average)	84,8
Glare level – UGR (4Hx8H – refl. 70-50-20)	12,5
Beam angle	2x42.0° = 84.0°
Degree of protection	IP20



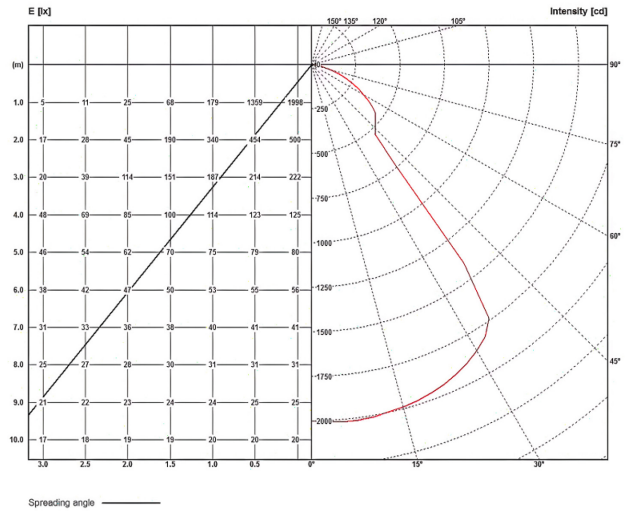
LWS_BL IP20		BEAM ANGLE		L.O.R.		DIMENSIONS / POWER OPTIONS										OPTIMAL	SAFE	NOT AVAILABLE	
		2 x 42.0°		%		EFFICACY / LUMEN OUTPUT										Lm/w	Lm/w	-	
		84.0°		87,6												lumens	lumens	-	
ROW LED STRIPS	WIDTH mm		LENGTH mm		3 - 8 w nominal DIPswitch				11 - 21 w nominal DIPswitch				21 - 30 w nominal DIPswitch						
	OPTIMAL	MINIMUM	OPTIMAL	MINIMUM	3,8 w	5 w	6,3 w	7,6 w	11 w	15 w	19 w	21 w	21 w	25 w	27 w	30 w			
1 x 13	595	563	595	563	-	-	-	-	-	143	140	139	139	138	136	135			
	620	588			-	-	-	-	-	2053	2556	2832	2774	3310	3532	3922			
1 x 6	310	278			-	-	-	139	138	136	135	134	-	-	-	-	-		
	334	302			-	-	1025	1441	1962	2458	2693	-	-	-	-	-	-		
1 x 5	269	237			-	-	-	139	138	136	135	134	-	-	-	-	-		
	293	261			-	-	850	1017	1424	1941	2437	-	-	-	-	-	-		
1 x 4	228	197			595	563	-	138	136	135	134	132	-	-	-	-	-		
	252	220			620	588	-	669	833	983	1396	1907	-	-	-	-	-		
1 x 3	187	156			-	-	-	138	136	134	133	-	-	-	-	-	-		
	212	180			-	-	662	824	978	1391	-	-	-	-	-	-	-		
1 x 2	147	115			138	136	135	134	-	-	-	-	-	-	-	-	-		
	171	139			498	654	815	975	-	-	-	-	-	-	-	-	-		
1 x 1	106	74	136	135	134	-	-	-	-	-	-	-	-	-	-				
	130	98	495	647	808	-	-	-	-	-	-	-	-	-	-				
2 x 6	310	278	-	-	-	-	-	-	144	143	140	139	139	136	135	135			
	334	302	-	-	-	-	-	-	1504	2053	2556	2832	2759	3270	3511	3902			
2 x 5	269	237	-	-	-	-	-	-	142	140	138	138	136	135	135	134			
	293	261	-	-	-	-	-	-	1479	2018	2516	2795	2747	3251	3493	3847			
2 x 4	228	197	-	-	-	140	139	139	138	136	135	134	-	-	-				
	252	220	1125	1093	-	1033	1461	2002	2516	2776	2703	3206	-	-	-				
2 x 3	187	156	1150	1118	-	139	138	136	135	134	-	-	-	-	-				
	212	180	-	-	-	1020	1449	1962	2458	2693	-	-	-	-	-				
2 x 2	147	115	-	-	138	136	135	134	132	-	-	-	-	-	-				
	171	139	-	-	662	824	922	1403	1907	-	-	-	-	-	-				
2 x 1	106	74	137	136	135	134	-	-	-	-	-	-	-	-	-				
	130	98	495	654	815	975	-	-	-	-	-	-	-	-	-				

• Due to material properties and processing condition tolerances, photometric data may vary in different production batches within EU directive.

POLAR DIAGRAMME (cd/1000lm)



ILLUMINANCE – CANDELA DIAGRAMME (lux/cd)



UGR GLARE RATIOS

Ceiling reflectance		0.7		0.5		0.3		0.7		0.5		0.3									
Wall reflectance		0.5		0.3		0.5		0.3		0.5		0.3									
Floor cavity reflectance		0.2																			
Room dimensions		Viewed crosswise						Viewed endwise													
2H	2H	10,0	11,4	10,3	11,7	12,0	10,2	11,6	10,6	11,9	12,2	10,0	11,4	10,3	11,7	12,0	10,2	11,6	10,6	11,9	12,2
	3H	11,0	12,2	11,3	12,6	12,9	11,3	12,5	11,7	12,9	13,2	11,0	12,2	11,3	12,6	12,9	11,3	12,5	11,7	12,9	13,2
	4H	11,3	12,5	11,7	12,9	13,2	11,7	12,9	12,1	13,3	13,6	11,3	12,5	11,7	12,9	13,2	11,7	12,9	12,1	13,3	13,6
	6H	11,6	12,7	12,0	13,0	13,4	12,1	13,2	12,5	13,5	13,9	11,6	12,7	12,0	13,0	13,4	12,1	13,2	12,5	13,5	13,9
	8H	11,6	12,7	12,0	13,0	13,4	12,1	13,2	12,6	13,6	14,0	11,6	12,7	12,0	13,0	13,4	12,1	13,2	12,6	13,6	14,0
12H	11,6	12,6	12,0	13,0	13,4	12,2	13,2	12,6	13,6	14,0	11,6	12,6	12,0	13,0	13,4	12,2	13,2	12,6	13,6	14,0	
4H	2H	10,4	11,6	10,8	12,0	12,3	10,6	11,8	11,0	12,1	12,5	10,4	11,6	10,8	12,0	12,3	10,6	11,8	11,0	12,1	12,5
	3H	11,6	12,6	12,0	13,0	13,4	11,9	12,9	12,3	13,2	13,7	11,6	12,6	12,0	13,0	13,4	11,9	12,9	12,3	13,2	13,7
	4H	12,1	13,0	12,5	13,4	13,8	12,5	13,3	12,9	13,7	14,2	12,1	13,0	12,5	13,4	13,8	12,5	13,3	12,9	13,7	14,2
	6H	12,4	13,2	12,8	13,6	14,0	12,9	13,6	13,3	14,1	14,5	12,4	13,2	12,8	13,6	14,0	12,9	13,6	13,3	14,1	14,5
	8H	12,5	13,2	12,9	13,6	14,1	13,0	13,7	13,5	14,2	14,7	12,5	13,2	12,9	13,6	14,1	13,0	13,7	13,5	14,2	14,7
12H	12,5	13,2	13,0	13,6	14,2	13,2	13,8	13,6	14,3	14,8	12,5	13,2	13,0	13,6	14,2	13,2	13,8	13,6	14,3	14,8	
8H	4H	12,2	13,0	12,7	13,4	13,9	12,6	13,3	13,1	13,8	14,2	12,2	13,0	12,7	13,4	13,9	12,6	13,3	13,1	13,8	14,2
	6H	12,6	13,2	13,1	13,7	14,2	13,1	13,7	13,6	14,2	14,7	12,6	13,2	13,1	13,7	14,2	13,1	13,7	13,6	14,2	14,7
	8H	12,8	13,4	13,4	13,9	14,4	13,4	13,9	13,9	14,4	14,9	12,8	13,4	13,4	13,9	14,4	13,4	13,9	13,9	14,4	14,9
	12H	12,9	13,4	13,4	13,9	14,4	13,6	14,0	14,1	14,5	15,0	12,9	13,4	13,4	13,9	14,4	13,6	14,0	14,1	14,5	15,0
12H	4H	12,3	12,9	12,7	13,4	13,9	12,6	13,3	13,1	13,7	14,2	12,3	12,9	12,7	13,4	13,9	12,6	13,3	13,1	13,7	14,2
	6H	12,7	13,2	13,2	13,8	14,2	13,2	13,7	13,7	14,2	14,7	12,7	13,2	13,2	13,8	14,2	13,2	13,7	13,7	14,2	14,7
	8H	12,9	13,3	13,4	13,8	14,4	13,4	13,9	14,0	14,4	14,9	12,9	13,3	13,4	13,8	14,4	13,4	13,9	14,0	14,4	14,9

TM5 UTILISATION FACTORS

Utilization factors			LOR = 100.0%			DLOR = 100.0%			ULOR = 0.0%		
Room reflection			Room index								
C	W	F	0,75	1,00	1,25	1,50	2,00	2,50	3,00	4,00	5,00
0.7	0.5	0.2	71	79	85	89	95	99	101	105	107
	0.3		65	73	79	84	90	94	97	101	104
	0.1		60	69	75	80	86	91	94	99	102
0.5	0.5	0.2	69	77	83	87	92	95	98	101	103
	0.3		64	72	78	82	88	92	94	98	100
	0.1		60	68	74	78	84	89	92	96	98
0.3	0.5	0.2	68	76	81	84	89	92	94	97	99
	0.3		63	71	77	80	86	89	92	95	97
	0.1		59	67	73	77	83	87	89	93	95
0.0	0.0	0.0	58	65	71	74	80	83	86	89	91
			SHR NOM. = 1,25			SHR MAX. = 1,41			SHR MAX TR = 1,47		

TECHNICAL SPECIFICATIONS

Rectangular or square shaped, anodized aluminum body, IP20 LED ceiling luminaire, characterized by :

1. **TR95% optical white matt aluminum** sight blocking light distribution and glare control angled cubic louver **without underlay** diffusing elements.
2. suitability for recessing in T24 600 x 600 and 625 x 625 mm grid ceilings as well as plaster & clip-in system ceilings and pendant, surface and rail track mounting with accessories to be ordered separately
3. providing precise light distribution control over **42.0°** ensures low glare (**UGR<15**) visual comfort and photometric performance guaranteeing average **+84,8%** (TM5 utilization factors table average) of generated light to be conveyed directly to working plane
4. eco-friendly construction enabling easy disassembly & re-cycling of components and easy replacement of lamp unit as required by **ecodesign**.
5. energy efficacy level ranging between **134 to 144 lm/w** combined with high UF values enabling the driving of the luminaires at low current levels which in turn provides low LED junction temperature promising **luminaire efficient service life / L80B10** ($t_{j,25^{\circ}\text{C}}$) **>50.000h.** and chromatic stability / color consistency over the entire luminaire life.
6. 10 μm natural anodized aluminum body. Further color anodized and RAL colors painted finishes on request
7. open-circuit proof control gear unit, protected against faulty connection, short circuit, overload and over-temperature
8. replaceable control gear and PCB lamp unit
9. control gear unit **output ripple <5%** - **PSTLM ≤ 1** - **SVM ≤ 0.4** for effective control of the LED system and for flicker-free light
10. complying with fundamental requirements of applicable EU regulations and product safety legislation and bears the CE symbol. The luminaire is part of a range of recessed, surface-mounted and suspended luminaires with a harmonized appearance. Project-specific versions with varying luminaire characteristics are possible on request.

Rectangular and square anodized aluminum body IP20 LED ceiling luminaire **with TR95% optical white matt aluminum** sight blocking light distribution and glare control angled cubic louver **without underlay** diffusing elements. Suitable for recessing in T24 600 x 600 and 625 x 625 mm grid ceilings as well as plaster & clip-in system ceilings and pendant, surface and rail track mounting with accessories to be ordered separately. Precise light distribution control over **42.0°** ensures low glare (**UGR<15**) visual comfort and photometric performance guaranteeing average **+84,8%** (TM5 utilization factors table average) of generated light to be conveyed directly to working plane. Eco-friendly construction enables easy disassembly & re-cycling of components and easy replacement of lamp unit as required by **ecodesign**. Energy efficacy level ranging between **134 to 144 lm/w** coupled with high UF values enable driving luminaires at low current which in turn provides low LED junction temperature promising **luminaire efficient service life / L80B10** ($t_{j,25^{\circ}\text{C}}$) **>50.000h.** and chromatic stability / color consistency over the entire luminaire life. Luminaire body of 10 μm anodized aluminum. Further color anodized and RAL colors painted finishes on request. Control gear unit is open-circuit proof and protected against faulty connection, short circuit, overload and over-temperature. The control gear and PCB lamp unit are replaceable. **Output ripple** of the control gear unit **<5%** - **PSTLM ≤ 1** - **SVM ≤ 0.4** for effective control of the LED system and for flicker-free light. The luminaire complies with fundamental requirements of applicable EU regulations and product safety legislation and bears the CE symbol. The luminaire is part of a range of recessed, surface-mounted and suspended luminaires with a harmonized appearance. Project-specific versions with varying luminaire characteristics are possible on request.