


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Akce: Rekonstrukce ulice Fr. Zoubka Kostelec nad Orlicí		Zakázkové číslo:	058/2017	Paré:
		Datum:	02/2018	
		Formát:	-	
Objekt: C.4. SO 401 Veřejné osvětlení		Stupeň:	DSP+PDPS	
Obsah: Výpočet osvětlení		Měřítko: -	Číslo výkresu: C.4..5	

Kostelec nad Orlicí

část: ul. F. Zoubka (II)

Návrh zatřídění dle ČSN CEN/TR 13201-1 z 09/2016

1) vozovka

Table 1 — Parameters for the selection of lighting class M

Parameter	Options	Description ^a		Weighting Value V_w^a
Design speed or speed limit	Very high	$v \geq 100$ km/h		2
	High	$70 < v < 100$ km/h		1
	Moderate	$40 < v \leq 70$ km/h		-1
	Low	$v \leq 40$ km/h		-2
Traffic volume		Motorways, multilane routes	Two lane routes	
	High	> 65 % of maximum capacity	> 45 % of maximum capacity	1
	Moderate	35 % - 65 % of maximum capacity	15 % - 45 % of maximum capacity	0
	Low	< 35 % of maximum capacity	< 15 % of maximum capacity	-1
Traffic composition	Mixed with high percentage of non-motorised			2
	Mixed			1
	Motorised only			0
Separation of carriageway	No			1
	Yes			0
Junction density		Intersection/km	Interchanges, distance between bridges, km	
	High	> 3	< 3	1
	Moderate	≤ 3	≥ 3	0
Parked vehicles	Present			1
	Not present			0
Ambient luminosity	High	shopping windows, advertisement expressions, sport fields, station areas, storage areas		1
	Moderate	normal situation		0
	Low			-1
Navigational task	Very difficult			2
	Difficult			1
	Easy			0

^a The values stated in the column are an example. Any adaptation of the method or more appropriate weighting values can be used instead, on the national level.

VWS = 1 => M5

Table 1 — M lighting classes

Class	Luminance of the road surface of the carriageway for the dry and wet road surface condition				Disability glare	Lighting of surroundings
	Dry conditions			Wet	Dry conditions	Dry conditions
	\bar{L} [minimum maintained] cd·m ²	U_o [minimum]	U_l^a [minimum]	U_{ow}^b [minimum]	f_{π}^c [maximum] %	R_{gr}^d [minimum]
M1	2,00	0,40	0,70	0,15	10	0,35
M2	1,50	0,40	0,70	0,15	10	0,35
M3	1,00	0,40	0,60	0,15	15	0,30
M4	0,75	0,40	0,60	0,15	15	0,30
M5	0,50	0,35	0,40	0,15	15	0,30
M6	0,30	0,35	0,40	0,15	20	0,30

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Kostelec nad Orlicí ul. F. Zoubka II

výpočet veřejného osvětlení

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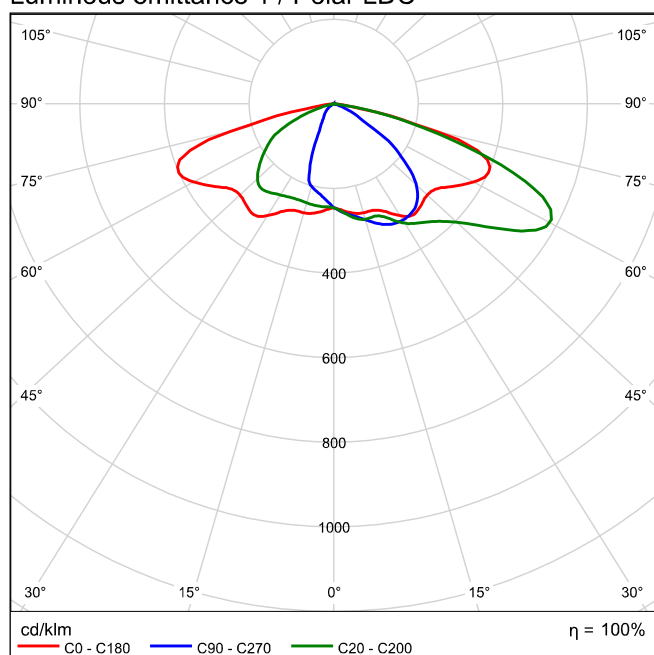
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iGuzzini illuminazione 0_EC43 Wow 53W 1xLED



Light output ratio: 100%
 Lamp luminous flux: 5800 lm
 Luminaire luminous flux: 5800 lm
 Power: 53.0 W
 Luminous efficacy: 109.4 lm/W

Luminous emittance 1 / Polar LDC



EC43 :

Outdoor luminaire with direct light street optic for a high level of visual comfort (G4), designed to use LED lamps. The optical assembly and the pole attachment system are made of EN1706AC 46100LF aluminium alloy and subjected to a multi-step, pre-treatment process, in which the main phases are: degreasing, fluorozirconation (a protective surface film) and sealing (with a nano-structured silane layer). The painting stage consists of a primer and a liquid acrylic paint, cured at 150 °C, with a high level of weather resistance. Option of also adjusting, with a graduated scale, the inclination in relation to the road surface of +15°/-10° (in 5° steps) for a pole-top installation and +5°/20° (in 5° steps) for a lateral installation. 5 mm thick tempered sodium-calcium closure glass. The glass secured to the frame closes the led optical assembly which is secured to the components assembly with a hinge and 2 screws. The high IP rating is guaranteed by the silicone gasket placed between the two elements. Complete with circuit featuring monochrome LEDs and silver aluminium reflectors. LED assembly can be replaced directly on site.

Possibility of replacing the LEDs in groups of 12 in the laboratory. DALI electronic control gear. Midnight (100%-70%) or Bi-energy without external programming mode operation. Customised Midnight programming, fixed dimming and compatibility with flow regulators via a special programming interface. Control gear connected with quick-coupling connectors. Driver with automatic internal temperature control system. Tool-free removable control gear plate unit. The optical assembly is fixed to the wall-mounted or pole-top attachment with two clamping screws and two safety grub screws facilitate assembly. The light flow emitted in the upper hemisphere of the system in the horizontal position is null (in conformity with the strictest standards for the prevention of light pollution). All external screws are made of stainless steel.

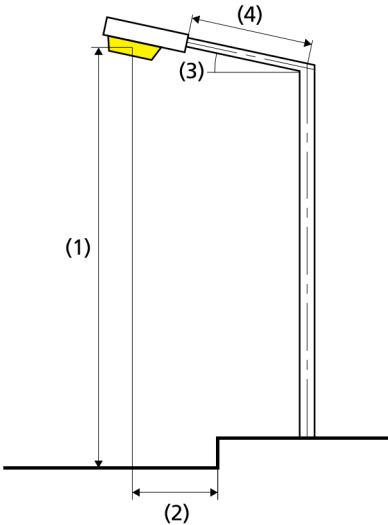
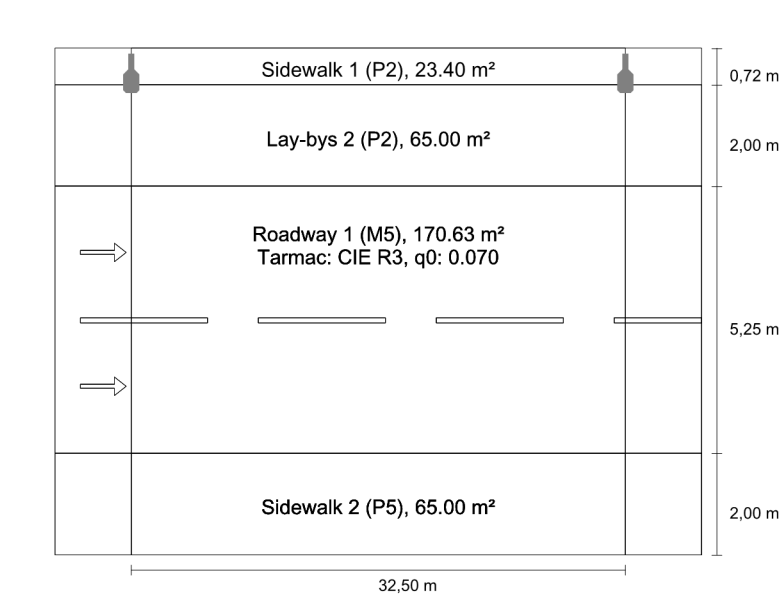
0 - Rotation of the sleeve

EC43.015 - Pole-mounted system – ST1 optic - Warm White - Dali -
 o46-60-76mm - 53W 5800lm - 3000K - Grey
 A57W - Lamp LED Warm White

Order No.: 4

Street 1 according to EN 13201:2015

iGuzzini illuminazione 0_EC43 Wow 53W



Results for valuation fields
Maintenance factor: 0.81

Sidewalk 1 (P2)

Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 11.62	✓ 3.35

Lay-bys 2 (P2)

Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 12.57	✓ 3.75

Roadway 1 (M5)

Lm [cd/m²] ≥ 0.50	Uo ≥ 0.35	UI ≥ 0.40	TI [%] ≤ 15	EIR
✓ 0.51	✓ 0.36	✓ 0.48	✓ 15	* 0.42

Sidewalk 2 (P5)

Em [lx] ≥ 3.00 ≤ 4.50	Emin [lx] ≥ 0.60
✓ 3.18	✓ 1.76

Lamp:	user-defined
Luminous flux (luminaire):	4929.90 lm
Luminous flux (lamp):	4930.00 lm
Operating Hours	
4000 h:	100.0 %, 45.0 W
W/km:	1395.0
Arrangement:	single side top
Pole distance:	32.500 m
Boom inclination (3):	0.0°
Boom length (4):	0.000 m
Light centre height (1):	6.100 m
Light overhang (2):	-2.100 m

ULR:	0.00
ULOR:	0.00
Maximum luminous intensities	
at 70°:	445 cd/klm
at 80°:	85.8 cd/klm
at 90°:	0.00 cd/klm
Luminous intensity class:	G*4
Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.	
Arrangement complies with glare index class D.6	

* Informative, not part of the valuation

Results for energy efficiency indicators

Power density indicator (Dp)	0.015 W/lxm²
Energy consumption density	
Arrangement: Wow 53W (180.0 kWh/yr)	0.6 kWh/m² yr