

RELACION TEKNIK

PROJEKTI ELEKTRIK – QSHA

1. BAZA E PROJEKTIMIT

Projektimi është realizuar mbi:

- kerkesat funksionale te ToR
 - standardet:
 - o IEC 60364 (instalime elektrike)
 - o EN 12464-1 (ndriçimi)
 - o EN 54 (zjarri & PAVA)
 - o CPR (kabllot)
-

2. FILOZOFIA E FURNIZIMIT ME ENERGJI

2.1 Koncepti i Furnizimit

Sistemi është projektuar sipas skemes:

RRJETI → MDB → (NORMAL / GENSET / UPS) → KUADROT E KATEVE → NGARKESAT

Furnizimi kryesor I objektit do te realizohet nga kabina qendrore e objektit qe ndodhet ne katin 0 te objektit. Furnizimi i kuadrit kryesor te objektit nuk është I qartësuar pasi gjate projektimit, projektuesit nuk I është krijuar mundësia qe ta vizitoje kete ambjent. Do te jete detyre e zbatuesit te punimeve qe te beje te mundur verifikimet, gjate fazes se ofertes apo realizimit te punimeve, duke vlerësuar situaten aktuale te kabines apo menyre se si do te furnizohet kuadri kryesor elektrik.

Gjithashtu ofertuesi apo zbatuesi duhet te beje verifikimet nese kabina disponon ne menyre korrekte sistemin e tokezimit

2.2 Klasifikimi i Ngarkesave

Kategoria A (kritike – pa nderprerje)

- postet e provimeve
- server/network
- CCTV & monitoring
- sistemi i zjarrit

Furnizim: **UPS + Gjenerator**

Te gjithë ngarkesat që listohen më sipër do të furnizohen nga seksioni UPS. Ky Seksion I paneleve siguron që në rast ndërprerje të furnizimit me energji elektrike nga oshee dhe kohës që I duhet gjeneratorit të hyjë në punë në mënyrë automatike, konsumatorët të vazhdojnë të pashqetësojnë aktivitetin e tyre.

Kategoria B (prioritare)

- ndriçimi baze
- prizat operative
- sistemet administrative

Furnizim: **Gjenerator**

Në këtë kategori bëjnë pjesë kategoritë e cituara më sipër ndërprerja e punës së të cilave deri në momentin e ndezjes së gjeneratorit nuk përben problem në vazhdueshmerinë e aktivitetit.

3. LLOGARITJA E NGARKESAVE

3.1 Supozime Projektimi (tipike per kete objekt)

Klasa provimesh:

- $200 \text{ poste} \times 150\text{W} = 30 \text{ kW}$

Zyra:

- $\sim 90 \text{ persona} \times 200\text{W} = 18 \text{ kW}$

Ndriçimi:

- $\sim 10 \text{ W/m}^2$ (vlere mesatare)

Kondicionimi:

- 45kW per pajisje, ne total 3 pajisje – **135kW**

Sisteme te tjera:

- $\text{CCTV} + \text{IT} + \text{rrjete} \approx 10\text{--}15 \text{ kW}$
-

3.2 Fuqia Totale e Instaluar

$\approx 200\text{--}225 \text{ kW}$

3.3 Fuqia e kerkuar (diversiteti)

Koeficient ≈ 0.7

$P \approx 140\text{--}157 \text{ kW}$

4. DIMENSIONIMI I SISTEMIT

4.1 Gjeneratori

- Fuqia e rekomanduar:
160–200 kVA

Fuqia e zgjedhur:

- mbulon ngarkesat prioritare
- rezerve per zgjerim

Gjeneratori duhet te jete I tipit CANOPY me emetim te ulet te zhurmave, 60db ne 70m. Pozicioni I tij do te jete prane kabines elektrike. Gjeneratori duhet te jete I pajisur me depozite te brendshme te naftes duke siguruar nje autonomi pre 8-12 oresh per ngarkese 75%.

4.2 UPS

Ngarkesat kritike:

- IT + poste provimi ≈ 40 kW

☞ UPS i rekomanduar:

- **40–60 kVA**
- Autonomi: 60 min

UPS dhe baterite do te vendosen ne ambjentin teknik prane kabines, po aty ku do te pozicionohet edhe kuadri kryesor I objektit. Kapaciteti I baterive per autonomi 60 minuta do te llogaritet per gjysmen e ngarkeses. Ne mungese te energjise elektrike, kalimi rrjet-ups duhet te realizohet ne menyre te menjehershme automatike.

5. KUADROT ELEKTRIKE

5.1 MDB (Main Distribution Board) Kuadri Kryesor Elektrik

Duhet te perfshije:

- hyrje nga rrjeti
 - hyrje nga gjeneratori (ATS)
 - dalje per:
 - o UPS
 - o panelet e kateve
-

5.2 ATS (Automatic Transfer Switch)

- kalim automatik:
 - o rrjet ↔ gjenerator
 - kohe transferimi < 15 sek
-

5.3 Selektiviteti

- mbrojtjet duhet te jene:
 - o selektive ne kohe dhe rryme
 - shmang nderprerje totale ne defekte lokale
-

6. DIMENSIONIMI I KABLLOVE

6.1 Parime

- renia e tensionit:
 - o $\leq 3\%$ (ndriçim)
 - o $\leq 5\%$ (fuqi)
-

6.2 Shembuj Tipike

- Linja paneli:
☞ $5 \times 16 \text{ mm}^2 - 5 \times 35 \text{ mm}^2$

- Priza:
☞ 3x2.5 mm²
 - Ndriçim:
☞ 3x1.5 mm²
-

6.3 Tipologjia

☞ Kabllo: **FG16OM16 (LSZH)**
(sipas kerkesave per ambiente publike)

7. SISTEMI I NDRIÇIMIT – PROJEKTIM I DETAJUAR

7.1 Nivelet e Ndriçimit (EN 12464-1)

- Klasa provimi: **500 lux**
 - Zyra: **300–500 lux**
 - Korridore: **100–200 lux**
-

7.2 Parametra Teknike

- UGR < 19 (klasa)
 - CRI > 80
 - uniformitet ≥ 0.6
-

7.3 Strategjia

- ndriçim uniform
 - shmangie e reflektimeve ne ekran
-

8. SISTEMI I PRIZAVE

8.1 Klasa

- 2x prize UPS / post

8.2 Zyra

- 2x UPS + 2x GEN
-

8.3 Mbrojtja

- çdo linje me:
 - o MCB + RCD 30mA

Te gjithë instalimet do te instalohen sipas detajit ne projekt. Nga kanalina me tub te drejte ne tavan, zbritje vertikale ne mur dhe perfundon ne nje kuti shperndarese dhe nga ketu, nepermjet tavolines shkon tek posti I punes. Duke qene se eshte objekt ekzistues, ne muret te cilat nuk prishen, instalimet do te realizohen te jashtem. Ndersa ne muret te cilat do te ndertohen nga fillimi, tip gips, instalimet do te realizohen me tuba fleksibel.

9. SISTEMI DATA – ARKITEKTURA

9.1 Topologjia

- Core switch (rack -1)
 - Distribution switch (kate)
-

9.2 Segmentimi

- VLAN per:
 - o provime
 - o administrate
 - o CCTV
-

9.3 Siguria

- rrjet i dedikuar per provime (kerkese ToR)

Te gjithë switch janë parashikuar te menaxhueshem. Janë menduar te tillë ne menyre qe konfigurimi i tyre te behet ne VLAN te ndryshem persa i perket klasave te provimeve, prizave data te sherbimit etj, pra cdo porte data do te jete e konfigurueshme sipas nevojës

10. CCTV – DIMENSIONIM

10.1 Dendesia

- mbulim 100% i klasave

te gjithë linjat e kamerave perfundojne ne switchet qe kane afer sipas zonave te identifikuara edhe ne projekt. Duke qene se switch janë te menaxhueshem behet me thjeshte integrimi i tyre ne nje nvr te vetme e cila do e vendoset ne katin 0.

10.2 Storage

- minimum 30 dite
-

10.3 Dimensionimi i kapacitetit te regjistrimit te sistemit CCTV

Te dhenat e projektimit

Parametri	Vlera
Numri i kamerave	52
Tipi i kameres	IP Dome
Rezolucioni	4 MP
Kompresimi video	H.265
Frame Rate	15–25 fps
Regjistrimi	I vazhdueshem (24 ore/dite)
Autonomia e kerkuar	30 dite

Metodologjia e llogaritjes

Per dimensionimin e kapacitetit te regjistrimit eshte marre si baze nje **bitrate mesatar prej 5 Mbps per kamer**, vlere e pershtatshme per kamera IP 4 MP me kompresim H.265 dhe frekuence regjistrimi 15–25 fps.

1. Bitrate total

$$B_{tot} = N \times B \quad B_{tot} = N \times B$$

ku:

- **N = 52 kamera**
- **B = 5 Mbps**

$$B_{tot} = 52 \times 5 = 260 \text{ Mbps} \quad B_{tot} = 52 \times 5 = 260 \text{ Mbps}$$

2. Te dhenat e regjistruara ne sekonde

Konvertimi nga bit ne Byte:

$$260 \div 8 = 32.5 \text{ MB/s} \quad 260 \div 8 = 32.5 \text{ MB/s}$$

3. Te dhenat e regjistruara ne dite

$$\begin{aligned} 32.5 \times 86400 &= 2\,808\,000 \text{ MB} \\ 2\,808\,000 \div 1024 &= 2\,742 \text{ GB} \\ 2\,742 \div 1024 &= 2.68 \text{ TB/dite} \end{aligned}$$

4. Kapaciteti per 30 dite

$$2.68 \times 30 = 80.4 \text{ TB} \quad 2.68 \times 30 = 80.4 \text{ TB}$$

Kapaciteti minimal teorik rezulton:

$$80.4 \text{ TB}$$

Faktori i sigurise

Per sistemet CCTV rekomandohet shtimi i nje rezerve operative prej **20–30 %**, per te kompensuar:

- ndryshimet e bitrate-it (Variable Bit Rate);
- metadata dhe indeksimin e regjistrimeve;
- fragmentimin e disqeve;
- zgjerimet e mundshme të sistemit.

Duke marrë një rezervë prej **30 %**:

$$80.4 \times 1.30 = 104.5 \text{ TB}$$

Kapaciteti i rekomanduar i instalimit është:

$$105 \text{ TB}$$

Konfigurimi i rekomanduar

Nëse NVR-ja disponon **4 vende për HDD**, konfigurimet tipike janë:

Nr. HDD Kapaciteti/HDD Kapaciteti total

4	30 TB	120 TB
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Shenim: Konfigurim $4 \times 30 \text{ TB} = 120 \text{ TB}$ ofron rezervë të mjaftueshme.

11. SISTEMI I ZJARRIT – INTEGRIM

11.1 Logjika

Në alarm:

- aktivizohet PAVA
- sinjal në panel
- aktivizohen sirenat akustike për lajmerimin e eventit

Centrali i detektimit të zjarrit do të jetë i tipit të adresueshëm. Nepermjet kësaj zgjedhjeje, në rast eventit, është lehtësisht e verifikueshme se cili sensor ka dhënë alarmin dhe pozicionin e tij.

12. PAVA – PROJEKTIM

- zonim sipas kateve

- integrim me zjarri
- linja rezistente ndaj zjarrit

Sistemi PAVA eshte projektuar I tille qe te ndahet ne tre zona te cilat do te veprojne si nje zone e vetme ne rast te nje eventit alarmi zjarri apo voice evacuation. Gjithashtu sistemi lejon edhe lajmerimet individuale te zonave. Kjo ndarje eshte lehtesisht e realizueshme nga mikrofoni I cili duhet te ofroje fleksibilitetin e zgjedhjes se zones per te komunikuar. Gjithashtu po nepermjet mikrofonit duhet te jepet mundesia qe te gjitha zonat te behen ne nje te vetme.

Nga sistemi I zjarrit duhet te merret nje kontakt nga centrali. Ky kontakt shfrytezohet nga centrali PAVA per te aktivizuar Voice Alarm duke lajmeruar ne kete menyre te gjithe personelin per eventin e ndodhur. I gjithe sistemi PAVA, instalimi dhe pajisjet duhet te perputhen me kerkesat e EN54.

13. TOKEZIMI & MBROJTJA

13.1 Sistemi TN-S

13.2 Rezistenca e tokezimit

$R < 2 \Omega$ (rekomandim per objekt kritik)

Objekti eshte nje objekt ekzistues dhe ky sistem nuk ka qene pjese e ToR. Kontraktorit te punimeve I lind detyrimi qe te beje verifikimin e sistemit te tokezimit dhe sistemit rrufeprites duke realizuar matjet e nevojshme.

14. AMBIENTE KRITIKE – KERKESA SPECIFIKE

14.1 Klasa Digjitale

- UPS i dedikuar
- rrjet i izoluar
- CCTV + kontroll aksesesh

14.2 Dhoma e Printimit

- linje e dedikuar
- mbrojtje shtese

14.3 IT Room

- kondicionim
 - UPS
 - akses i kufizuar
-

14.3 Arkiva

Per ambientin e arkives ne katin +2, i klasifikuar si ambient me rendesi te veçante sipas ToR, projekti elektrik parashikon implementimin e nje sere sistemesh sigurie dhe mbrojtjeje te integruara, me qellim garantimin maksimal te sigurise se materialeve te depozituara dhe te vete infrastruktures.

Ne kete ambient do te instalohen:

- Sistemi i detektimit dhe alarmit te zjarrit, me detektore heat & smoke, te lidhur me centralin e alarmit te zjarrit.
- Sistemi i alarmit te vjedhjes, i perbere nga sensore volumetrike per monitorimin e aksesit te paautorizuar.
- Sistemi i kontrollit te aksesit (Access Control), i cili menaxhon hyrje-daljet ne ambient permes pajisjeve te autorizimit (karta, kod, etj.).

Gjithashtu, per mbrojtjen nga zjarri eshte parashikuar instalimi i nje sistemi automatik fikjeje me aerosol, i projektuar per te nderhyre ne menyre te shpejte dhe efektive pa demtuar materialet arkivore.

Logjika e nderveprimit midis sistemeve eshte si me poshte:

- Ne momentin e aktivizimit te sistemit te fikjes automatike me aerosol, ky sistem do te gjeneroje nje sinjal daljeje (dry contact), i cili do te perdoret per nderveprime me sistemet e tjera.
- Ky sinjal duhet te komandoje çaktivizimin e sistemit te kontrollit te aksesit per kete ambient, duke e nxjerre ate jashte funksioni. Si rezultat, dera e arkives do te kaloje ne gjendje te mbyllur dhe te bllokuar, duke mos lejuar akses nga asnje person gjate kohes qe sistemi i fikjes eshte aktiv dhe ne proces operimi.
- Kjo mase eshte e nevojshme per te garantuar sigurine e personelit dhe per te shmangur nderhyrjet e paautorizuara gjate procesit te fikjes, i cili mund te perfshije perqendrim te larta te agjentit aerosol ne ambient.
- Paralelisht, sinjali dry contact nga sistemi i fikjes automatike do te transmetohet edhe drejt sistemit PAVA (Public Address and Voice Alarm), duke mundesuar gjenerimin e njoftimeve zanore emergjente sipas skenareve te paraprogramuar (p.sh. ndalim hyrjeje, evakuim, etj.).

Integrimi i ketyre sistemeve realizohet nepermjet logjikave te automatizimit dhe nderfaqeve te sinjalit (I/O), duke siguruar funksionim te koordinuar dhe reagim te menjehershem ne raste emergjente.

Ky konfigurim permbush kerkesat per ambiente me rendesi te vecante, duke garantuar nje nivel te larte sigurie, kontrolli dhe reagimi ndaj situatave kritike.

15. TESTIMI DHE KOMISIONIMI

- test izolimi (Megger)
- test RCD
- test ATS
- simulim nderprerjeje

16. REZERVA DHE ZGJERUESHMERIA

- 20–30% rezerve ne panele
- hapesire per:
 - o shtim poste provimi
 - o zgjerim IT

17. PERFUNDIM TEKNIK

Zgjidhja e projektuar:

- garanton **siguri maksimale operative**
- permbush kerkesat e ToR per ambiente sensitive
- siguron:
 - o redundance
 - o fleksibilitet
 - o shkallezueshmeri

18. Sistemet e Alarmit te vjedhjes dhe Access Control

Ky relacion teknik ka per qellim pershkrimin e zgjidhjeve teknike per implementimin e:

- sistemit te alarmit kunder vjedhjes

- sistemit te kontrollit te aksesit

ne perputhje me kerkesat funksionale te objektit dhe standardet bashkekohore te sigurise.

19. SISTEMI I ALARMIT KUNDER VJEDHJES

19.1 Pershkrimi i pergjithshem

Sistemi i alarmit do te jete i tipit **wireless (pa kabllim)**, i bazuar ne komunikim radio te sigurt ndermjet pajisjeve dhe njesise qendrore. Sistemi do te garantoje mbulim te plote te ambienteve dhe reagim ne kohe reale ndaj nderhyrjeve te paautorizuara.

19.2 Arkitektura e sistemit

Sistemi perbehet nga:

- Njesi qendrore (hub) per menaxhimin dhe kontrollin e te gjitha pajisjeve
 - Sensore volumetrike (PIR) per detektimin e levizjes
 - Sensore magnetike per dyer dhe dritare
 - Tastiere per komandim lokal te sistemit
 - Sirene per sinjalizim akustik (dhe opsionalisht optik)
 - Platforme software dhe aplikacion per monitorim dhe kontroll ne distance
-

19.3 Karakteristika teknike

- Komunikim **wireless me frekuence te dedikuar** dhe enkriptim te avancuar
 - Teknologji anti-jamming dhe mbrojtje ndaj nderhyrjeve te jashtme
 - Verifikim i vazhdueshem i statusit te pajisjeve (supervision)
 - Autonomi e larte e baterive per pajisjet periferike (minimum 3–5 vite)
 - Njoftime ne kohe reale per ngjarje alarmi, sabotimi apo defekti
 - Mundesi integrimi me rrjet IP per monitorim ne distance
 - Aktivizim/deaktivizim permes tastieres, aplikacionit ose telekomandes
-

19.4 Kerkesa instalimi

- Pajisjet instalohen pa nevojte per kabllim komunikimi
- Pozicionimi i sensoreve duhet te siguroje mbulim optimal te zonave kritike

- Njesia qendrore duhet te vendoset ne ambient te mbrojtur dhe me akses te kufizuar
 - Sistemi duhet te konfigurohet sipas zonave funksionale te objektit
-

20. SISTEMI I KONTROLLIT TE AKSESIT

20.1 Pershkrimi i pergjithshem

Sistemi i kontrollit te aksesit do te mundesoje menaxhimin dhe kontrollin e hyrje-daljeve ne ambientet e objektit, duke siguruar autorizim te diferencuar per perdoruesit.

20.2 Arkitektura e sistemit

Sistemi perbehet nga:

- Kontrollues qendror (controller) per menaxhimin e pikave te aksesit
 - Lexues kartash (RFID/smart card) per identifikim perdoruesi
 - Tastiere per autentifikim me PIN (opsionale)
 - Mekanizma bllokimi (elektromagnet ose elektroze)
 - Butona daljeje dhe sensore statusi dere
 - Software per administrimin e sistemit
-

20.3 Karakteristika teknike

- Komunikim ne rrjet permes **TCP/IP**
 - Menaxhim i databazes se perdoruesve dhe niveleve te aksesit
 - Regjistrim dhe ruajtje e historikut te hyrje-daljeve (log events)
 - Mundesi konfigurimi te orareve dhe skenareve te aksesit
 - Integrim me sisteme te tjera sigurie (alarm, CCTV)
 - Kapacitet per zgjerim modular sipas nevojave te objektit
-

20.4 Kabllimi dhe instalimi

- Te gjitha lidhjet realizohen me **kabell data (UTP/FTP Cat6 ose ekuivalent)**
- Kabllimi duhet te jete i strukturuar dhe i organizuar ne kanalinat perkatese
- Pajisjet duhet te instalohen ne menyre ergonomike dhe te mbrojtur nga demtimet mekanike
- Kontrolluesit vendosen ne panele teknike ose ambiente te dedikuara

21. INTEGRIMI I SISTEMEVE

Sistemet e alarmit dhe kontrollit te aksesit duhet te jene te integrueshme per:

- menaxhim te centralizuar
- rritje te nivelit te sigurise
- automatizim te skenareve (p.sh. aktivizim alarmi ne rast hyrje te paautorizuar)

22. STANDARDET DHE KERKESAT

Implementimi duhet te jete ne perputhje me:

- standardet IEC dhe EN per sistemet e sigurise
- praktikat me te mira te instalimit te sistemeve low-current
- kerkesat e sigurise dhe mbrojtjes se te dhenave

LLOGARITJE NDRICIMI EMERGJENT

Partner for Contact:
Order No.:
Company:
Customer No.:

Date: 10.07.2026
Operator:



Operator
Telephone
Fax
e-Mail

Table of contents

Project 1

Project Cover	1
Table of contents	2
Beghelli SpA 17920 P.MODULA 1500 REG IP65 HT/CTS	
Luminaire Data Sheet	3
Beghelli SpA 19442N LUNGALARGA DWRC AT SE/SA/PS	
Luminaire Data Sheet	4
Room 1	
Summary	5
Luminaire parts list	6
Photometric Results	7
Room Surfaces	
Floor	
Value Chart (E)	8

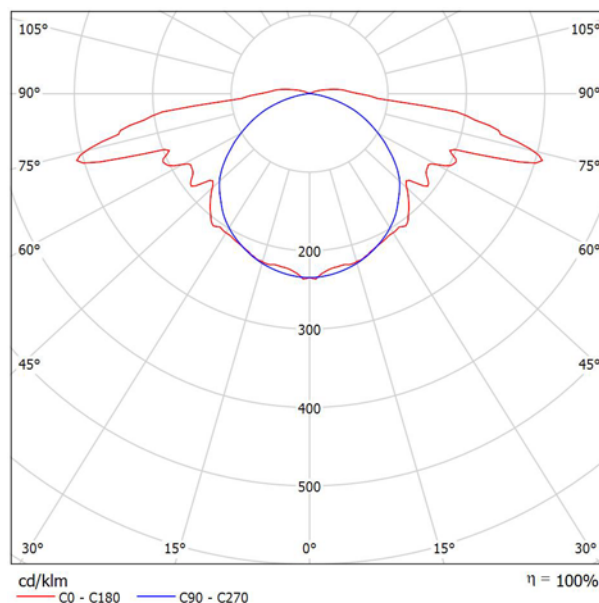


Operator
Telephone
Fax
e-Mail

Beghelli SpA 17920 P.MODULA 1500 REG IP65 HT/CTS / Luminaire Data Sheet

Luminous emittance 1:

See our luminaire catalog for an image of the luminaire.



Luminaire classification according to CIE: 96
CIE flux code: 33 59 85 96 100

Luminous emittance 1:

Glare Evaluation According to UGR												
p Ceiling		70	70	50	50	30	70	70	50	50	30	30
p Walls		50	30	50	30	30	50	30	50	30	30	30
p Floor		20	20	20	20	20	20	20	20	20	20	20
Room Size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis					
2H	2H	22.0	23.5	22.4	23.8	24.2	19.0	20.5	19.3	20.8	21.1	
	3H	26.0	27.4	26.4	27.7	28.1	20.4	21.8	20.8	22.1	22.5	
	4H	29.2	30.5	29.6	30.8	31.2	20.9	22.2	21.3	22.6	23.0	
	6H	31.2	32.5	31.7	32.9	33.3	21.2	22.4	21.6	22.8	23.2	
	8H	32.0	33.2	32.5	33.6	34.1	21.2	22.4	21.7	22.8	23.3	
	12H	32.6	33.7	33.0	34.1	34.6	21.2	22.4	21.7	22.8	23.2	
4H	2H	22.8	24.1	23.2	24.5	24.9	20.6	21.9	21.0	22.3	22.7	
	3H	27.2	28.4	27.7	28.8	29.2	22.4	23.5	22.8	23.9	24.4	
	4H	30.5	31.5	31.0	32.0	32.4	23.2	24.3	23.7	24.7	25.2	
	6H	32.7	33.6	33.2	34.1	34.6	23.7	24.6	24.2	25.1	25.6	
	8H	33.6	34.5	34.1	34.9	35.5	23.8	24.7	24.3	25.2	25.7	
	12H	34.2	35.0	34.7	35.5	36.0	23.9	24.6	24.4	25.1	25.7	
8H	4H	31.0	31.8	31.5	32.3	32.8	26.1	26.9	26.6	27.4	27.9	
	6H	33.4	34.1	33.9	34.6	35.2	26.9	27.7	27.5	28.2	28.7	
	8H	34.4	35.1	35.0	35.6	36.2	27.2	27.8	27.7	28.3	28.9	
	12H	35.1	35.7	35.7	36.3	36.9	27.3	27.8	27.8	28.4	29.0	
12H	4H	31.0	31.8	31.5	32.3	32.8	26.7	27.5	27.2	28.0	28.5	
	6H	33.4	34.1	34.0	34.6	35.2	27.8	28.4	28.3	29.0	29.5	
	8H	34.6	35.1	35.1	35.7	36.3	28.1	28.7	28.7	29.2	29.8	
Variation of the observer position for the luminaire distances S												
S = 1.0H		+0.1 / -0.1					+0.0 / -0.0					
S = 1.5H		+0.2 / -0.2					+0.2 / -0.2					
S = 2.0H		+0.4 / -0.5					+0.2 / -0.3					
Standard table		---					---					
Correction Summand		---					---					
Corrected Glare Indices referring to 1305lm Total Luminous Flux												

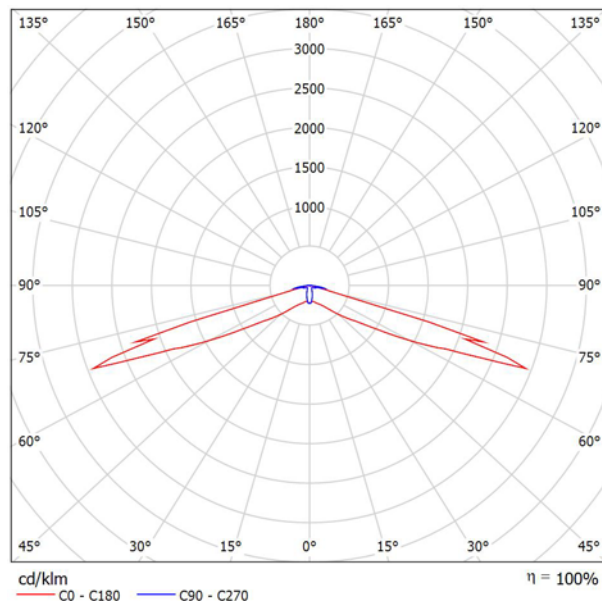


Operator
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Beghelli SpA 19442N LUNGALARGA DWRC AT SE/SA/PS / Luminaire Data Sheet

Luminous emittance 1:

See our luminaire catalog for an image of the luminaire.



Luminaire classification according to CIE: 92
CIE flux code: 25 52 93 91 100

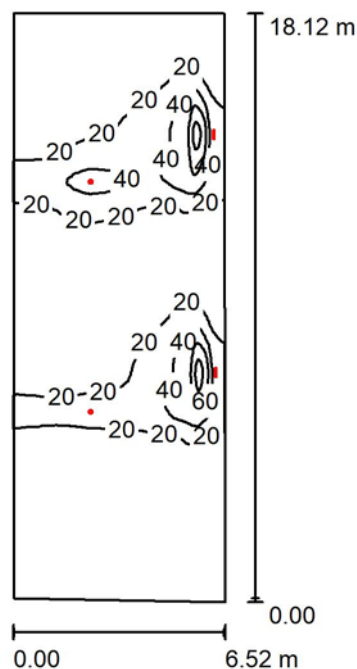
Luminous emittance 1:

Glare Evaluation According to UGR												
p Ceiling		70	70	50	50	30	70	70	50	50	30	30
p Walls		50	30	50	30	30	50	30	50	30	30	30
p Floor		20	20	20	20	20	20	20	20	20	20	20
Room Size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis					
2H	2H	29.4	30.9	29.8	31.3	31.7	14.7	16.2	15.2	16.6	17.1	
	3H	36.2	37.6	36.7	38.0	38.5	19.6	21.0	20.1	21.5	22.0	
	4H	36.8	38.1	37.3	38.6	39.1	22.8	24.1	23.2	24.5	25.0	
	6H	36.7	37.9	37.2	38.4	38.9	26.4	27.7	26.9	28.1	28.7	
	8H	36.7	37.8	37.2	38.3	38.8	27.5	28.7	28.0	29.1	29.7	
	12H	36.6	37.7	37.1	38.2	38.8	27.9	29.0	28.4	29.5	30.1	
4H	2H	29.2	30.5	29.7	30.9	31.4	18.9	20.2	19.4	20.7	21.2	
	3H	35.9	37.1	36.4	37.5	38.1	22.8	24.0	23.4	24.5	25.0	
	4H	36.5	37.5	37.1	38.0	38.6	25.0	26.0	25.6	26.5	27.1	
	6H	36.4	37.3	37.0	37.9	38.5	27.6	28.5	28.2	29.0	29.6	
	8H	36.4	37.2	37.0	37.8	38.4	28.5	29.3	29.1	29.8	30.4	
	12H	36.4	37.1	37.0	37.7	38.3	28.9	29.6	29.5	30.2	30.8	
8H	4H	36.4	37.2	37.0	37.8	38.4	25.0	25.8	25.5	26.3	26.9	
	6H	36.4	37.0	36.9	37.6	38.2	27.6	28.2	28.2	28.8	29.4	
	8H	36.3	36.9	36.9	37.5	38.1	28.5	29.0	29.1	29.6	30.3	
	12H	36.3	36.8	36.9	37.4	38.1	28.9	29.4	29.6	30.0	30.7	
12H	4H	36.4	37.1	37.0	37.7	38.3	24.9	25.7	25.5	26.2	26.9	
	6H	36.3	36.9	36.9	37.5	38.1	27.6	28.1	28.2	28.7	29.4	
	8H	36.3	36.8	36.9	37.4	38.1	28.5	28.9	29.1	29.5	30.2	
Variation of the observer position for the luminaire distances S												
S = 1.0H		+2.1 / -3.5					+0.0 / -0.0					
S = 1.5H		+4.6 / -10.5					+0.1 / -0.2					
S = 2.0H		+6.5 / -15.5					+0.7 / -1.0					
Standard table		---					---					
Correction Summand		---					---					
Corrected Glare Indices referring to 435lm Total Luminous Flux												



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Room 1 / Summary



Height of Room: 2.800 m, Mounting Height: 2.800 m, Light loss factor: 0.80

Values in Lux, Scale 1:233

Surface	ρ [%]	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u_0
Workplane	/	16	1.77	90	0.110
Floor	20	14	2.48	48	0.176
Ceiling	70	12	1.31	41202	0.108
Walls (4)	50	9.84	1.90	150	/

Workplane:

Height: 0.850 m
Grid: 128 x 128 Points
Boundary Zone: 0.000 m

Illuminance Quotient (according to LG7): Walls / Working Plane: 0.631, Ceiling / Working Plane: 0.608.

Luminaire Parts List

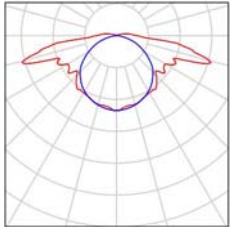
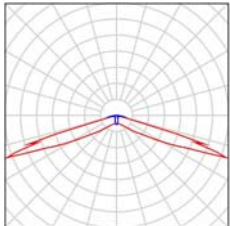
No.	Pieces	Designation (Correction Factor)	Φ (Luminaire) [lm]	Φ (Lamps) [lm]	P [W]
1	2	Beghelli SpA 17920 P.MODULA 1500 REG IP65 HT/CTS (1.000)	1305	1305	11.4
2	2	Beghelli SpA 19442N LUNGALARGA DWRC AT SE/SA/PS (1.000)	435	435	5.0
Total:			3480	3480	32.8

Specific connected load: $0.28 \text{ W/m}^2 = 1.74 \text{ W/m}^2/100 \text{ lx}$ (Ground area: 117.34 m^2)



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Room 1 / Luminaire parts list

2 Pieces	Beghelli SpA 17920 P.MODULA 1500 REG IP65 HT/CTS Article No.: 17920 Luminous flux (Luminaire): 1305 lm Luminous flux (Lamps): 1305 lm Luminaire Wattage: 11.4 W Luminaire classification according to CIE: 96 CIE flux code: 33 59 85 96 100 Fitting: 1 x 17920e_LG24_10W (Correction Factor 1.000).	See our luminaire catalog for an image of the luminaire.	
2 Pieces	Beghelli SpA 19442N LUNGALARGA DWRC AT SE/SA/PS Article No.: 19442N Luminous flux (Luminaire): 435 lm Luminous flux (Lamps): 435 lm Luminaire Wattage: 5.0 W Luminaire classification according to CIE: 92 CIE flux code: 25 52 93 91 100 Fitting: 1 x 19442Ne1h_LONG (Correction Factor 1.000).	See our luminaire catalog for an image of the luminaire.	



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Room 1 / Photometric Results

Total Luminous Flux: 3480 lm
Total Load: 32.8 W
Light loss factor: 0.80
Boundary Zone: 0.000 m

Surface	Average illuminances [lx]			Reflection factor [%]	Average luminance [cd/m²]
	direct	indirect	total		
Workplane	9.87	6.18	16	/	/
Floor	8.04	6.06	14	20	0.90
Ceiling	8.33	3.79	12	70	2.70
Wall 1	1.85	2.25	4.10	50	0.65
Wall 2	3.17	5.86	9.03	50	1.44
Wall 3	4.25	4.27	8.52	50	1.36
Wall 4	9.25	3.96	13	50	2.10

Uniformity on the working plane

u0: 0.110 (1:9)

$E_{\min} / E_{\max}$: 0.020 (1:51)

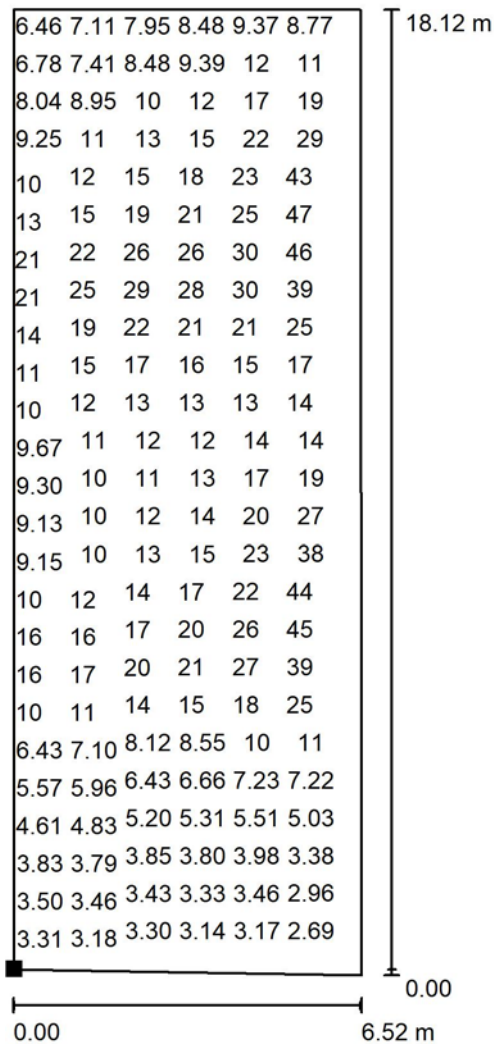
Illuminance Quotient (according to LG7): Walls / Working Plane: 0.631, Ceiling / Working Plane: 0.608.

Specific connected load: $0.28 \text{ W/m}^2 = 1.74 \text{ W/m}^2/100 \text{ lx}$ (Ground area: 117.34 m^2)



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Room 1 / Floor / Value Chart (E)



Values in Lux, Scale 1 : 142

Not all calculated values could be displayed.

Position of surface in room:
Marked point:
(20.553 m, 43.692 m, 0.000 m)



Grid: 128 x 128 Points

E_{av} [lx]
14

E_{min} [lx]
2.48

E_{max} [lx]
48

u_0
0.176

E_{min} / E_{max}
0.052

LLOGARITJE NDRICIMI I HOLLIT

Partner for Contact:
Order No.:
Company:
Customer No.:

Date: 10.07.2026
Operator:



Operator
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Fax
e-Mail

Table of contents

Project 1

Project Cover	1
Table of contents	2
LEDVANCE GmbH 4058075769076 DL SURFACE DN 160 P 30W 840 36D IP65 WT	
Luminaire Data Sheet	3
LEDVANCE GmbH 4058075541122 DP 1200 32W 865 IP65 GY	
Luminaire Data Sheet	4
Room 1	
Summary	5
Luminaire parts list	6
Photometric Results	7
Room Surfaces	
Workplane	
Value Chart (E)	8

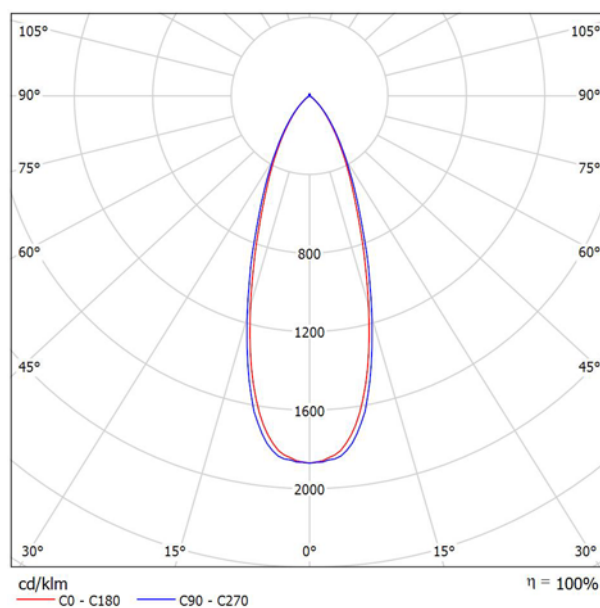


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Telephone
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LEDVANCE GmbH 4058075769076 DL SURFACE DN 160 P 30W 840 36D IP65 WT / Luminaire Data Sheet

Luminous emittance 1:

See our luminaire catalog for an image of the luminaire.



Luminaire classification according to CIE: 99
CIE flux code: 92 99 100 99 100

Luminous emittance 1:

Glare Evaluation According to UGR												
p Ceiling		70	70	50	50	30	70	70	50	50	30	30
p Walls		50	30	50	30	30	50	30	50	30	30	30
p Floor		20	20	20	20	20	20	20	20	20	20	20
Room Size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis					
2H	2H	17.9	18.6	18.1	18.8	19.0	18.6	19.3	18.9	19.6	19.8	19.8
	3H	17.8	18.4	18.1	18.7	18.9	18.5	19.1	18.8	19.4	19.7	19.7
	4H	17.7	18.3	18.0	18.6	18.9	18.4	19.0	18.8	19.3	19.6	19.6
	6H	17.6	18.2	18.0	18.5	18.8	18.4	18.9	18.7	19.2	19.5	19.5
	8H	17.6	18.1	17.9	18.4	18.8	18.3	18.9	18.7	19.2	19.5	19.5
4H	12H	17.6	18.1	17.9	18.4	18.7	18.3	18.8	18.7	19.1	19.5	19.5
	2H	17.7	18.3	18.0	18.6	18.9	18.4	19.0	18.8	19.3	19.6	19.6
	3H	17.6	18.1	18.0	18.4	18.8	18.3	18.8	18.7	19.1	19.5	19.5
	4H	17.5	18.0	17.9	18.3	18.7	18.3	18.7	18.7	19.0	19.4	19.4
	6H	17.5	17.8	17.9	18.2	18.6	18.2	18.6	18.6	18.9	19.3	19.3
8H	12H	17.4	17.8	17.9	18.2	18.6	18.2	18.5	18.6	18.9	19.3	19.3
	2H	17.4	17.7	17.9	18.1	18.6	18.1	18.4	18.6	18.8	19.3	19.3
	4H	17.4	17.7	17.9	18.2	18.6	18.2	18.5	18.6	18.9	19.3	19.3
	6H	17.4	17.6	17.8	18.0	18.5	18.1	18.3	18.5	18.8	19.2	19.2
	8H	17.3	17.5	17.8	18.0	18.5	18.0	18.3	18.5	18.7	19.2	19.2
12H	12H	17.3	17.5	17.8	17.9	18.5	18.0	18.2	18.5	18.7	19.2	19.2
	4H	17.4	17.7	17.8	18.1	18.5	18.1	18.4	18.6	18.8	19.3	19.3
	6H	17.3	17.5	17.8	18.0	18.5	18.0	18.2	18.5	18.7	19.2	19.2
8H	8H	17.3	17.4	17.8	17.9	18.4	18.0	18.2	18.5	18.7	19.2	19.2
	12H	17.3	17.4	17.8	17.9	18.4	18.0	18.2	18.5	18.7	19.2	19.2
Variation of the observer position for the luminaire distances S												
S = 1.0H		+3.3 / -6.1					+3.3 / -5.7					
S = 1.5H		+5.8 / -10.9					+5.9 / -10.8					
S = 2.0H		+7.8 / -12.1					+7.9 / -12.1					
Standard table		BK00					BK00					
Correction Summand		-0.7					0.0					
Corrected Glare Indices referring to 3300lm Total Luminous Flux												

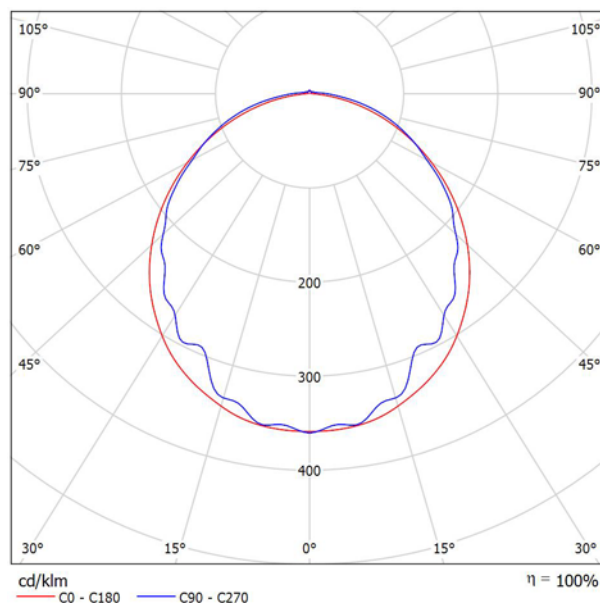


Operator
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LEDVANCE GmbH 4058075541122 DP 1200 32W 865 IP65 GY / Luminaire Data Sheet

Luminous emittance 1:

See our luminaire catalog for an image of the luminaire.



Luminaire classification according to CIE: 97
CIE flux code: 47 78 94 97 100

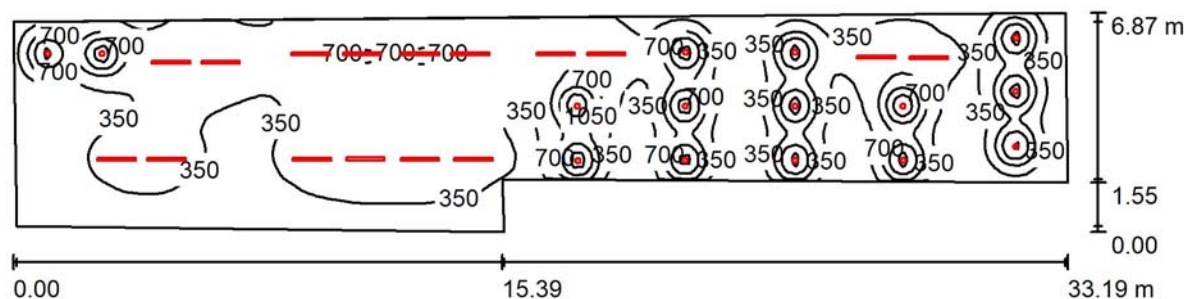
Luminous emittance 1:

Glare Evaluation According to UGR												
p Ceiling		70	70	50	50	30	70	70	50	50	30	30
p Walls		50	30	50	30	20	50	30	50	30	20	20
p Floor		20	20	20	20	20	20	20	20	20	20	20
Room Size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis					
2H	2H	21.4	22.7	21.8	23.0	23.3	21.6	22.9	21.9	23.2	23.5	
	3H	22.9	24.1	23.3	24.4	24.7	23.3	24.5	23.7	24.8	25.1	
	4H	23.5	24.6	23.9	24.9	25.3	24.1	25.2	24.5	25.6	25.9	
	6H	23.9	25.0	24.3	25.3	25.7	24.9	25.9	25.3	26.2	26.6	
	8H	24.1	25.1	24.5	25.4	25.8	25.2	26.2	25.6	26.5	26.9	
	12H	24.2	25.1	24.6	25.5	25.9	25.4	26.4	25.9	26.8	27.2	
4H	2H	22.0	23.1	22.4	23.5	23.8	22.2	23.3	22.6	23.6	24.0	
	3H	23.7	24.6	24.1	25.0	25.4	24.1	25.1	24.6	25.4	25.8	
	4H	24.4	25.2	24.8	25.6	26.0	25.1	25.9	25.5	26.3	26.8	
	6H	25.0	25.7	25.4	26.1	26.6	26.0	26.7	26.5	27.2	27.6	
	8H	25.2	25.8	25.6	26.3	26.8	26.4	27.1	26.9	27.5	28.0	
	12H	25.3	25.9	25.8	26.4	26.9	26.8	27.4	27.3	27.8	28.3	
8H	4H	24.7	25.4	25.2	25.9	26.3	25.4	26.1	25.9	26.5	27.0	
	6H	25.5	26.0	26.0	26.5	27.0	26.5	27.0	27.0	27.5	28.0	
	8H	25.8	26.3	26.3	26.8	27.3	27.0	27.5	27.5	28.0	28.5	
	12H	26.0	26.5	26.6	27.0	27.5	27.6	28.0	28.1	28.5	29.1	
12H	4H	24.8	25.4	25.3	25.9	26.4	25.4	26.0	25.9	26.5	27.0	
	6H	25.6	26.1	26.1	26.6	27.1	26.6	27.1	27.1	27.6	28.1	
	8H	26.0	26.4	26.5	26.9	27.5	27.2	27.6	27.7	28.1	28.7	
Variation of the observer position for the luminaire distances S												
S = 1.0H		+0.1 / -0.1					+0.1 / -0.1					
S = 1.5H		+0.2 / -0.3					+0.2 / -0.3					
S = 2.0H		+0.5 / -0.6					+0.3 / -0.5					
Standard table		BK06					BK08					
Correction Summand		8.7					10.6					
Corrected Glare Indices referring to 4400lm Total Luminous Flux												



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Room 1 / Summary



Height of Room: 2.800 m, Mounting Height: 2.800 m, Light loss factor: 0.80

Values in Lux, Scale 1:238

Surface	ρ [%]	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u_0
Workplane	/	481	69	1704	0.144
Floor	20	445	101	1016	0.227
Ceiling	70	98	45	2519	0.465
Walls (6)	50	187	67	489	/

Workplane:

Height: 0.850 m
Grid: 128 x 128 Points
Boundary Zone: 0.000 m

Illuminance Quotient (according to LG7): Walls / Working Plane: 0.379, Ceiling / Working Plane: 0.205.

Luminaire Parts List

No.	Pieces	Designation (Correction Factor)	Φ (Luminaire) [lm]	Φ (Lamps) [lm]	P [W]
1	16	LEDVANCE GmbH 4058075541122 DP 1200 32W 865 IP65 GY (1.000)	4400	4400	32.0
2	15	LEDVANCE GmbH 4058075769076 DL SURFACE DN 160 P 30W 840 36D IP65 WT (1.000)	3300	3300	30.0
Total:			119892	119900	962.0

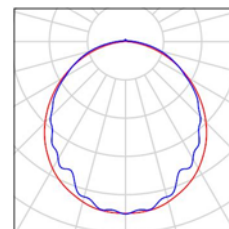
Specific connected load: $4.99 \text{ W/m}^2 = 1.04 \text{ W/m}^2/100 \text{ lx}$ (Ground area: 192.97 m^2)



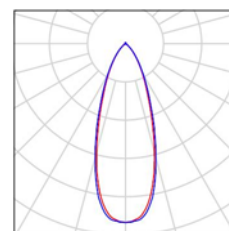
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Room 1 / Luminaire parts list

16 Pieces LEDVANCE GmbH 4058075541122 DP 1200 32W See our luminaire catalog
865 IP65 GY for an image of the
Article No.: 4058075541122 luminaire.
Luminous flux (Luminaire): 4400 lm
Luminous flux (Lamps): 4400 lm
Luminaire Wattage: 32.0 W
Luminaire classification according to CIE: 97
CIE flux code: 47 78 94 97 100
Fitting: 1 x LED 6500K / CRI $\geq$ 80 (Correction
Factor 1.000).



15 Pieces LEDVANCE GmbH 4058075769076 DL SURFACE See our luminaire catalog
DN 160 P 30W 840 36D IP65 WT for an image of the
Article No.: 4058075769076 luminaire.
Luminous flux (Luminaire): 3300 lm
Luminous flux (Lamps): 3300 lm
Luminaire Wattage: 30.0 W
Luminaire classification according to CIE: 99
CIE flux code: 92 99 100 99 100
Fitting: 1 x LED / CRI $\geq$ 80 (Correction Factor
1.000).





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Room 1 / Photometric Results

Total Luminous Flux: 119892 lm
Total Load: 962.0 W
Light loss factor: 0.80
Boundary Zone: 0.000 m

Surface	Average illuminances [lx]			Reflection factor [%]	Average luminance [cd/m²]
	direct	indirect	total		
Workplane	406	75	481	/	/
Floor	365	81	445	20	28
Ceiling	9.56	88	98	70	22
Wall 1	92	80	172	50	27
Wall 2	88	86	173	50	28
Wall 3	37	77	113	50	18
Wall 4	140	87	227	50	36
Wall 5	51	65	116	50	18
Wall 6	98	76	174	50	28

Uniformity on the working plane

u0: 0.144 (1:7)

E_{min} / E_{max}: 0.041 (1:25)

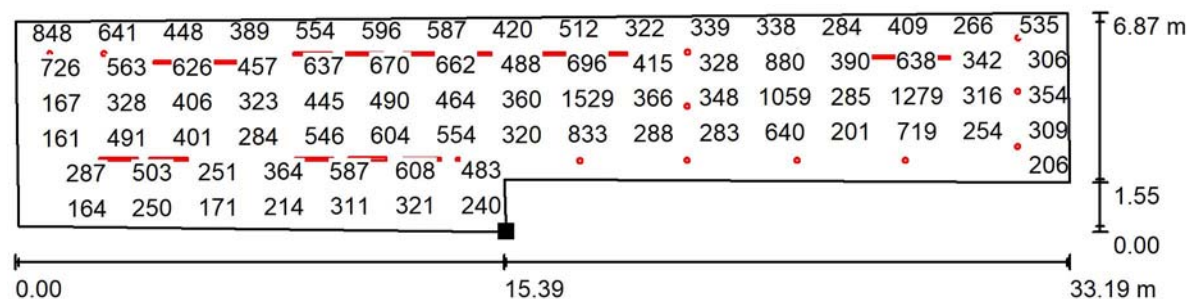
Illuminance Quotient (according to LG7): Walls / Working Plane: 0.379, Ceiling / Working Plane: 0.205.

Specific connected load: 4.99 W/m² = 1.04 W/m²/100 lx (Ground area: 192.97 m²)



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Room 1 / Workplane / Value Chart (E)



Values in Lux, Scale 1 : 238

Not all calculated values could be displayed.

Position of surface in room:

Marked point:

(-23.856 m, 291.337 m, 0.850 m)



Grid: 128 x 128 Points

E_{av} [lx]
481

E_{min} [lx]
69

E_{max} [lx]
1704

u_0
0.144

E_{min} / E_{max}
0.041

Project 1

Partner for Contact:
Order No.:
Company:
Customer No.:

Date: 04.08.2026
Operator:



Operator
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e-Mail

Table of contents

Project 1

Project Cover	1
Table of contents	2
Beghelli SpA 41245 ACCIAIO SDB M1200 23W 4K	
Luminaire Data Sheet	3
Room 1	
Summary	4
Luminaire parts list	5
Photometric Results	6
Room Surfaces	
Workplane	
Value Chart (E)	7

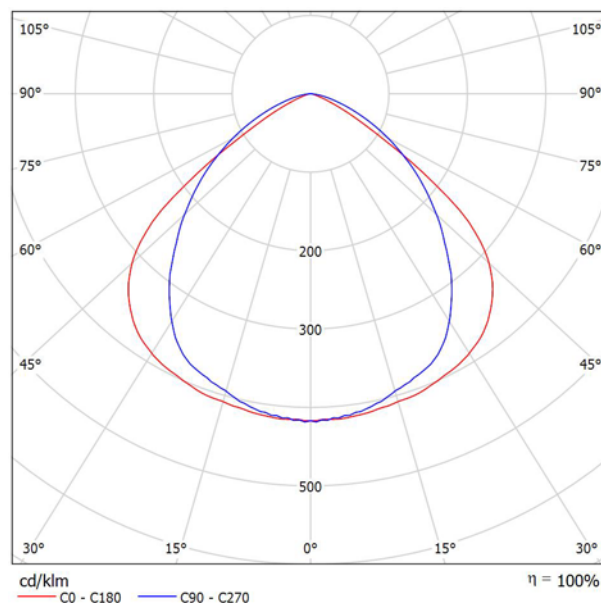


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Beghelli SpA 41245 ACCIAIO SDB M1200 23W 4K / Luminaire Data Sheet

Luminous emittance 1:

See our luminaire catalog for an image of the luminaire.



Luminaire classification according to CIE: 100
CIE flux code: 57 90 99 100 100

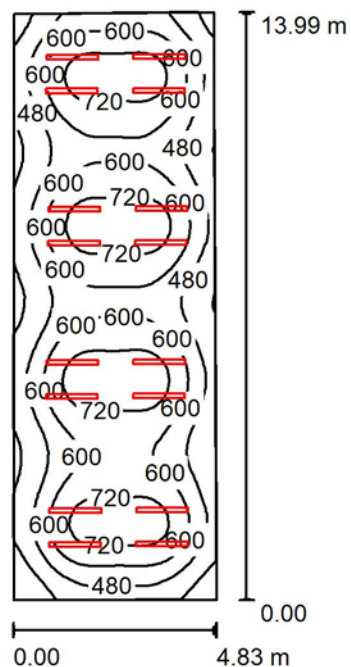
Luminous emittance 1:

Glare Evaluation According to UGR												
p Ceiling		70	70	50	50	30	70	70	50	50	30	30
p Walls		50	30	50	30	30	50	30	50	30	30	20
p Floor		20	20	20	20	20	20	20	20	20	20	20
Room Size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis					
2H	2H	20.3	21.5	20.6	21.7	21.9	19.9	21.0	20.2	21.3	21.5	
	3H	20.3	21.4	20.6	21.6	21.9	20.6	21.6	20.9	21.9	22.2	
	4H	20.3	21.2	20.6	21.5	21.8	20.8	21.8	21.1	22.0	22.3	
	6H	20.2	21.1	20.5	21.4	21.7	20.9	21.8	21.2	22.1	22.4	
	8H	20.2	21.0	20.5	21.3	21.6	20.9	21.7	21.2	22.0	22.4	
	12H	20.1	20.9	20.5	21.3	21.6	20.9	21.7	21.2	22.0	22.3	
4H	2H	20.7	21.6	21.0	21.9	22.2	20.4	21.3	20.7	21.6	21.9	
	3H	20.7	21.5	21.1	21.8	22.2	21.2	22.0	21.6	22.3	22.7	
	4H	20.7	21.4	21.1	21.7	22.1	21.5	22.2	21.9	22.5	22.9	
	6H	20.6	21.2	21.0	21.6	22.0	21.6	22.2	22.0	22.6	23.0	
	8H	20.6	21.1	21.0	21.5	21.9	21.6	22.2	22.1	22.6	23.0	
	12H	20.6	21.1	21.0	21.5	21.9	21.6	22.1	22.1	22.6	23.0	
8H	4H	20.7	21.3	21.1	21.6	22.1	21.4	22.0	21.9	22.4	22.8	
	6H	20.6	21.1	21.1	21.5	22.0	21.6	22.1	22.1	22.5	23.0	
	8H	20.6	21.0	21.1	21.4	21.9	21.7	22.1	22.1	22.5	23.0	
	12H	20.6	20.9	21.1	21.4	21.9	21.7	22.0	22.2	22.5	23.0	
12H	4H	20.7	21.2	21.1	21.6	22.0	21.4	21.9	21.8	22.3	22.8	
	6H	20.6	21.0	21.1	21.5	21.9	21.6	22.0	22.1	22.4	22.9	
	8H	20.6	20.9	21.1	21.4	21.9	21.6	22.0	22.1	22.5	23.0	
Variation of the observer position for the luminaire distances S												
S = 1.0H		+0.9 / -0.8					+0.2 / -0.3					
S = 1.5H		+2.0 / -4.0					+0.7 / -1.2					
S = 2.0H		+3.4 / -6.7					+1.2 / -2.2					
Standard table		BK01					BK03					
Correction Summand		2.7					4.1					
Corrected Glare Indices referring to 3310lm Total Luminous Flux												



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Room 1 / Summary



Height of Room: 2.800 m, Mounting Height: 2.800 m, Light loss factor: 0.80

Values in Lux, Scale 1:180

Surface	ρ [%]	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u_0
Workplane	/	579	246	798	0.425
Floor	20	508	269	649	0.530
Ceiling	70	102	78	118	0.760
Walls (4)	50	240	76	413	/

Workplane:

Height: 0.850 m
Grid: 32 x 64 Points
Boundary Zone: 0.000 m

Illuminance Quotient (according to LG7): Walls / Working Plane: 0.391, Ceiling / Working Plane: 0.176.

Luminaire Parts List

No.	Pieces	Designation (Correction Factor)	Φ (Luminaire) [lm]	Φ (Lamps) [lm]	P [W]
1	16	Beghelli SpA 41245 ACCIAIO SDB M1200 23W 4K (1.000)	3310	3310	23.0
Total:			52957	52960	368.0

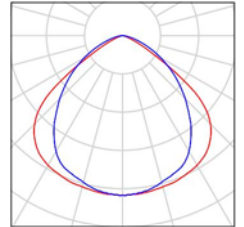
Specific connected load: $5.51 \text{ W/m}^2 = 0.95 \text{ W/m}^2/100 \text{ lx}$ (Ground area: 66.78 m^2)



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Room 1 / Luminaire parts list

16 Pieces Beghelli SpA 41245 ACCIAIO SDB M1200 23W 4K See our luminaire catalog
Article No.: 41245 for an image of the luminaire.
Luminous flux (Luminaire): 3310 lm
Luminous flux (Lamps): 3310 lm
Luminaire Wattage: 23.0 W
Luminaire classification according to CIE: 100
CIE flux code: 57 90 99 100 100
Fitting: 1 x 41245o (Correction Factor 1.000).





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Room 1 / Photometric Results

Total Luminous Flux: 52957 lm
Total Load: 368.0 W
Light loss factor: 0.80
Boundary Zone: 0.000 m

Surface	Average illuminances [lx]			Reflection factor [%]	Average luminance [cd/m²]
	direct	indirect	total		
Workplane	489	90	579	/	/
Floor	409	99	508	20	32
Ceiling	0.00	102	102	70	23
Wall 1	127	95	221	50	35
Wall 2	149	97	246	50	39
Wall 3	159	102	261	50	42
Wall 4	137	96	233	50	37

Uniformity on the working plane

u0: 0.425 (1:2)

$E_{\min} / E_{\max}$: 0.308 (1:3)

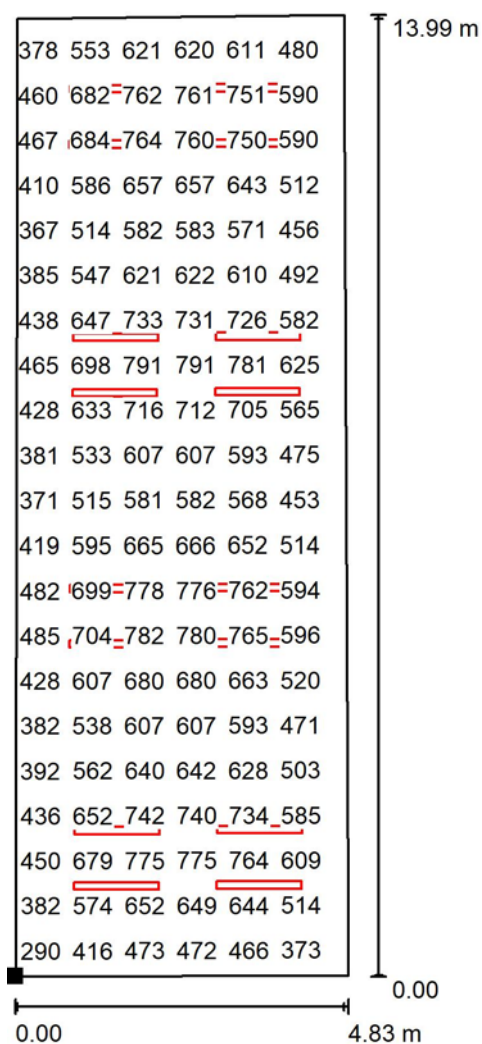
Illuminance Quotient (according to LG7): Walls / Working Plane: 0.391, Ceiling / Working Plane: 0.176.

Specific connected load: $5.51 \text{ W/m}^2 = 0.95 \text{ W/m}^2/100 \text{ lx}$ (Ground area: 66.78 m^2)



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Room 1 / Workplane / Value Chart (E)



Values in Lux, Scale 1 : 110

Not all calculated values could be displayed.

Position of surface in room:

Marked point:

(-39.299 m, 304.272 m, 0.850 m)



Grid: 32 x 64 Points

E_{av} [lx]
579

E_{min} [lx]
246

E_{max} [lx]
798

u_0
0.425

E_{min} / E_{max}
0.308

LLOGARITJE NDRICIMI SALLA PRINTIMEVE

Partner for Contact:
Order No.:
Company:
Customer No.:

Date: 10.07.2026
Operator:



Operator
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Table of contents

Project 1

Project Cover	1
Table of contents	2
Beghelli SpA 40101 L PAN 418 M600 U19 C90 ED 4K	
Luminaire Data Sheet	3
Room 1	
Summary	4
Luminaire parts list	5
Photometric Results	6
Room Surfaces	
Workplane	
Value Chart (E)	7

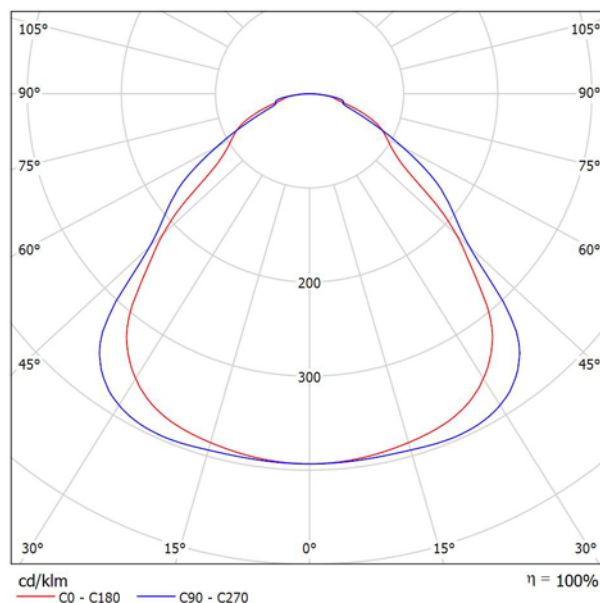


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Beghelli SpA 40101 L PAN 418 M600 U19 C90 ED 4K / Luminaire Data Sheet

Luminous emittance 1:

See our luminaire catalog for an image of the luminaire.



Luminaire classification according to CIE: 100
CIE flux code: 57 86 97 100 100

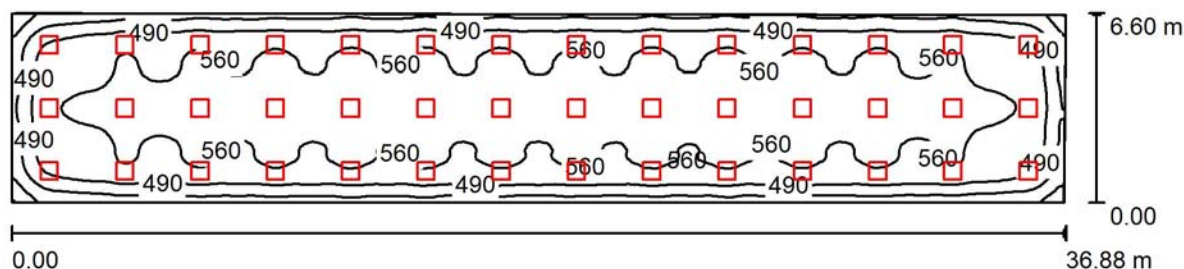
Luminous emittance 1:

Glare Evaluation According to UGR												
p Ceiling		70	70	50	50	30	70	70	50	50	30	30
p Walls		50	30	50	30	30	50	30	50	30	30	30
p Floor		20	20	20	20	20	20	20	20	20	20	20
Room Size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis					
2H	2H	16.2	17.4	16.5	17.6	17.8	16.3	17.5	16.6	17.7	17.9	
	3H	17.2	18.3	17.5	18.6	18.8	17.3	18.3	17.6	18.6	18.9	
	4H	17.7	18.7	18.0	18.9	19.2	17.7	18.7	18.0	19.0	19.2	
	6H	18.0	19.0	18.4	19.3	19.6	18.2	19.1	18.5	19.4	19.7	
	8H	18.2	19.1	18.6	19.4	19.7	18.4	19.3	18.7	19.6	19.9	
	12H	18.3	19.2	18.7	19.5	19.8	18.5	19.4	18.9	19.7	20.0	
4H	2H	16.6	17.6	16.9	17.9	18.1	16.8	17.8	17.1	18.0	18.3	
	3H	17.7	18.6	18.1	18.9	19.2	18.0	18.8	18.3	19.1	19.5	
	4H	18.3	19.1	18.7	19.4	19.8	18.5	19.2	18.9	19.6	19.9	
	6H	18.9	19.5	19.3	19.9	20.3	19.1	19.8	19.5	20.1	20.5	
	8H	19.1	19.7	19.6	20.1	20.5	19.4	20.0	19.8	20.4	20.8	
	12H	19.3	19.8	19.8	20.3	20.7	19.6	20.1	20.0	20.6	21.0	
8H	4H	18.6	19.2	19.0	19.6	20.0	18.7	19.3	19.1	19.7	20.1	
	6H	19.4	19.9	19.8	20.3	20.7	19.5	19.9	19.9	20.4	20.8	
	8H	19.7	20.1	20.2	20.6	21.1	19.8	20.3	20.3	20.7	21.2	
	12H	20.0	20.3	20.5	20.8	21.3	20.1	20.5	20.6	21.0	21.5	
12H	4H	18.6	19.2	19.1	19.6	20.0	18.7	19.3	19.2	19.7	20.1	
	6H	19.4	19.9	19.9	20.3	20.8	19.5	20.0	20.0	20.4	20.9	
	8H	19.8	20.2	20.3	20.7	21.2	20.0	20.3	20.5	20.8	21.3	
Variation of the observer position for the luminaire distances S												
S = 1.0H		+0.3 / -0.4					+0.3 / -0.3					
S = 1.5H		+0.6 / -0.8					+0.6 / -0.7					
S = 2.0H		+0.8 / -1.1					+1.1 / -1.3					
Standard table		BK05					BK05					
Correction Summand		2.2					2.3					
Corrected Glare Indices referring to 4000lm Total Luminous Flux												



Operator
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Room 1 / Summary



Height of Room: 2.800 m, Mounting Height: 2.800 m, Light loss factor: 0.80

Values in Lux, Scale 1:264

Surface	ρ [%]	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u_0
Workplane	/	532	277	613	0.521
Floor	20	487	264	567	0.541
Ceiling	70	100	68	123	0.679
Walls (4)	50	250	111	373	/

Workplane:

Height: 0.850 m
Grid: 128 x 128 Points
Boundary Zone: 0.000 m

Illuminance Quotient (according to LG7): Walls / Working Plane: 0.465, Ceiling / Working Plane: 0.187.

Luminaire Parts List

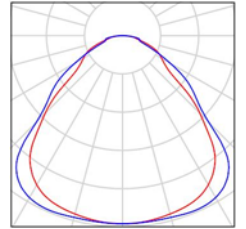
No.	Pieces	Designation (Correction Factor)	Φ (Luminaire) [lm]	Φ (Lamps) [lm]	P [W]
1	42	Beghelli SpA 40101 L PAN 418 M600 U19 C90 ED 4K (1.000)	4000	4000	36.0
Total:			167991	168000	1512.0

Specific connected load: $6.25 \text{ W/m}^2 = 1.18 \text{ W/m}^2/100 \text{ lx}$ (Ground area: 242.00 m^2)

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e-Mail

Room 1 / Luminaire parts list

42 Pieces Beghelli SpA 40101 L PAN 418 M600 U19 C90 ED See our luminaire catalog
4K for an image of the
Article No.: 40101 luminaire.
Luminous flux (Luminaire): 4000 lm
Luminous flux (Lamps): 4000 lm
Luminaire Wattage: 36.0 W
Luminaire classification according to CIE: 100
CIE flux code: 57 86 97 100 100
Fitting: 1 x 40101o (Correction Factor 1.000).





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Room 1 / Photometric Results

Total Luminous Flux: 167991 lm
Total Load: 1512.0 W
Light loss factor: 0.80
Boundary Zone: 0.000 m

Surface	Average illuminances [lx]			Reflection factor [%]	Average luminance [cd/m²]
	direct	indirect	total		
Workplane	446	86	532	/	/
Floor	396	91	487	20	31
Ceiling	0.01	100	100	70	22
Wall 1	159	91	250	50	40
Wall 2	146	95	241	50	38
Wall 3	162	93	255	50	41
Wall 4	142	89	231	50	37

Uniformity on the working plane

u0: 0.521 (1:2)

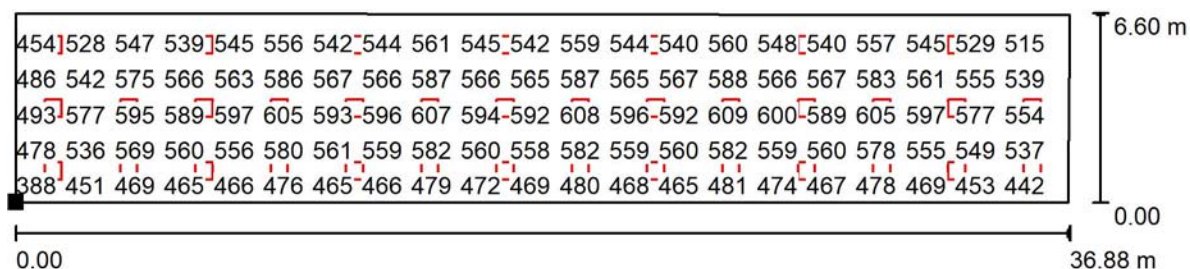
$E_{\min} / E_{\max}$: 0.452 (1:2)

Illuminance Quotient (according to LG7): Walls / Working Plane: 0.465, Ceiling / Working Plane: 0.187.

Specific connected load: $6.25 \text{ W/m}^2 = 1.18 \text{ W/m}^2/100 \text{ lx}$ (Ground area: 242.00 m^2)



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Room 1 / Workplane / Value Chart (E)

Values in Lux, Scale 1 : 264

Not all calculated values could be displayed.

Position of surface in room:

Marked point:

(-30.653 m, 327.278 m, 0.850 m)



Grid: 128 x 128 Points

 E_{av} [lx]
532 E_{min} [lx]
277 E_{max} [lx]
613 u_0
0.521 E_{min} / E_{max}
0.452