



وزارة الدفاع

جهاز مشروعات الخدمة الوطنية

الشركة العربية العالمية للبصريات

ARAB INTERNATIONAL OPTRONICS (AIO)

مصنع إنتاج لمبات الليد



مصنع إنتاج لمبات الليد



ARAB INTERNATIONAL OPTRONICS (AIO)

**LED LAMP
MANUFACTURING FACTORY**



مصنع إنتاج لمبات الليد



الأسس التي تم عليها تحديد مطالب خط تجميع الليد بالشركة

DESIGN PRINCIPALES

LED ASSEMBLY FACTORY



مصنع إنتاج لمبات الليد



IN DOOR APPLICATION LED LAMP ASSEMBLY LINE

1. AIO technically reviewed, negotiated many offers and selected carefully the complete led lamp assembly line and testing equipment for led lamp bulb, candle and tubes to be adhere and comply with the technical requirements proposal published by Egyptian General Authority for Standards and Quality
2. Assembly line conform the requirements for the indoor led lamp applications and comply with the quality standard, { IEC 62612, IEC 62560 AND IEC 62776 and ES Standard (.....) }



مصنع إنتاج لمبات الليد



IN DOOR APPLICATION LED LAMP ASSEMBLY LINE

3. AIO prepares an ESD clean room area for the led lamp Manufacturing Factory with area 750 m² (30 mx25 m)
4. Assembly line Manufacturing Throughput capacity calculated approx 1,000,000 all types led lamps per month for one shift 10 hrs. per shift



مصنع إنتاج لمبات الـ LED



IN DOOR APPLICATION LED LAMP ASSEMBLY LINE

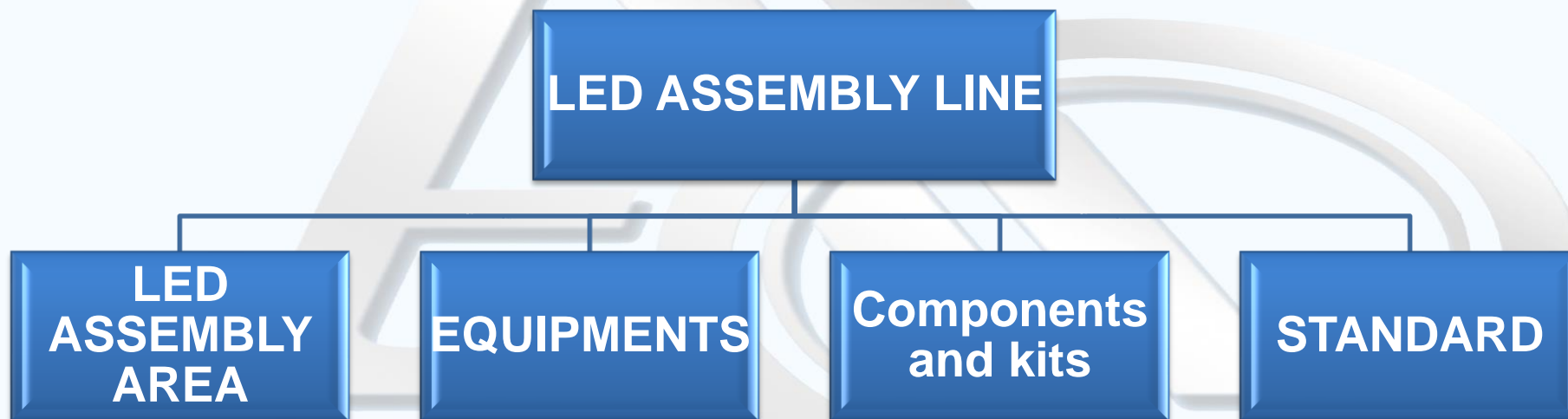
5. Labor man power required for the assembly line about 60 technician per one shift for 10 hrs per shift
6. AIO plan the manufacturing in three phases,
PH1 for Assemble SKD kits,
PH2 for CKD kit Manufacturing led PCB's and driver PCB's,
PH3 for CKD manufacturing and/or Local subcontractors all led lamp complete components (Base, heat sink...etc).



مصنع إنتاج لمبات الليد



IN DOOR APPLICATION LED LAMP ASSEMBLY LINE





مصنع إنتاج لمبات الليد

LED MANUFACTURING FACTORY LAY OUT

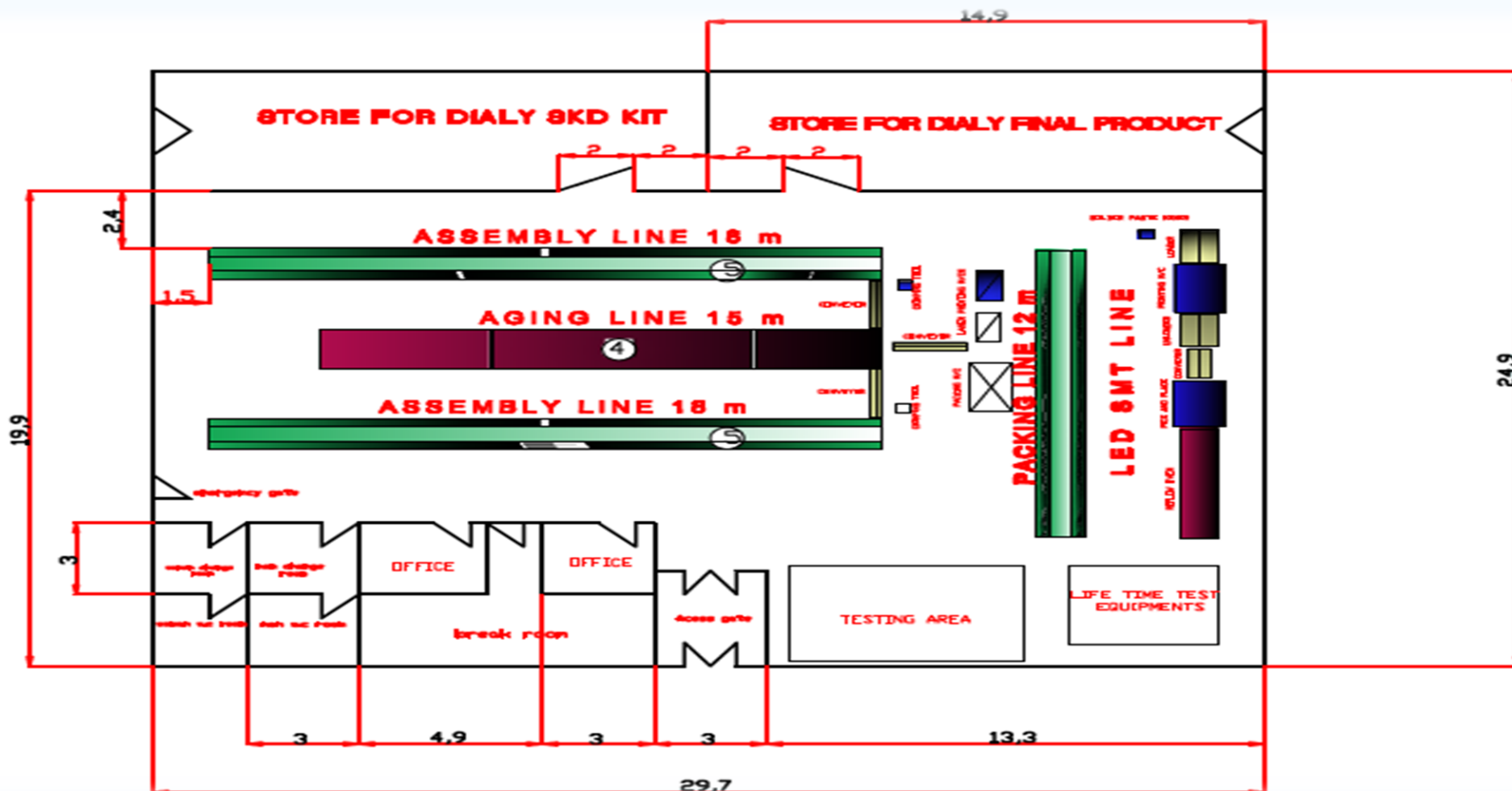
مخطط توضيحي
لمصنع إنتاج لمبات الليد



مصنع إنتاج لمبات الـ LED

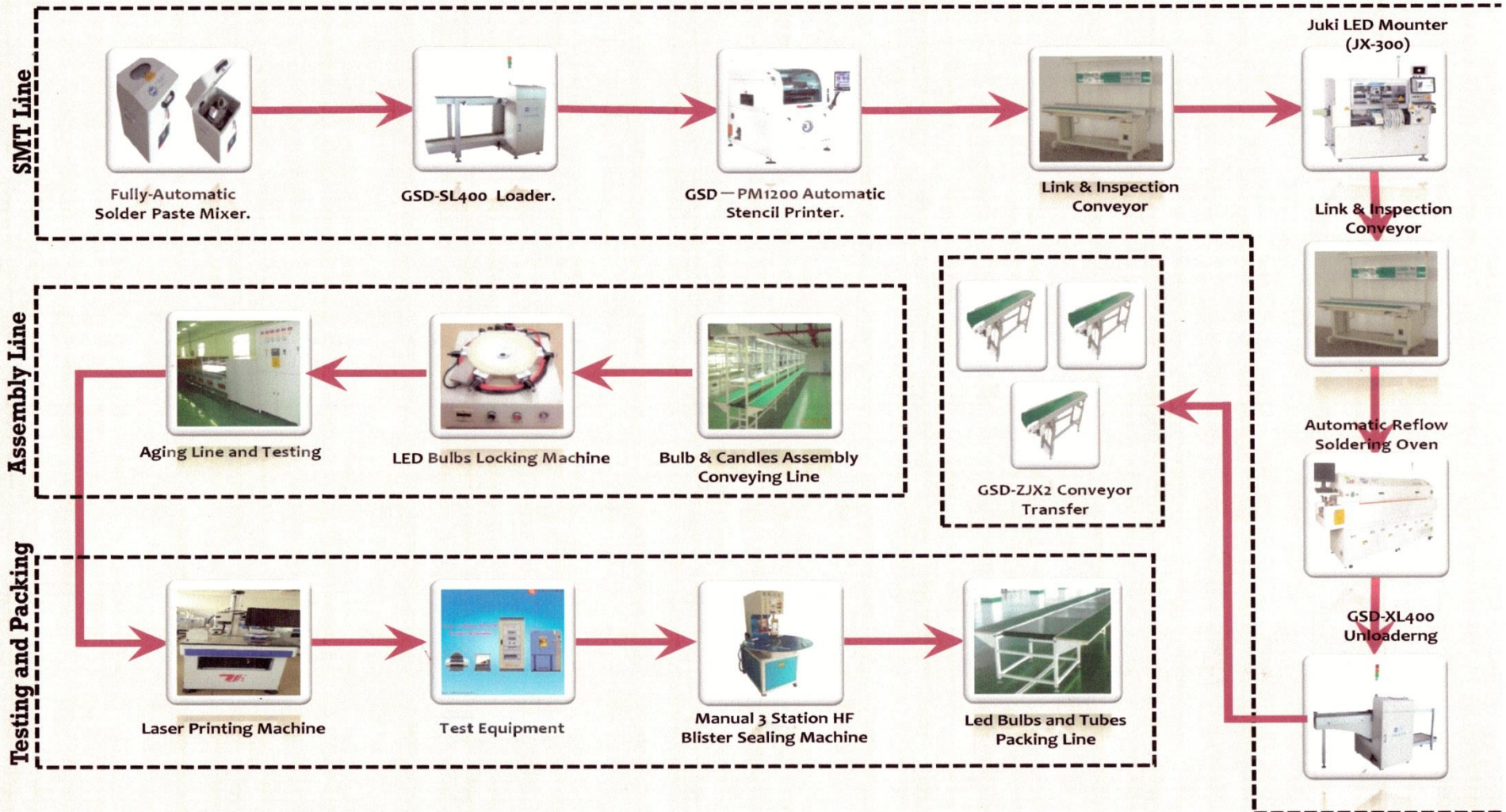


LED ASSEMBLY LAY OUT





مصنع إنتاج لمبات الـ LED





مصنع إنتاج لمبات الليد



FULLY-AUTOMATIC SOLDERING PASTE MIXER.

1. Safe, stable, low noise and easy to operate
2. Motor speed 1000 RPM/min
3. Mixing capacity 500g/1000g
4. Stirring time Adjustable
5. 500g tin cream of different brands is applicable





مصنع إنتاج لمبات الليد



GSD-SL400 Loader.

1. PLC controlled
2. PCB size 50*50*0.8mm—
W250*L330*2mm
3. Conveying Direction L-R, R-L
(optional)
4. Conveying height 900 ± 20 mm





مصنع إنتاج لمبات الليد



GSD—PM1200 Automatic Stencil Printer.

1. Automatic computer controlled.
2. Automatic PCB loading and downloading.
3. Repeat Position Accuracy $\pm 0.01\text{mm}$.
4. Printing Accuracy $\pm 0.025\text{mm}$.
5. Cycle Time <13s (Exclude Printing & Cleaning).
6. PCB Size/Min 120X50mm.
7. PCB Size/Max 1200X300mm.
8. Transport Direction L-R,R-L,L-L ,R-R.
9. Transport Speed 50-1200mm/sec adjustable.
10. PCB Positioning:
 - Support System:
Magnetic thimbles, edge support block, flexible, automatic thimble (optional)
 - Clamping System:
Flexible side clamps Z direction pressure plate, vacuum absorbing nozzle.
11. Print head: Programmable electronic control Printing head.
12. Air Pressure: 4~6Kg/cm².
13. Air Consumption Approx : 0.07m³/min.





مصنع إنتاج لمبات الـ LED



GSD-ZJX2 Conveyor Transfer.

1. 2 M long,
2. Speed: Adjustable from 0-3,000 m/min.
3. ESD Conveyor.
4. Height: 700m+/-20mm.
5. Width: width 350mm





مصنع إنتاج لمبات الليد



Juki LED Mounter (JX-300) Chip Shotter

1. Board Size:

- o Standard Specifications: 50 x 50 ~ 1,200 x 360 mm
- o Longer Sized PWB*1: 50 x 50 ~ 1,500 x 360 mm

2. One multi- nozzle laser head (6 nozzles).

3. Wide variety of special nozzles for LED's

4. Supports ultra-long boards up to 1,500 mm.

5. Laser centering for high speed, high accuracy placement.

6. Unique features flexibility.

7. Tray component support.

8. Placement Speed:

- o Optimum: 27,100 CPH
- o IPC9850: 19,300 CPH

9. Placement Accuracy: ± 0.05 mm (Cpk ≥ 1)

10. Feeder Input: Max. 40 in case of 8 mm tape.





مصنع إنتاج لمبات الليد



Automatic Reflow Soldering Oven.

1. PCB maximum width 30-320mm.
2. Heating time 15 min.
3. Transport direction L R Transmission.
4. Transmission speed 0-2000 mm/min.
5. Temperature control range zone up to 350°C.
6. PC and PLC machine controlled, with windows operation panel.
7. Digital display for the temperature and the working status.
8. Easy to monitor and analysis temperature curve.





مصنع إنتاج لمبات الليد



Automatic Reflow Soldering Oven.

9. High-speed motor, low vibration low noise.
10. PCB Protection when power cut or at emergency status.
11. Hot air for both upper and bottom zones.
12. Strong air-cooled system to ensure output PCB temperature below 50°C.
13. Only 20 minutes to achieve working temperature.
14. The conveying system is step less speed mesh conveyor controlled, no clamping no stopping for the PCB while running.
15. Environment friendly design and built, with CE and RoHS certification.



مصنع إنتاج لمبات الليد



GSD-XL400 Unloader.

1. PLC controlled
2. PCB size 50*50*0.8mm—
W250*L330*2mm.
3. Conveying Direction L-R, R-L
optional).
4. Conveying height 900 ± 20 mm





مصنع إنتاج لمبات الـ LED



Link & Inspection Conveyor

1. Links the printing machine and pick and place machine,
2. Manual and automatic controlled mode to load the PCB,
3. Easy to stop for inspection
4. Micro controller to control conveying machine speed.
5. Speed 0-2000mm/min
6. Conveying Direction is L-R, R-L (optional).
7. Power consumption: 15W





مصنع إنتاج لمبات الليد



LOADER



PRINTER



UNLOADER



INSP. CONVEYOR



PICK AND PLACE



REFLOW OVEN



SMT ASSEMBLY LINE





مصنع إنتاج لمبات الـ LED



Bulb & Candles Assembly Conveying Line.

1. 18*2 pcs of chairs
2. 1,2 HP speed adjustable drive motor,
3. Working table height is 700+/-20mm.
4. The edge is made of 40*60mm aluminum will not pollution the products
5. Conveyor belt is seamless connection, Green color, 2*600 mm PVC
6. The workbench is adopted with anti-static rubber covered
7. Every working station has exhaust horn on top of the line to expel waste gas.
8. Slide groove on the top of both sides for hanging tools.
9. The Assembly Line equipped with handy soldering station, ESD ring, wasted gas absorbing pipe, pressure gas pipe.





مصنع إنتاج لمبات الليد



LED Bulbs Automatic Locking Machine.

1. led head locking machine,
2. automatic locking machine,
3. power 220V 50hz
4. Adapted to any type of led lamp
base





مصنع إنتاج لمبات الليد



Aging Line and Testing

1. Designed for both AC LED Bulbs or Tubes.
2. 180 Plate Each Holds 15*2 E27 Bulbs, total 5,400. OR
3. 180 Plate Each Holds 4 T8 Pairs, Total of 688 Tube.





مصنع إنتاج لمبات الليد



LASER PRINTING MACHINE

2 SETs

1. Laser Power: 20 W.
2. Working Area: 110*110/ 170*170*220*220/300*300
Optimal
3. Cooling Mode: Air Cooling.
4. Laser Wave Length: 1,064 nm.
5. Minimum Character: .15 mm.
6. Marking Speed: Less than or equal 8,000 mm/s.
7. Focus Lamp: Singapore Beam Length 110*110.
8. Beam Quality: M2 less than 2.
9. Beam Repeating Frequency: 20 KHZ – 80 KHZ.
10. Life of Laser Source: 100,000 hours.
11. Supported Fonts: DWG, DFX, BMP, JBG, PNG, TIF,
PCX, TAG, GIF, PLT
12. Precision of Repeating: +_ 0.002 mm.
13. Power Consumption: Less than 800W.





مصنع إنتاج لمبات الليد



TEST EQUIPMENT

High Precision CCD Spectro radiometer (LMS-9000A)

1. Suitable for:

- Photometric and colorimetric measurement of luminaries such as Energy-saving lamps & Fluorescent lamps,
- HID lamps (high voltage sodium lamps and high voltage mercury lamps), CCFL and LED

2. The measured data meets the requirements of CIE, EN and LM-79 clause 9.1 for the measurement of photometry and colorimetry.

3. The LMS-9000A combined the LED optical maintenance test function which is meet LM-80.



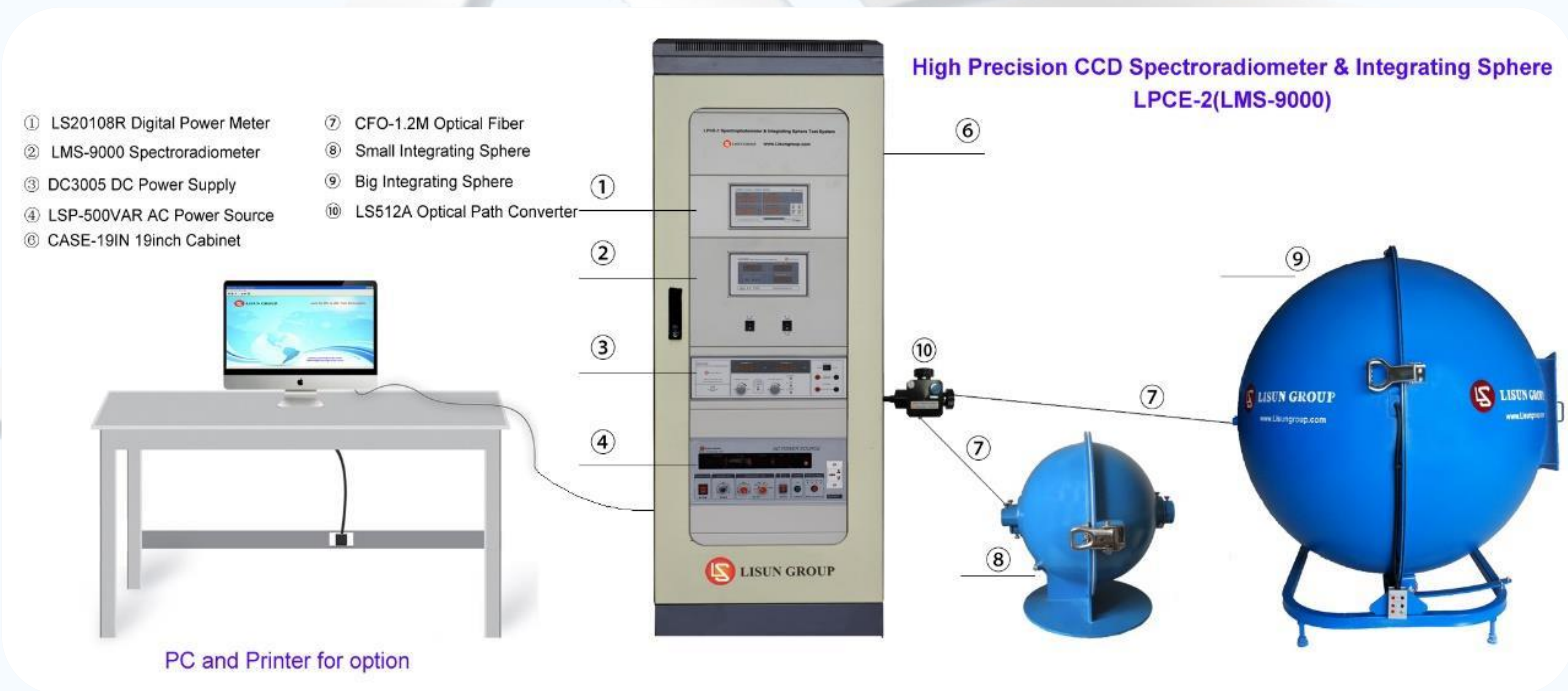


مصنع إنتاج لمبات الليد



TEST EQUIPMENT

FOR TESTING THE LED LAMP, BULB, CANDLE AND TUBE AS PER IEC 62612, IEC 62560 AND IEC 62776



PC and Printer for option

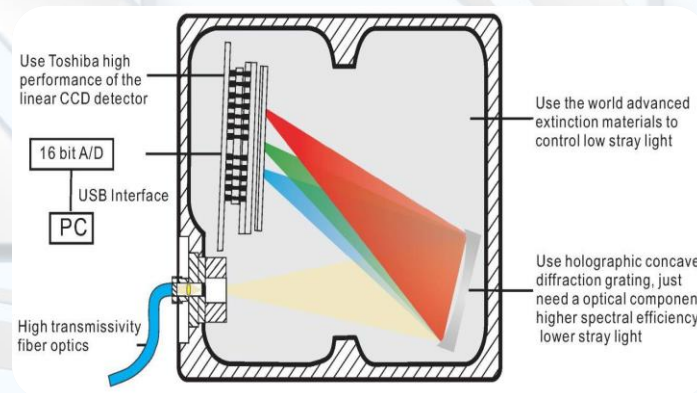


مصنع إنتاج لمبات الـ LED



TEST EQUIPMENT

High accuracy CCD array detector test spectral range is 380~780nm, SMA905 optical fiber to Sphere and USB connect to PC, it can do the LED Optical Maintenance test such as flux VS time or CCT VS time.





مصنع إنتاج لمبات الليد



TEST EQUIPMENT

Digital CC and CV DC Power Supply_



30V/5A Digital Control for Constant Current and Constant Voltage, the accuracy is 0.0000, it can communicate with Lisun LMS-5000, LMS-8000, LMS-9000 Spectroradiometer to control the output by the software.



مصنع إنتاج لمبات الليد



TEST EQUIPMENT

Digital Power Meter (Harmonic Analyzer Model):



Have software to measure AC for U, I, P, PF and harmonic, the accuracy can be 0.000 and can communicate

Lisun LMS-5000, LMS-8000, LMS-9000 Spectroradiometer to show the results in the test report.



مصنع إنتاج لمبات الليد



TEST EQUIPMENT

AC Power Source



30V/5A Digital Control for Constant Current and Constant Voltage, the accuracy is 0.0000, it can communicate with Lisun LMS-5000, LMS-8000, LMS-9000 Spectroradiometer to control the output by the software.

▪



مصنع إنتاج لمبات الـ LED



TEST EQUIPMENT

Integrating Sphere 0.5 m

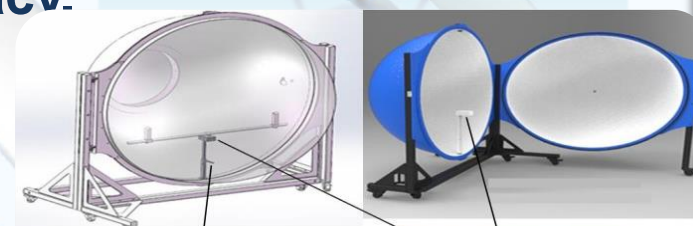
IS-0.5M 1 SET Integrating Sphere

Integrating Sphere Diameter is 0.5M. High reflectivity coating to make sure high test accuracy.

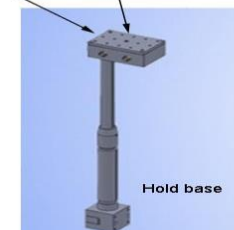
And produced by A Molding Technology to keep high test accuracy

Specification:

- The painting of integrating spheres is BaSO₄ coating:
 $\rho(\lambda) \geq 0.96 (450\text{nm} \sim 800\text{nm})$ and $\rho(\lambda) \geq 0.92 (380\text{nm} \sim 450\text{nm})$
- Fine diffuse reflection: Reflectance $\rho \approx 0.8$ and accuracy of $\rho(\lambda) < 1.5\%$



The knob can be adjusted the height of the hold base



Hold base



مصنع إنتاج لمبات الـليد



TEST EQUIPMENT

Integrating Sphere 1.5 m

IS-1.5MA 1 SET Integrating Sphere



Integrating Sphere Diameter is 1.5M. High reflectivity coating and produced by A Molding Technology to keep high test accuracy.

New design with adjustable sample stage can test E27/E14 lamps, T5/T8/T12 tubes and all LED luminaries



مصنع إنتاج لمبات الليد



TEST EQUIPMENT

LED LM-80PL LED Optical Life time Test System



1. System Principle:

Rated Lumen Maintenance Life, the elapsed operating time over which the LED light source will maintain the percentage, p, of its initial light output e.g:

L70 (hours): Time to 70% lumen maintenance

L50 (hours): Time to 50% lumen maintenance



مصنع إنتاج لمبات الليد



Manual 3 Station HF Blister Sealing Machine

1 SET

1. Power: 5KW
2. Upper plate: cross
3. Down plate: 350 x 700mm
4. Welding time: 0-10s adjustable
5. Size: 1.1 x 2.0 x 1.8 m.
6. Oscillation tube: 7T62RB
7. Gap of electrode: 100mm (cross)
8. Horn route: 50mm
9. Input power: 8KVA
10. Rectifier: silicon diode
11. Temperature: 0~200°C
12. Station: Three station
13. Operate: Pneumatic/pedal



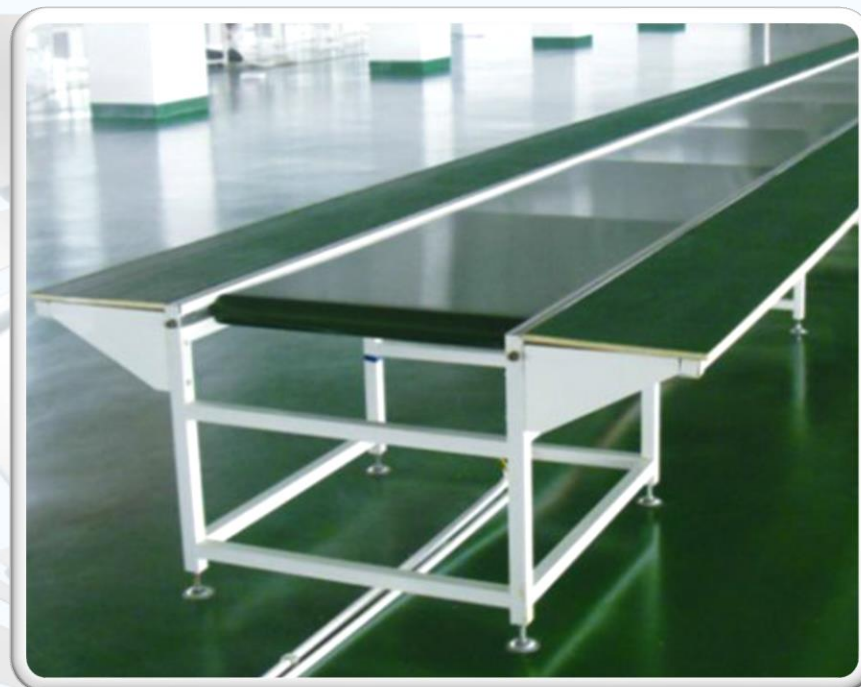


مصنع إنتاج لمبات الـ LED



Led Bulbs and Tubes Packing Line.

1. 12 m long, and 700+/-20 mm height.
2. Workbench covered with anti-static rubber, Green color, 2*600 mm PVC, 350 mm width, 16mm thickness.
3. The edge coverage is made of 40*60 mm aluminum will not pollution the products.
4. 2HP adjustable speed motor.
5. Speed: 0-6m/min, safe and low noise.





مصنع إنتاج لمبات الليد
مصنع إنتاج لمبات الليد



تجهيزات خطوط الانتاج والتجميع
للمبات الليد
طبقاً للمواصفات القياسية المصريه
والعالميه



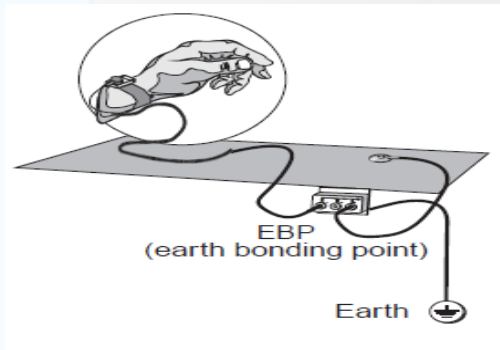
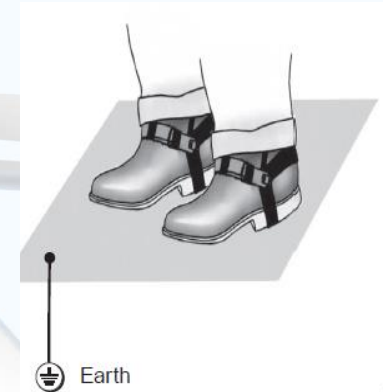
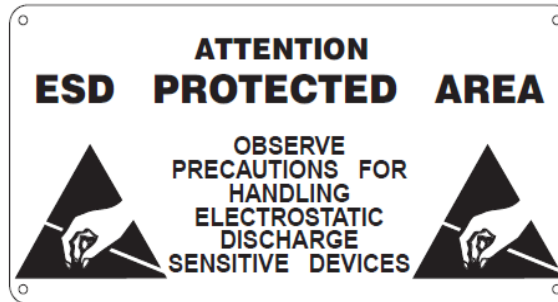
مصنع إنتاج لمبات الـ LED



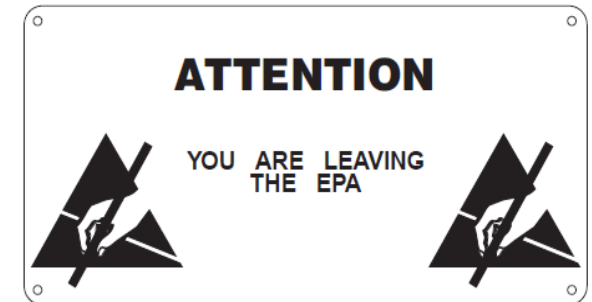
LED ASSEMBLY AREA PREPARATION FOR ESD



EPA WARNING SIGN

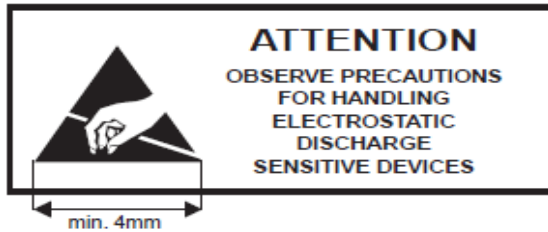


EPA EXIT SIGN





مصنع إنتاج لمبات الليد



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE DEVICES

ESD CAUTIONARY SYMBOL



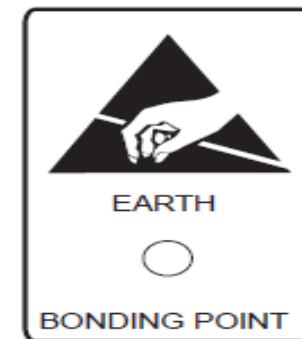
BASIC SYMBOL

The basic symbol consists of a yellow hand within a black triangle. It is intended to identify devices and assemblies which are ESD sensitive.



EPA LABEL

Used to designate EPA equipments such as tables, trolleys, chairs .



EARTH BONDING POINT (EBP)



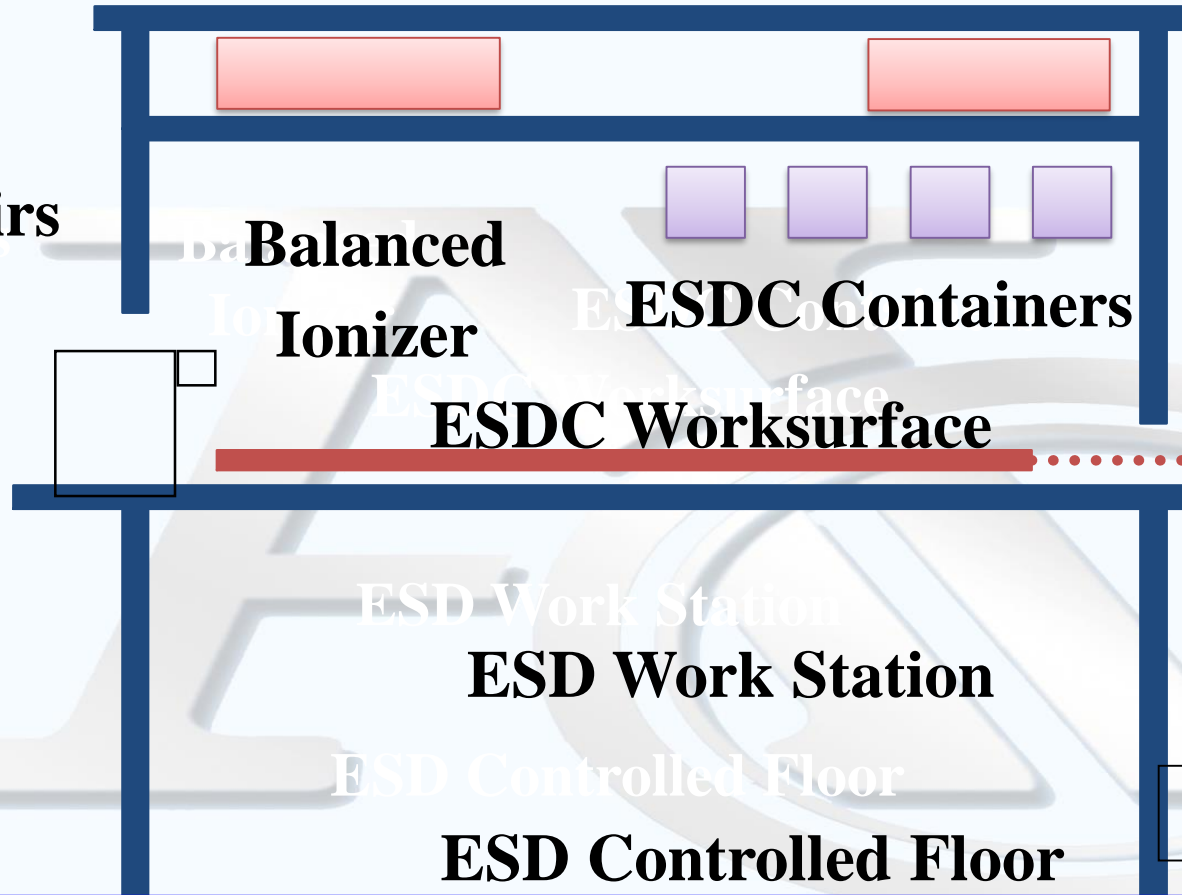
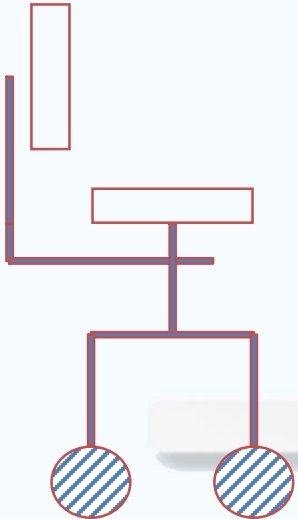
مصنع إنتاج لمبات الليد



Static-Safe Workstation

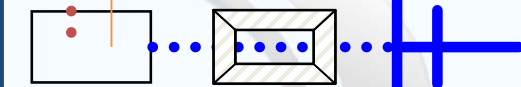
Grounded Shelf

ESDC Chairs
& Carts



ESDC
Strap

Tested AC
& Ground
Circuit



Common
Point

Ground (CPG)



مصنع إنتاج لمبات اليد



Garments

The main purpose for wearing conductive smocks is to suppress static fields on employee clothing.

The conductive fibers woven into the material provide a Faraday cage that prevents dangerous fields from extending to and damaging sensitive products.

There shall be electrical conductivity between all parts of the garment.



Gloves

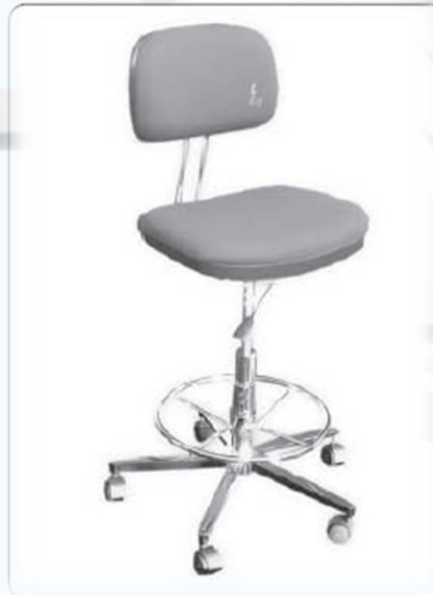
ESD sensitive device can experience a damaging discharge if touched by a person, even if that person is properly grounded.

Increasing the electrical path's contact resistance is one way to control the speed of the discharge.

A good way to accomplish this is by wearing static dissipative coats and gloves.

static dissipative coats and gloves

A good way to accomplish this is by wearing static dissipative coats and gloves



Chairs

The resistance to ground from any part of the seat which may have contact with personnel, must be less than $1 \times 10^{10} \Omega$.

At least two castors or feet must provide a path to ground.

path to ground

At least two castors or feet must provide a path to ground



مصنع إنتاج لمبات الليد



مخطط

الشركة العربية العالمية للبصريات
لمراحل التصنيع للمبات الليد



مصنع إنتاج لمبات الليد



المرحلة الأولى
تجميع المكونات الرئيسييه (SKD)



مصنع إنتاج لمبات الليد



تجميع المكونات الرئيسية (SKD)



SIMPLE PLASTIC & CHEAP BULB



ALUMINUM & PC BULBS



PLASTIC BULB

Exclusive material configuration,
high temperature casting mask

Links with high temperature
casting, anodizing, never fade

Ultra-thick double gold line design,
light brighter longer

Aviation aluminum,
air convection cooling design

LED Driving

Highly conductive polishing
standard E27 light feet

ALUMINUM BULB



مصنع إنتاج لمبات الليد



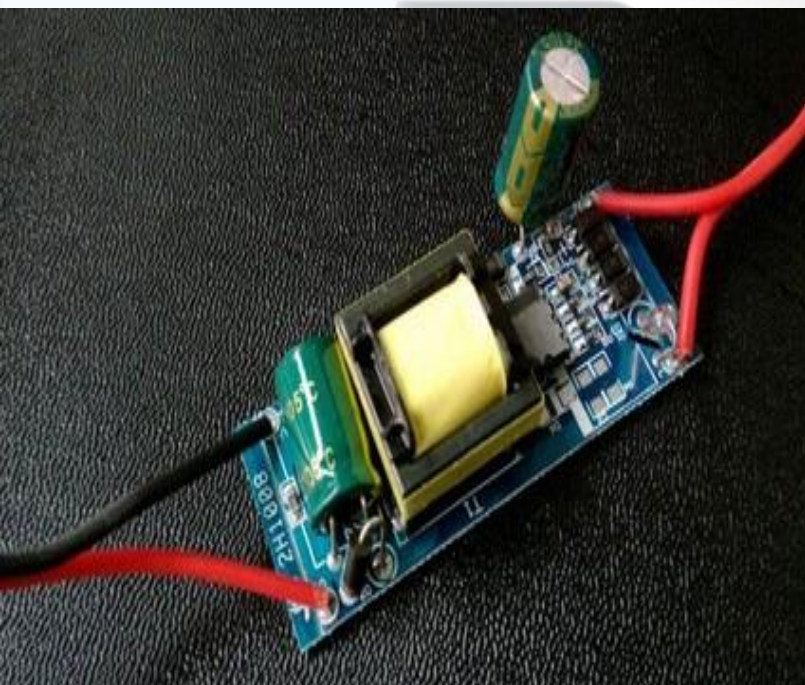
المرحلة الثانية
تصنيع الدوائر الالكترونيه
(Manufacturing Driver)
PCB'S and LED PCB'S



مصنع إنتاج لمبات الليد

المرحلة الثانيه تصنيع الدوائر الالكترونيه

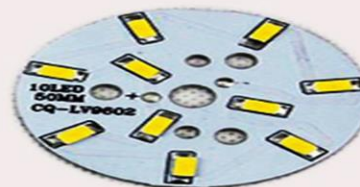
IC Driver



LEDs:



3W



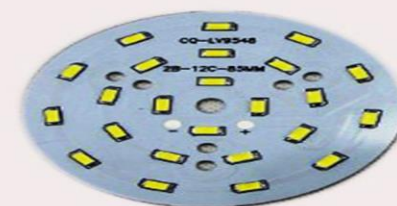
5W



7W



9W



12W

**THIS BOARD USE FOR PLASTIC BULBS
AND ALUMINUM & PC BULBS**



مصنع إنتاج لمبات الليد



المرحلة الثالثة
تصنيع جميع مكونات اللمبة الليد
(CKD)



مصنع إنتاج لمبات الليد



مرحلة تصنيع جميع المكونات الخاصة باللمبات الليد
بالمشاركة مع المصنعين من السوق المحلي



ALUMINUM COVER

E27 BASE

**POLY CARBONATE
DIFFUSER**

HOLDER

WIRES



مصنع إنتاج لمبات الليد

المواصفات القياسية العالميه

LED International Standards

Current Standards Work by the
International Electrotechnical Commission (IEC)

... the world's leading organization that prepares and publishes International Standards for all electrical, electronic and related technologies. www.iec.ch

Product Type	Safety Standard	Performance Standard
LED Drivers	IEC 61347-2-13 [2006]	IEC 62384 [2006]
LED Connectors	IEC 60838-2-2 [2006]	
LED Lamps, self-ballasted	IEC 62560 Ed.1 [2010]	IEC/PAS 62612 [2009]
LED Modules	IEC 62031 Ed.1 [2008]	IEC/PAS 62717 [2011]
LED Luminaires	IEC 60598 Ed.1&2 [2008]	IEC/PAS 62722 [2011]

The PAS document is a "Publically Available Specification" – designed to speed up standardization in areas of rapidly evolving technology



مصنع إنتاج لمبات الليد



المواصفات القياسية المصرية

طبقا للهيئة المصرية العامة للمواصفات والجودة (EOS)

- The LED lamps shall be comply relative standard { IEC (62612 & 62560 & 62776) and ES Standard (.....) }
- Marking According to Standard
- Rated Voltage 100-250 V
- Rated Frequency 50 Hz



مصنع إنتاج لمبات الليد



المواصفات القياسية المصرية طبقا للهيئه المصريه العامه للمواصفات والجوده (EOS)

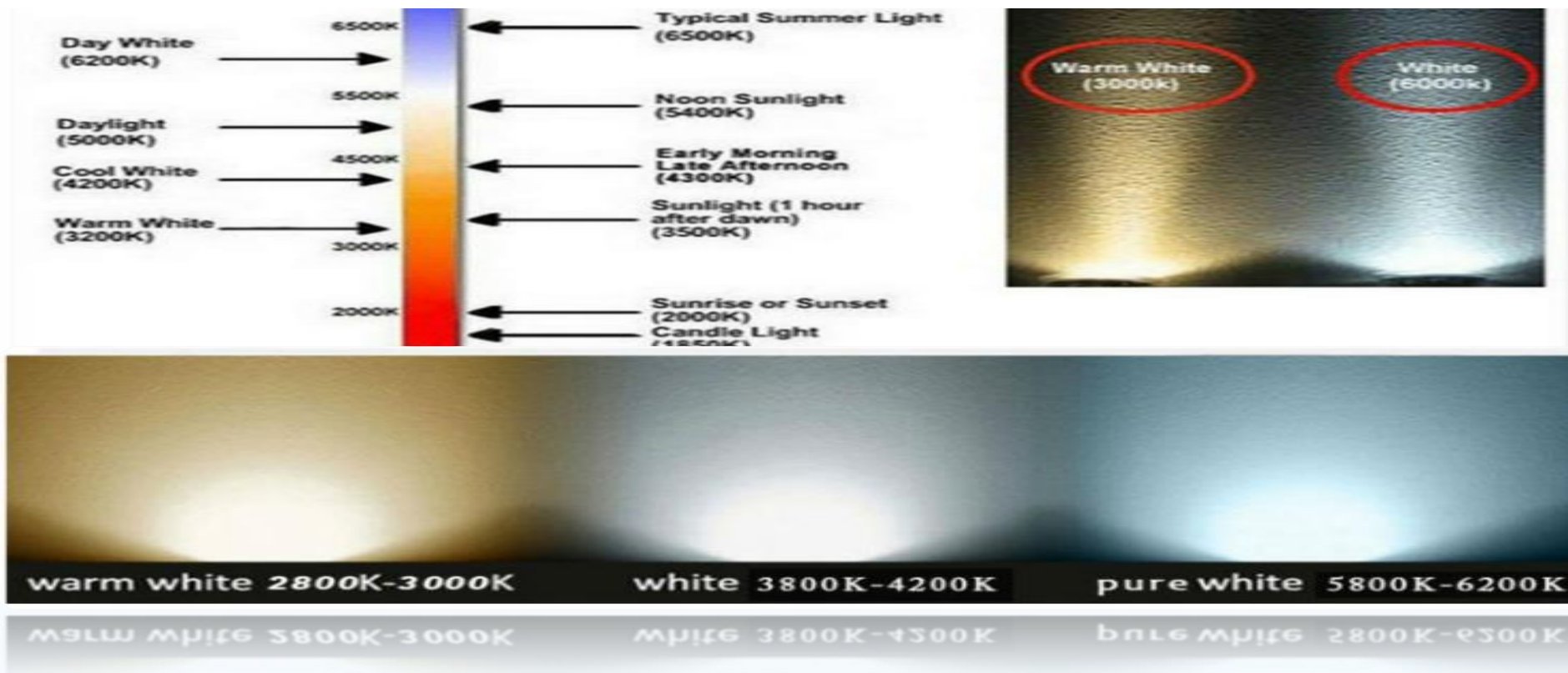
- الحفاظ على شدة الفيض الضوئي عند 25% من عمر اللمبة (Lumen Maintenance)
- بحد أقصى 6000 ساعة (hour) أكبر من 80%
- الحد الأدنى للكفاءة الضوئية (ليومين/وات) Efficacy (A⁺)
- العمر (LIFE TIME) 25000 (ساعة)
- درجة حرارة التشغيل (درجة مئوية) +10:50 (TEMPRETURE)
- نسبة الرطوبة (%) 10-90 (HUMIDITY)



مصنع إنتاج لمبات الليد



المواصفات القياسية المصرية طبقا للهيئة المصرية العامة للمواصفات والجودة (EOS)





وزارة الدفاع

جهاز مشروعات الخدمة الوطنية
الشركة العربية العالمية للبصريات

شكراً لحسن استماعكم

مصنع إنتاج لمبات الليد