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**Crompton**

# Energy Efficient Lighting Solution for Cement LED Lighting

**gen//LED**

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## Lighting types in different area's in LED

Quarry		Area Lighting – Flood Light
Raw Mill		Area Lighting – High Mast
Kiln		Area Lighting – Well Glass
Cement Mill		Area Lighting – Well Glass
Packing		Plant Lighting – High Bay
Conveyors		Conveyor Lighting – Well Glass
Roads & Other		Road Lighting – Street Light
Office & Landscape		Office Lighting – 2 x 2 / Down light



- **Environment Conditions for Luminaire**
  - Ambient Conditions - Temperature & Dust**
  - Operating supply issues**
- **Maintenance issues - conventional**
  - Mounting Heights & Area**
  - Inventory to maintain lighting**
  - Skilled Man Power for Maintenance**
- **Safety and security purpose**



# Present Lighting System Issues



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- **Conventional HPSV / MH Lighting products**
- **Lamp life is very low – No Guarantee**
- **Depreciation of Light Levels**
- **Inefficient lighting due to poor LOR**
- **Content of Harmful Gases**
- **Handling of Large Inventory – Lamps & Ballast**
- **Energy Consumption**



**Really painful to check and replace lights on conveyor  
& at High Heights in a different area's of plant !**



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# Some Facts !!!!

- Luminaire cost represent as little as 4% of overall life-cycle cost
- **Maintenance & labor cost represent as little as 8% of overall life cycle cost**
- Energy cost over the life of the lamp represent as much as 88% of the overall cost



**88%**



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# Energy Efficient Lighting - LED'S



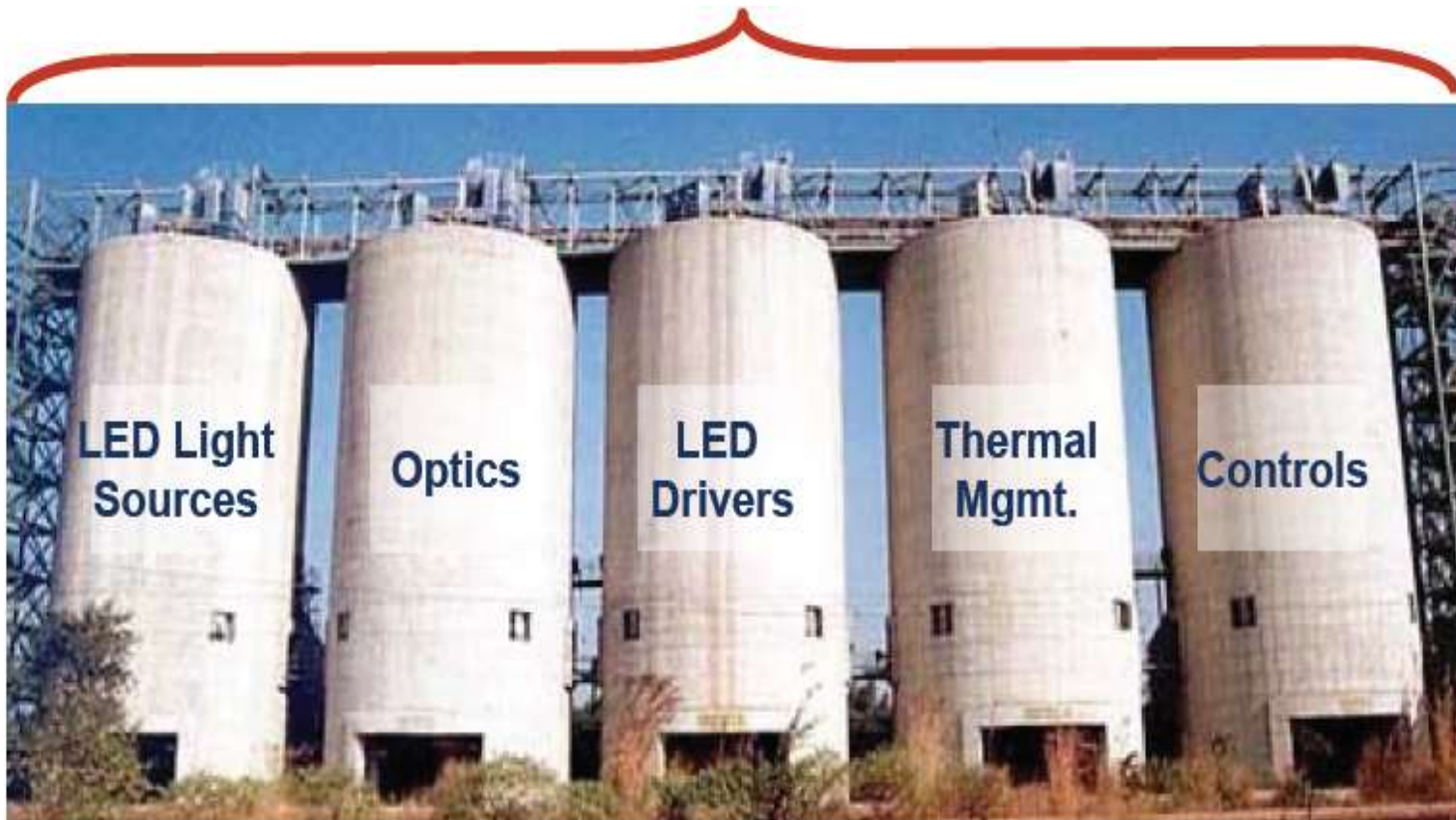
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- Energy saving - > 50% energy saving Vs. Conventional
- Green Light Environment friendly – No mercury & Gases
- Longer life – Nearly 50000 burning hrs
- Durability – No glass or filament
- Visibility – Better in Dusty and foggy conditions too
- No sparking & heating devices like Igniter & Chokes
- Its cool – less load on HVAC
- High CRI & CCT's
- Low maintenance cost
- Govt. Legislation



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- Integrating the following systems comprises a LED Luminaire



# Basis to select your Lighting partner



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- Technology
  - Type of LED
  - Source of LED
- Experience
  - Lighting Experience
  - Design & R&D
- Pre-sale Support
  - Sample for trial
  - Design modification
- Reliability
  - Quality Standards
  - Testing Facilities
- Product Offerings
  - Application needs
  - Product Specifications
- Post-Sales Support
  - Response to issues
  - Ability to service

Price is not the right basis for product selection,  
we end up Huge Money & Time, if not seen above points



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# LED products for Cement Should have



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- System Lumen Output should be Above 80 lumen / watt
- Thermal Management with sturdy and suitable Heat Sink
- LED and Driver should have separate heat management
- Suitable for at least 50deg. Ambient temperature
- Ingress Protection of IP65 and above
- Should have external Surge Protection up to 5kV
- Suitable to operate with wide voltage band (lower to higher)
- Construction shall be rigid and sturdy to handle
- Ease of installation and maintenance



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- L70 chart ?
  - It's the LED source depreciation curve report at 70% of its depreciated initial lumens. It's a theoretical extrapolated using LM80 report at Tj details from the luminaire manufacturer.
- LM 79 report ?
  - It's the Luminaire manufacturing report covering the lumen output, voltage range, CCT, current details, PF, THD etc as per the UL guidelines.
- LM 80 report ?
  - It's the LED data sheet report measuring the lumens maintenance of LED light sources. Measurements are also done at 55°C, 85°C & 110°C case temperature at 6000<sup>th</sup> burning hour of the source.

# Typical Products in Cement



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## ROI for Well Glass

Products	Conventional	LED
Well Glass	70W 	36W 
	96W (4 x 24) 	60W 
Flood Light	400W 	180W 
	400W 	180W 

Well Glass	HPSV	LED	Savings
Watt	70	36	49%
Ballast Loss	15	0	
Total Watt	85	36	58%
kWh/Month	36	15	
Energy Cost @6	214.2	91	58%
Cost Of Lum	1200	3300	
Maintainace Cost	200	0	
Additional Cost	1900	0	
<b>ROI Months</b>	<b>15</b>		<b>58%</b>
<b>For Quantity of 3000nos.</b>			
kW Savings/Month	255	108	147
Value Savings/Month	642600	272160	370440

- Maintenance Cost – Over the period of lamp life corresponding per year cost
- Energy cost calculated w.r.t. 14hr. Working and 30days and 6/- per unit cost



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