



Hidden benefits, recent innovations, and best practices with

# Industrial lighting and indication



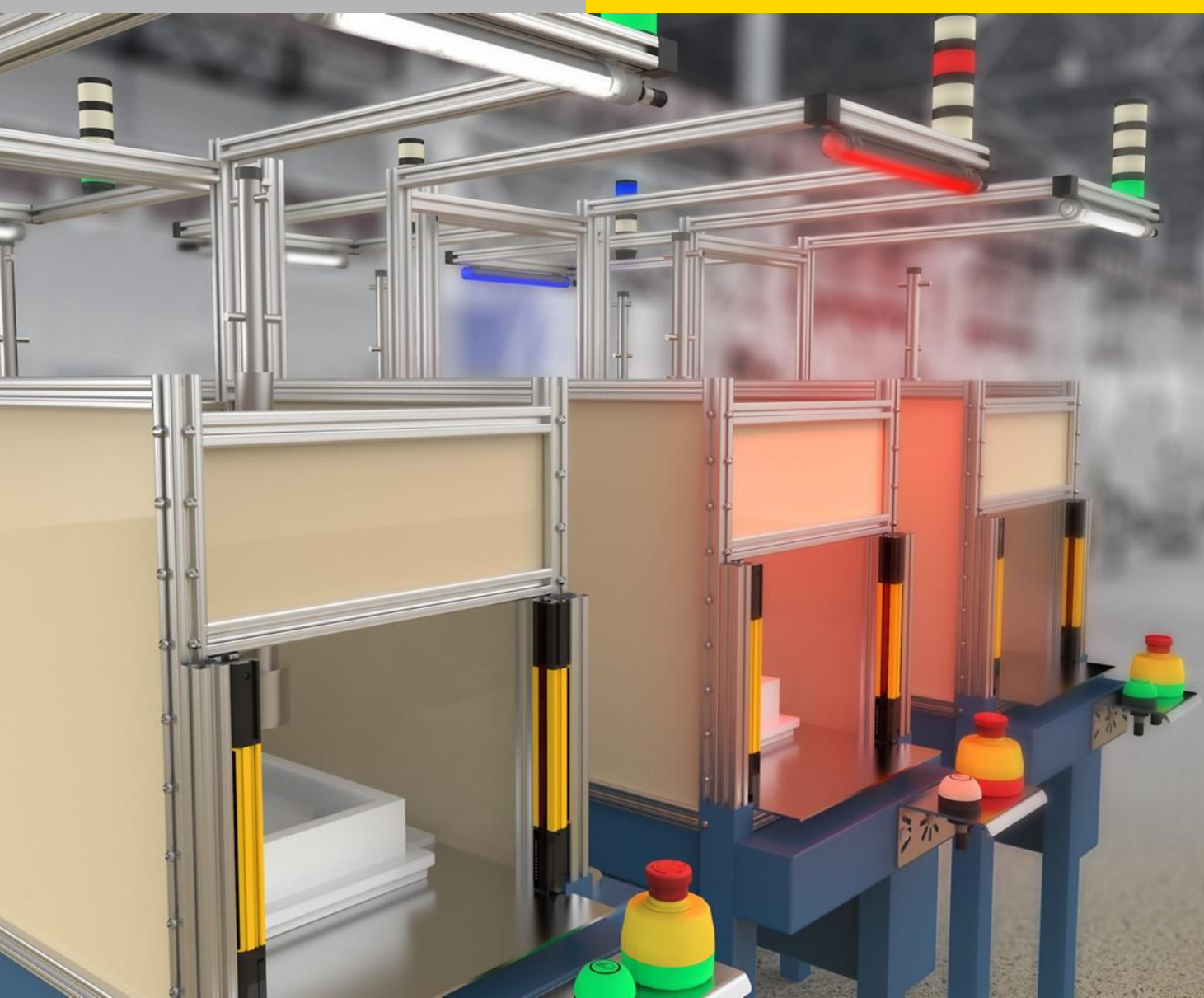
**BANNER**



LIGHTING,  
WHO KNEW?

## What is beyond:

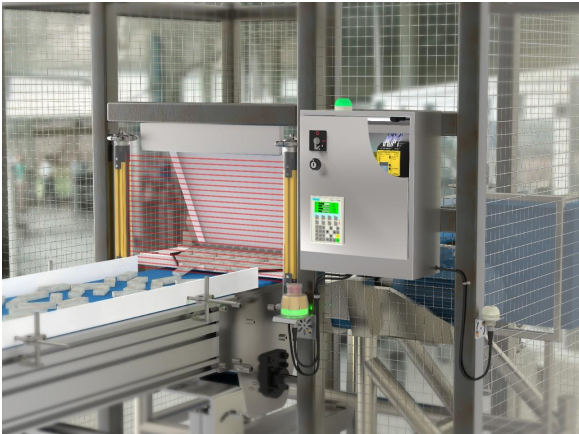
- Quality Lights & Lighting
- Energy Savings
- Maintenance Reduction



## AGENDA

- Why even consider lighting
- Hidden benefits of led technology
- How to select a light
- Using illumination for indication
- Applications

# Why even consider lighting



**SAFETY**



**QUALITY**



**PRODUCTIVITY**



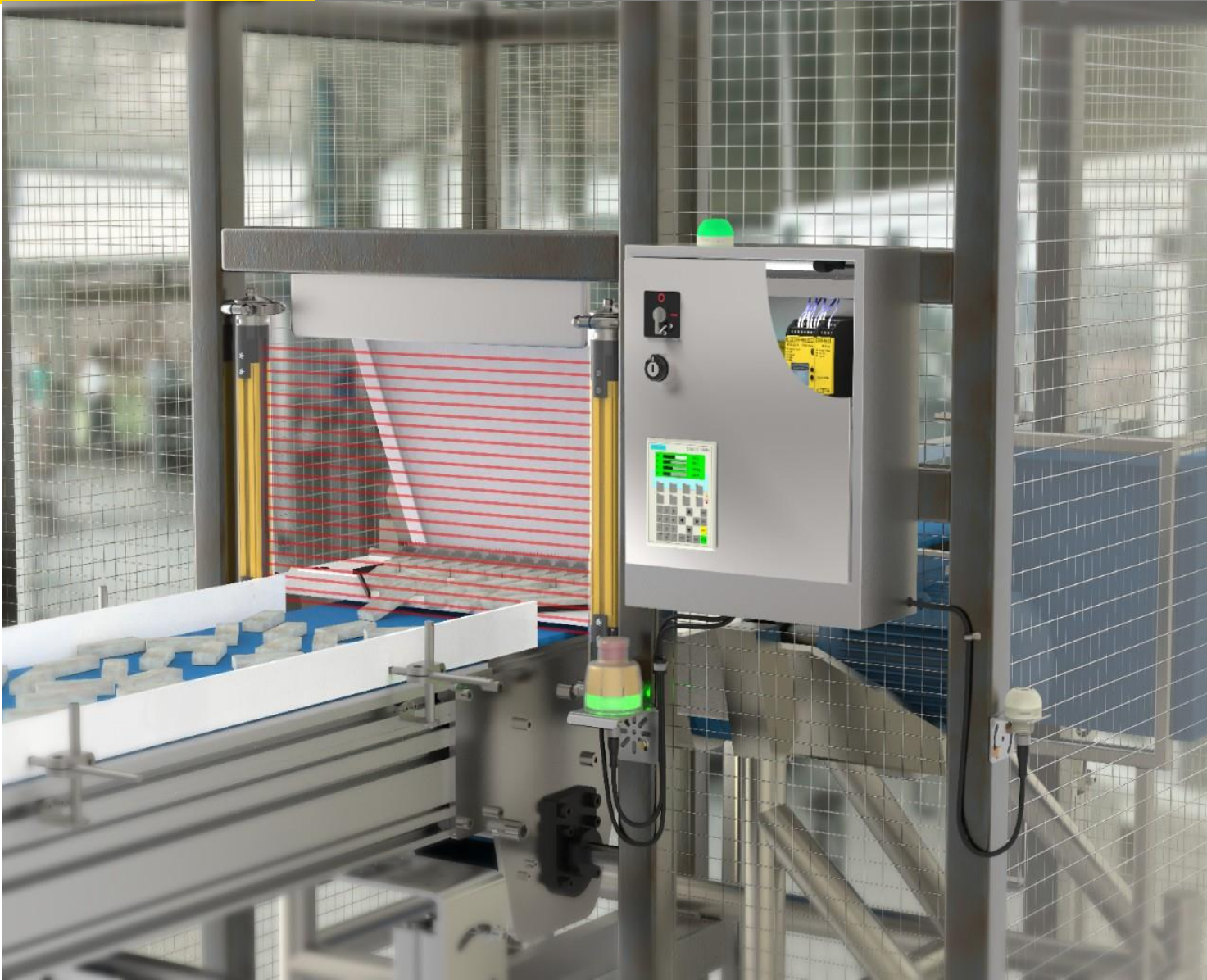
# Why even consider lighting: Safety



**VISIBILITY**

**MACHINE SAFETY**

**CONFIDENT  
HAPPY WORKFORCE**



# Why even consider lighting: Quality



**VISIBILITY**

**PICKING  
FULFILLMENT GUIDANCE  
ERROR-PROOFING**

**INSPECTION  
HUMAN & MACHINE**





# Why even consider lighting: Productivity



**VISIBILITY**

**RESPONSE SPEED**

**GUIDANCE +  
ADVANCED STATUS**

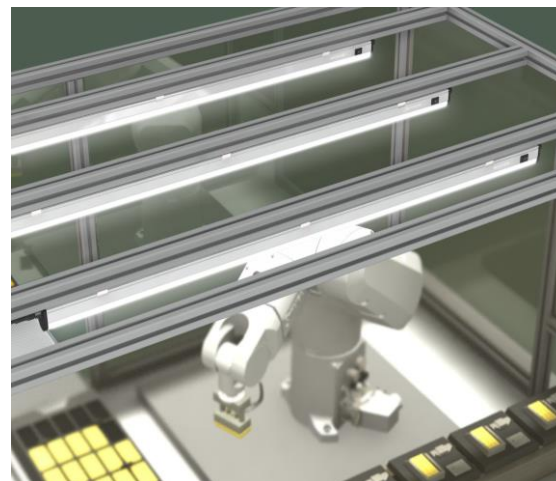
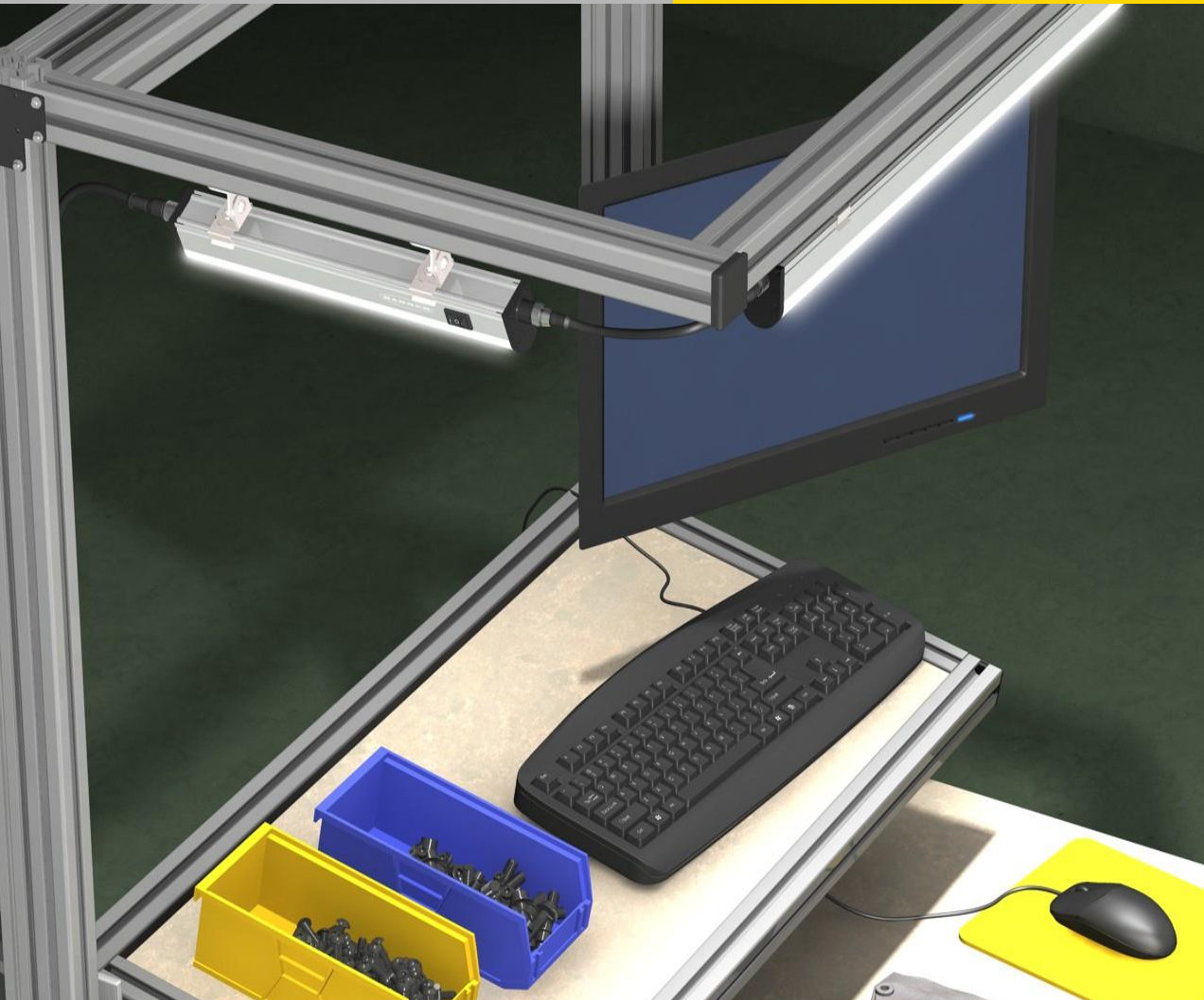




3 HIDDEN BENEFITS

# Value of LED Technology





## BENEFIT #1

# Personalization

- Control
- Operator and environment
- Task adjustment

# Why even consider lighting



## CONTROL

- Young
- Day shift
- Order fulfillment
- 50%, 5000K strip light



## TASK ADJUSTMENT

- Experienced
- Night shift
- Part inspection
- 100%, multicolor strip light



## BENEFIT #2

### Form Factors

- Old vs New Technology
- Construction
- Connectorization



# Form factor flexibility



**TECHNOLOGY**

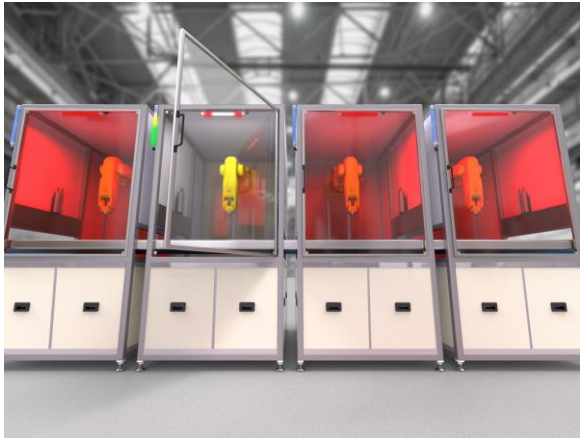


**CONSTRUCTION**



**CONNECTORIZATION**

# Form factor examples



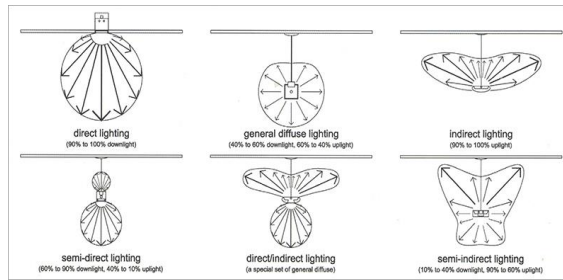
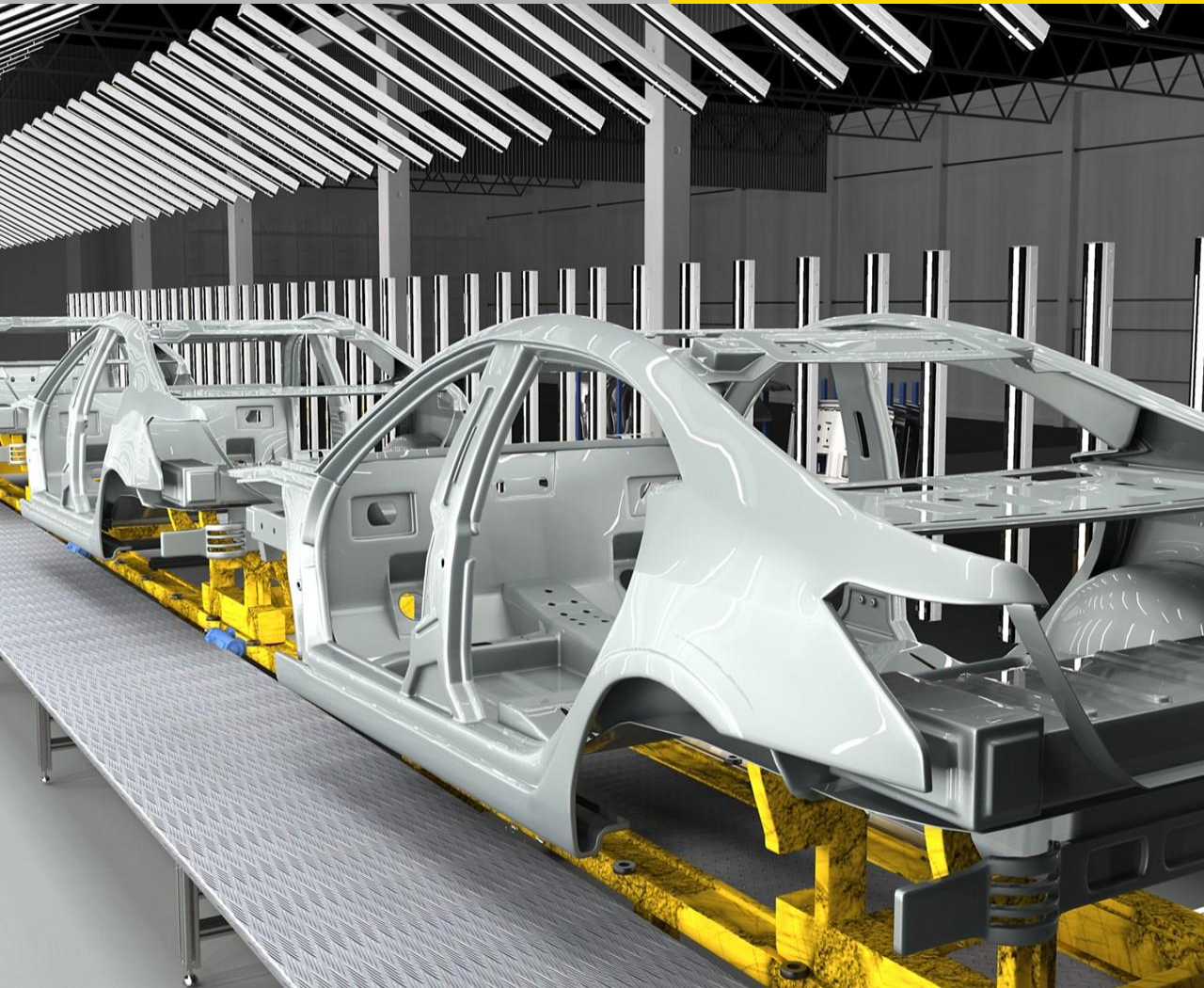
**IMPROVE USABILITY**



**ADVANCE TECHNOLOGY**



**MODERNIZE DESIGN**



### BENEFIT #3

## Directional lighting

- Natively directional
- Housing component usage
- Increased luminaire efficiencies

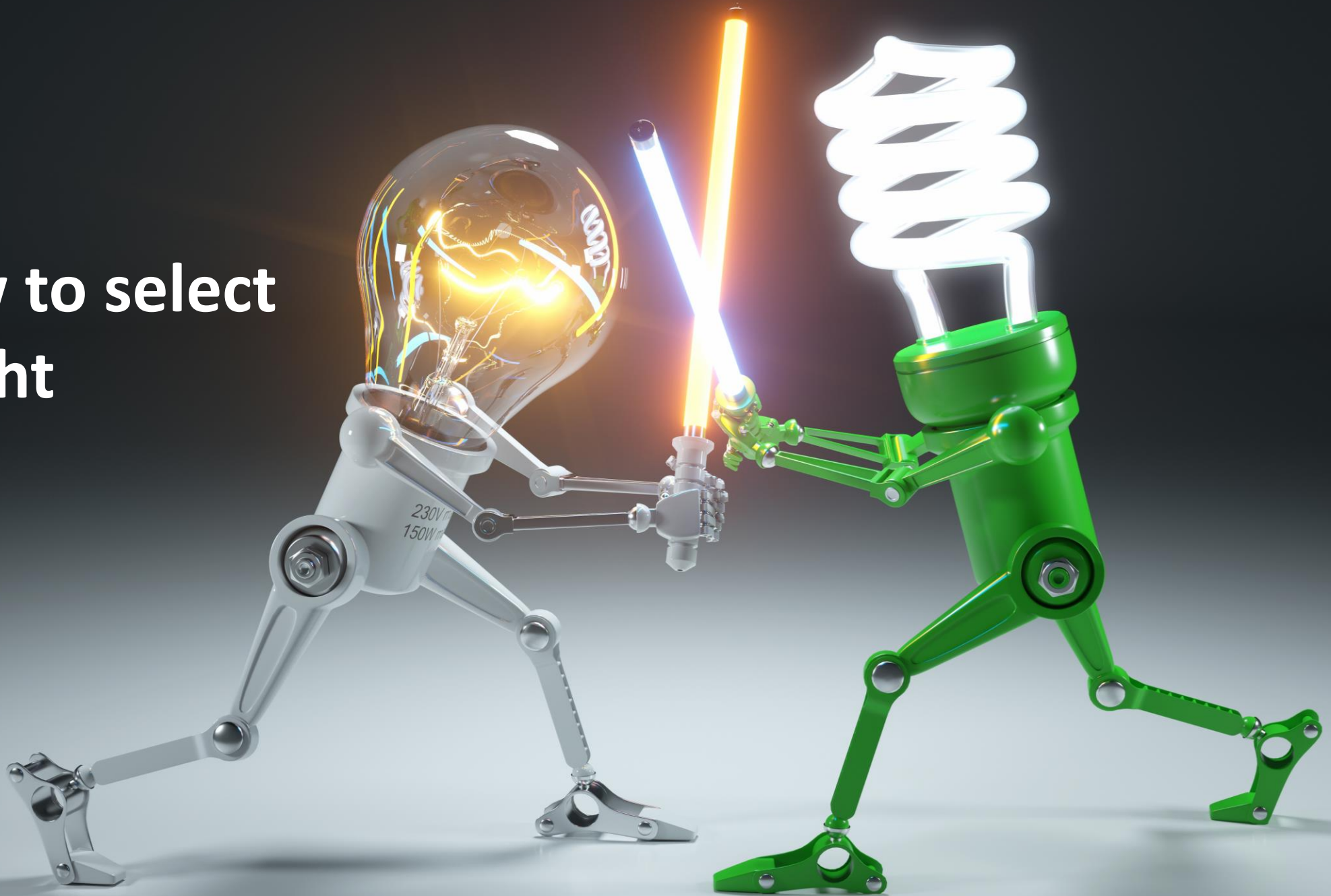




# Directional lighting examples



# How to select a light



# Selecting the correct light



**SIZE & SHAPE**



**WORKPLACE**



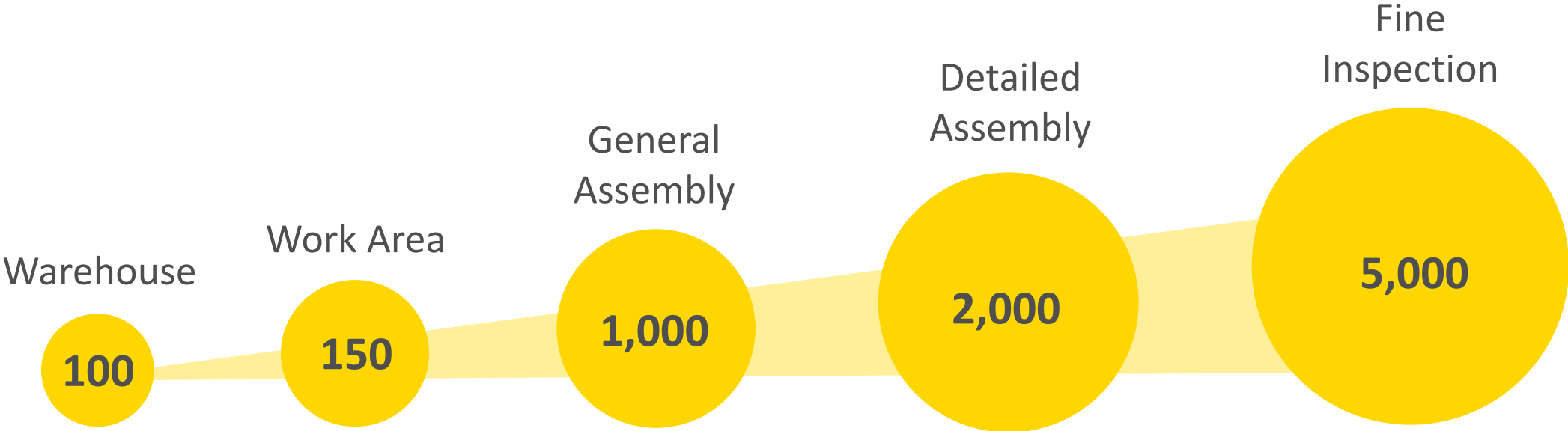
**APPLICATION**



# Which light? Size and shape



# Which light? Workplace standards



### IES Recommended light levels for industrial illuminance

- 100-300 lux: Warehouse (large-small items)
- 300-500-1000lx: Component Manufacture (large-medium-fine)
- 300-3000lx: Assembly and Inspection (simple-exacting)

### OSHA minimum light levels

10fc- Warehouse

# Selecting the correct light



**RETAIL**

400-600 Lux



**SPORTS**

2500-3500+ Lux



**WAREHOUSE**

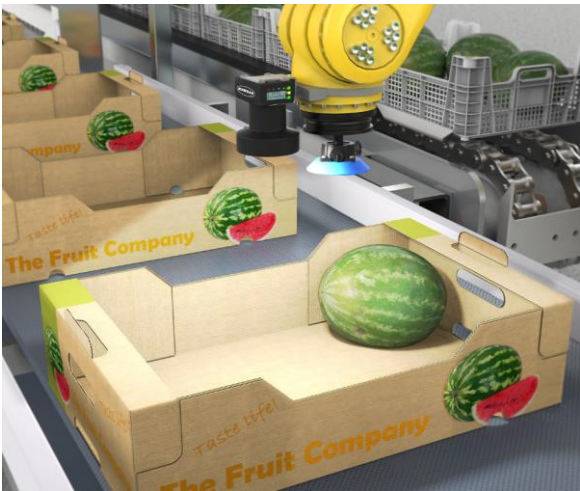
50-150 Lux



# Selecting the correct light



**CAMERAS**



**ROBOTS**



**AGV/AMR**

# Picking the correct light



**LIGHT LEVEL NEEDED**

**LUMINAIRE TYPE**

**ANCILLARY FACTORS**



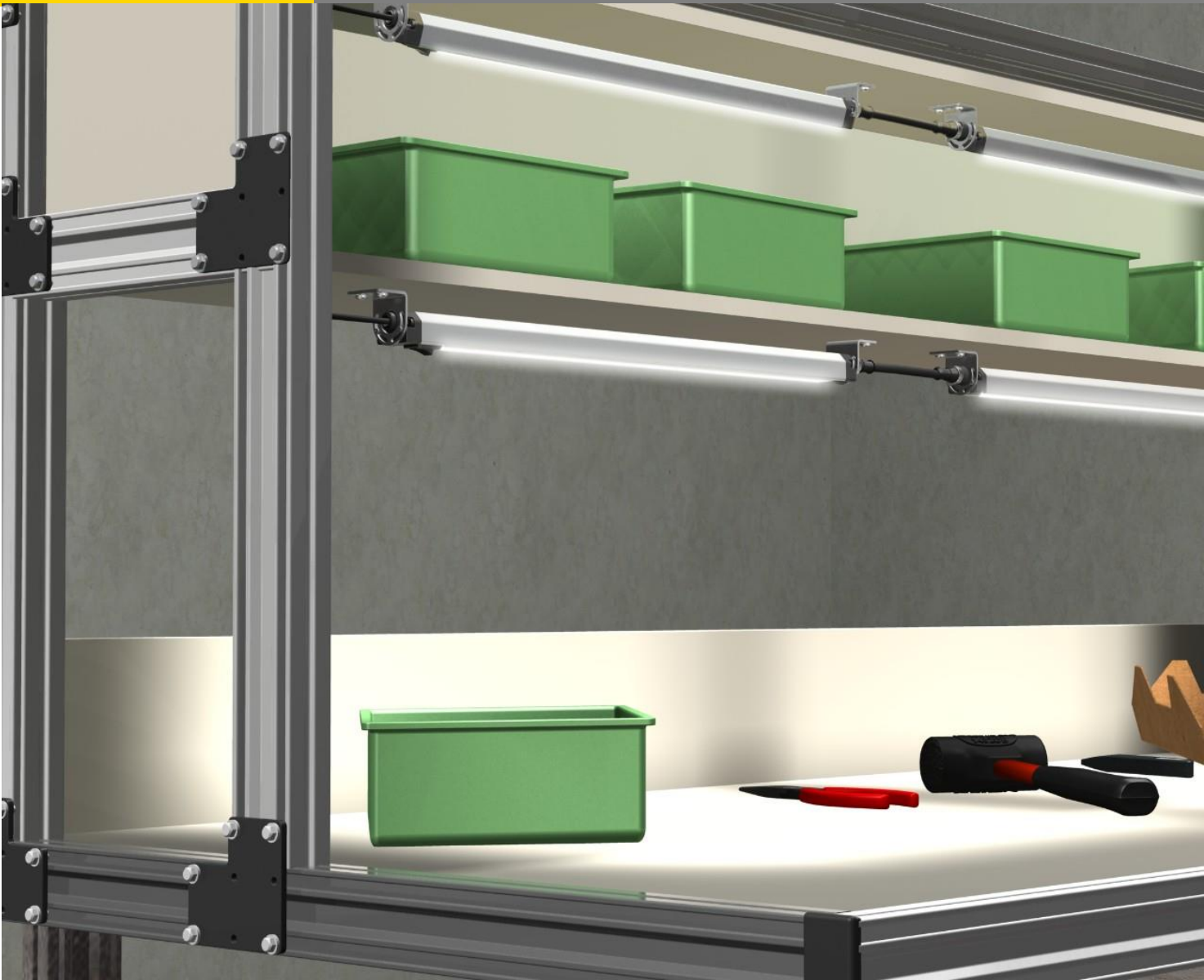
# Picking the correct light: Easy & intuitive



**LIGHT LEVEL NEEDED**  
Low  
**Medium**  
High

**LUMINAIRE TYPE**  
**Strip**  
Spot  
High bay

**ANCILLARY FACTORS**  
Power: AC vs. DC  
Environment: Wet vs. Dry  
Interface: Switch vs. Motion





# Picking the correct light: Technical



**LIGHT LEVEL NEEDED**  
100 lux / Warehouse  
400 lux / Small Parts Packing  
1000 lux / Inspection

**LUMINAIRE TYPE**  
Strip  
Spot  
High bay

**ANCILLARY FACTORS**  
Power: AC vs. DC  
Environment: Wet vs. Dry  
Interface: Switch vs. Motion



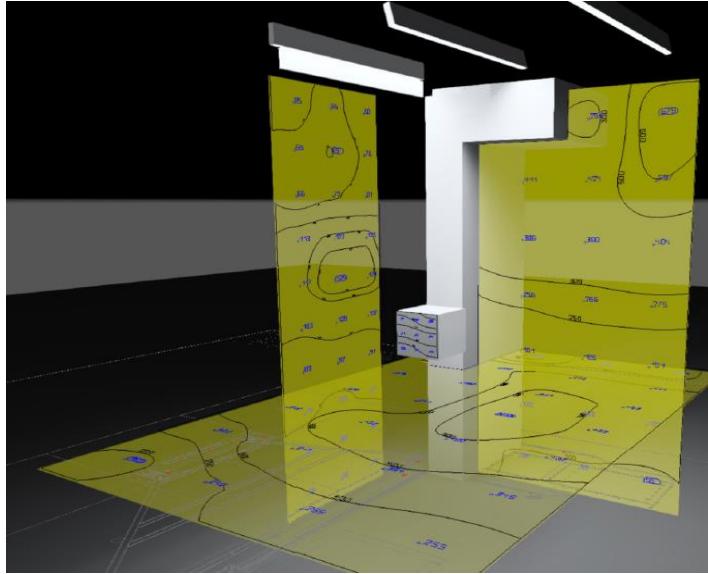
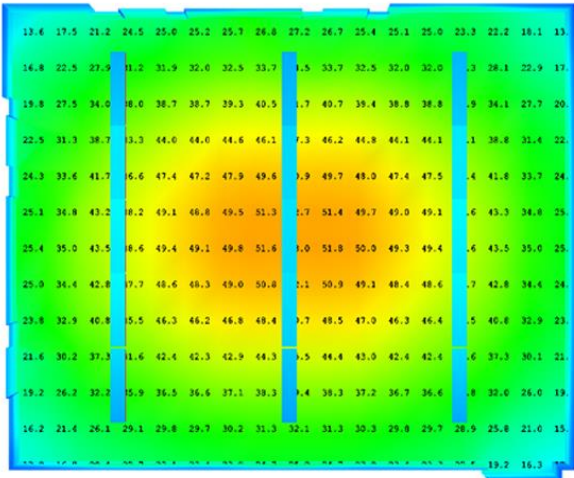
# Picking the correct light: Simulation



**LIGHT LEVEL NEEDED**  
100 lux / Warehouse  
500 lux / Fulfillment + Vision  
1000 lux / Inspection

**LUMINAIRE TYPE**  
Strip  
Spot  
High bay

**ANCILLARY FACTORS**  
Power: AC vs. DC  
Environment: Wet vs. Dry  
Interface

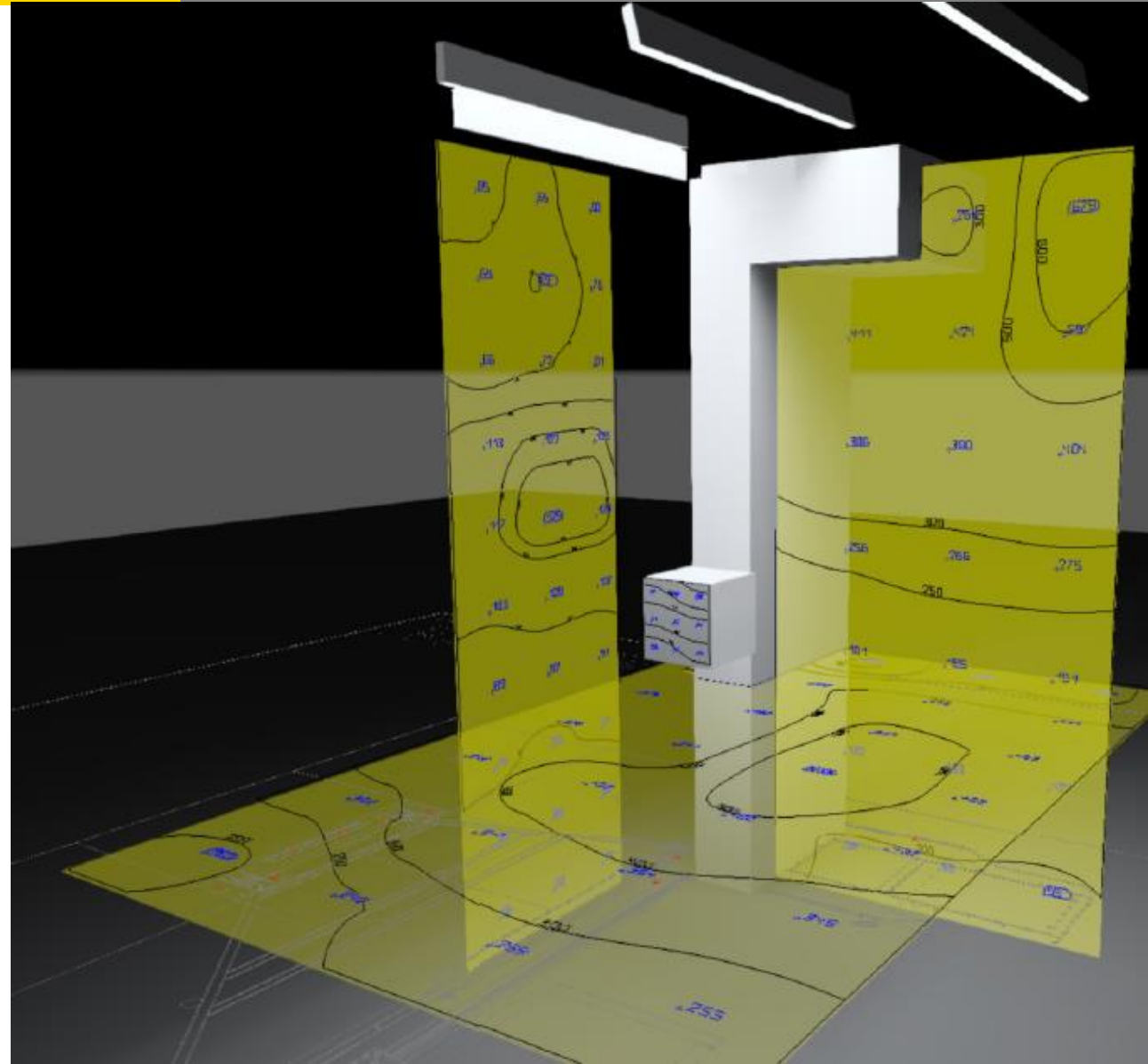


# Case study



**Light levels and dimensions known**  
Human need vs. Camera need  
Uniformity in the cell and factory

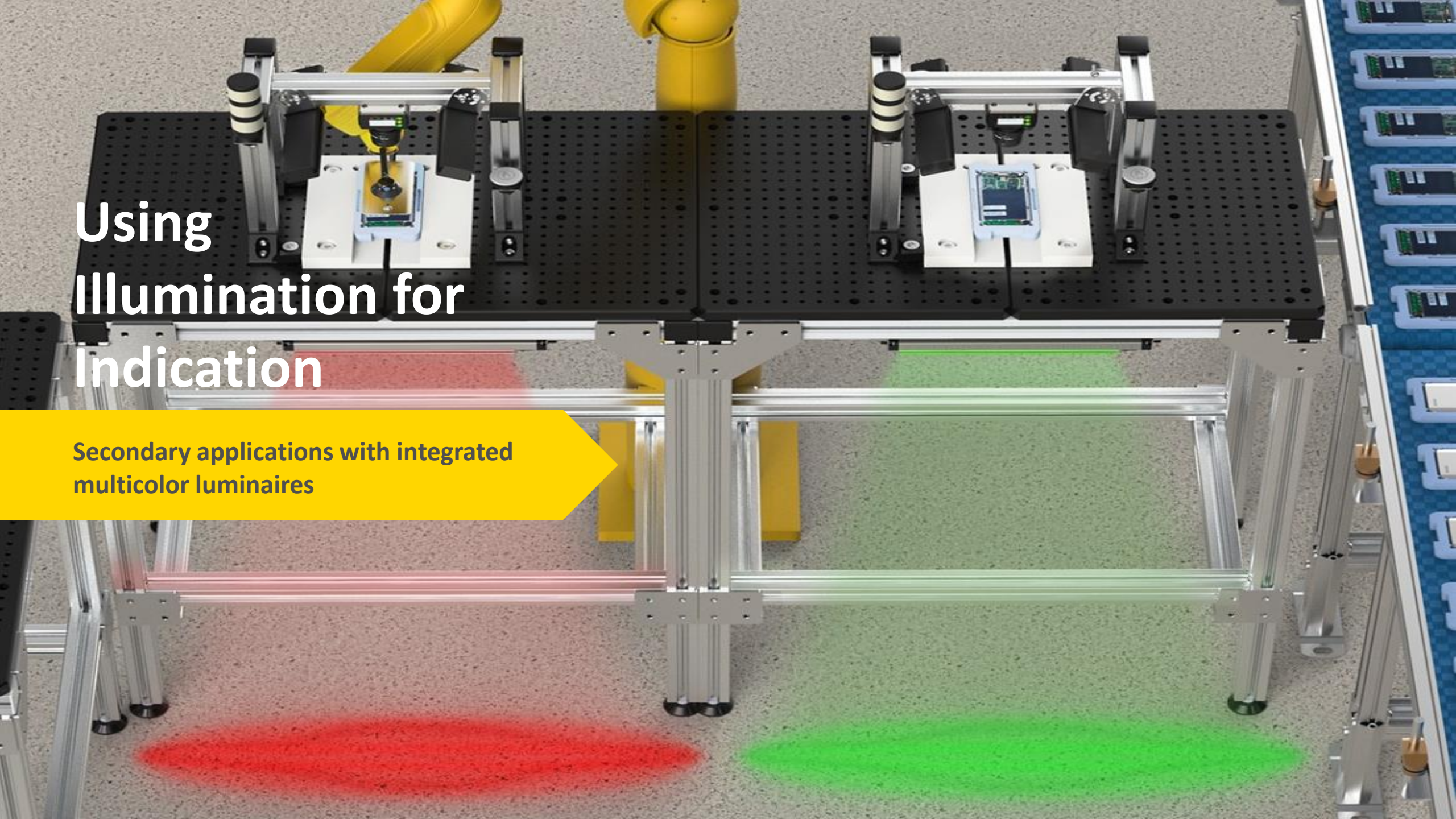
**Simulation to physical mockup**





# Using Illumination for Indication

Secondary applications with integrated  
multicolor luminaires





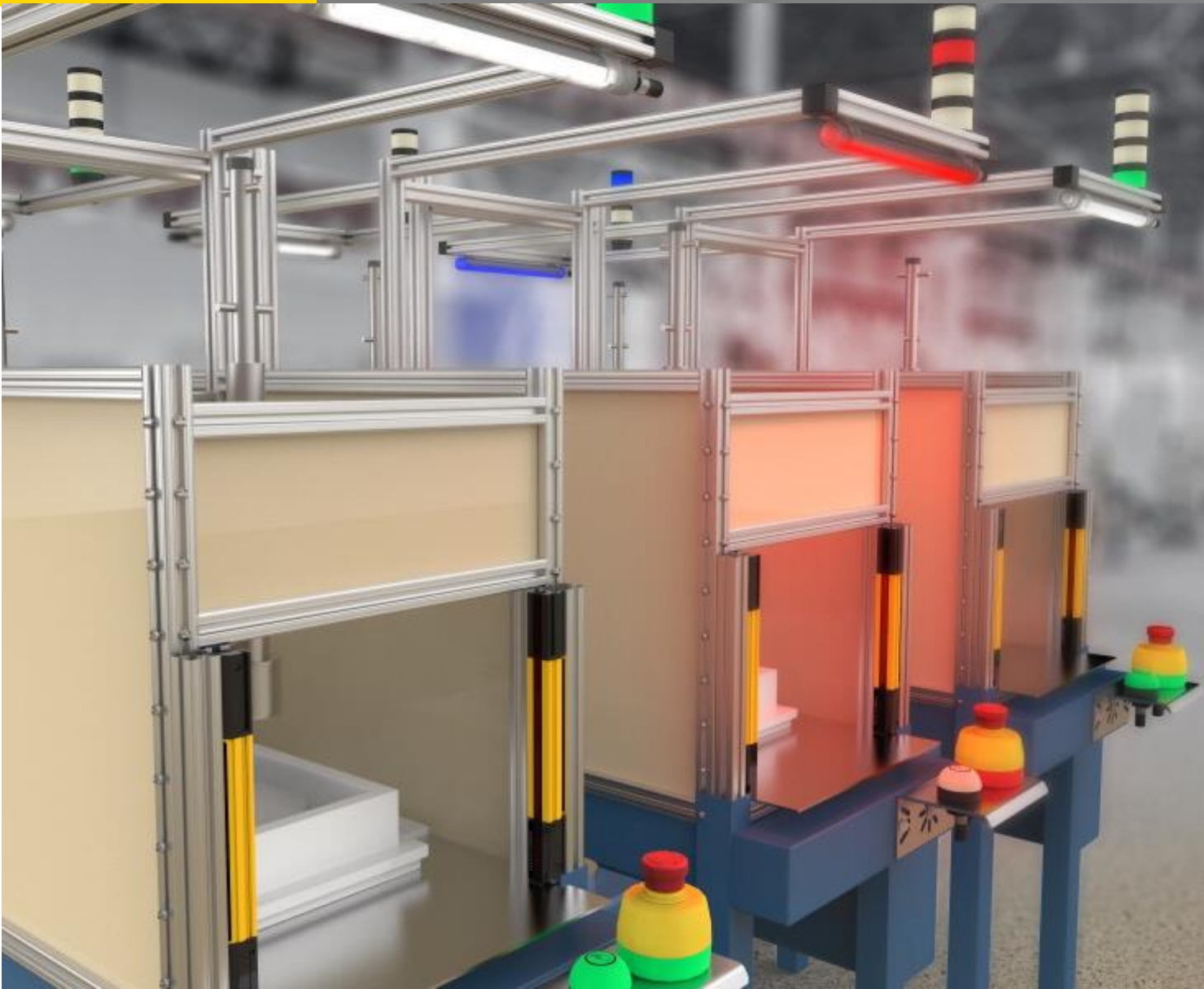
# Picking the correct light: Technical



**TWO-FOR-ONE**

**SIMPLIFIED**  
Design & installation

**HIGH ADAPTABILITY**



# Selecting the correct light



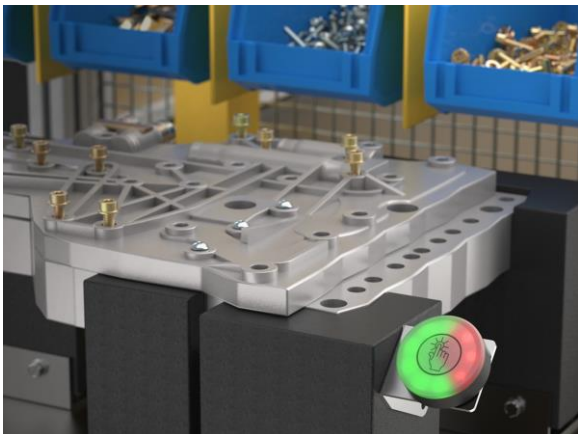
## SUPERVISOR

Supervisors can scan across facility



## MACHINE

Highlight critical processes and typical failure points



## OPERATOR

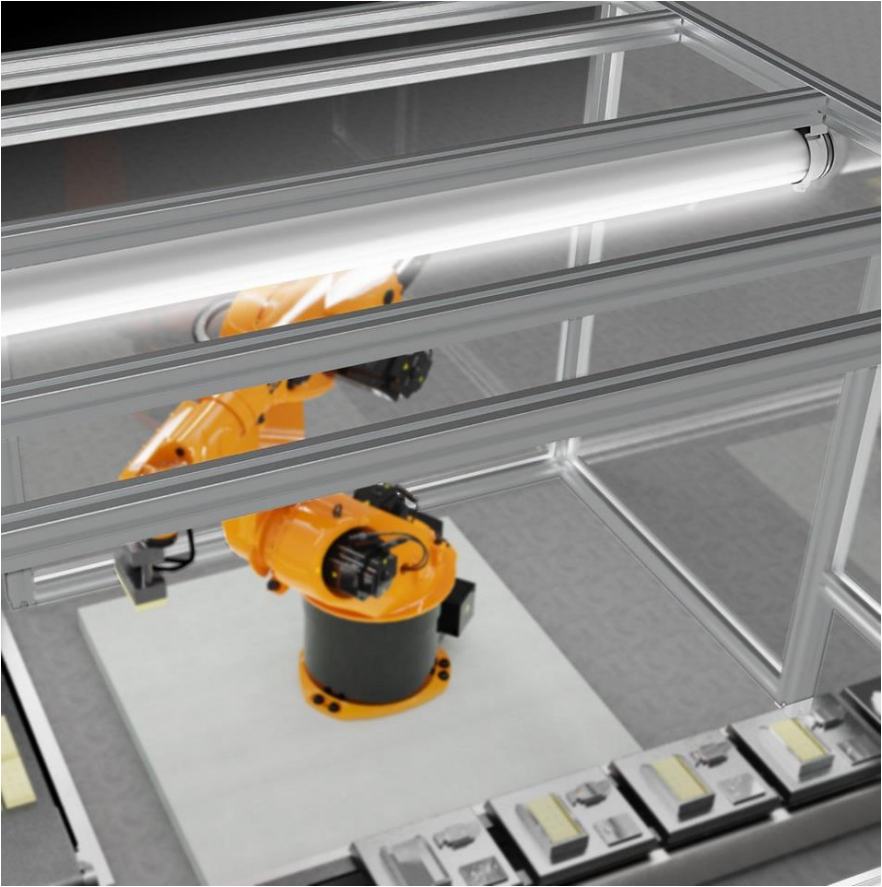
Workstation integration for focused tasks





# APPLICATIONS

# Pick & place, palletizers, sortation & singulation



# Loading dock illumination





# Extendable conveyor – trailer illumination



# Workstation illumination + status



# Picking and packing workstations

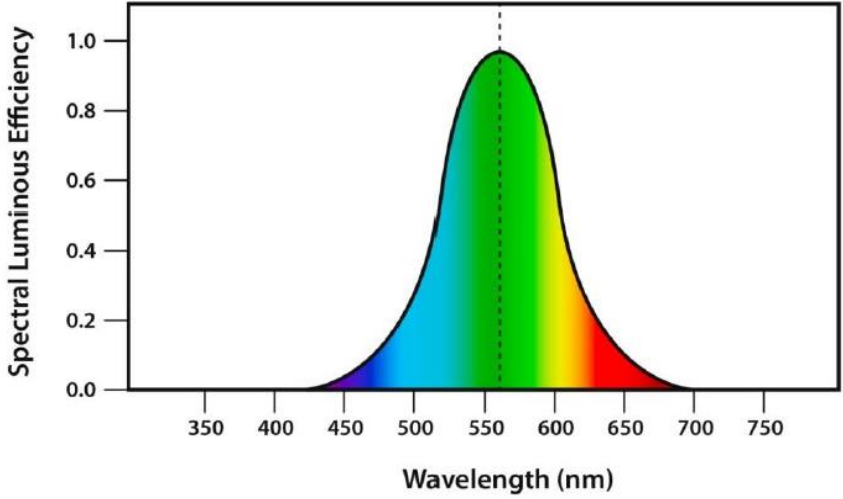
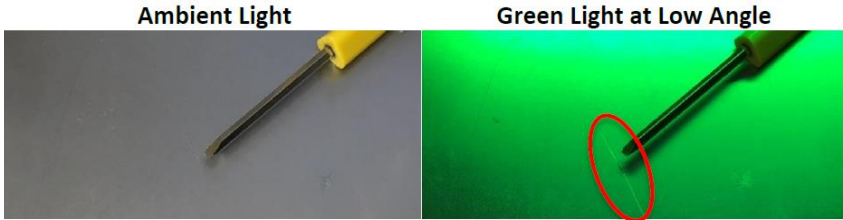




# Workstation status + process timing



# Manual visual inspection





# Questions?

Type into the chat in the lower right  
or contact your local sales person



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# Thank you

**BANNER**

