



Think Automation and beyond...



APEM
an IDEC company

LED Illumination Units LF1

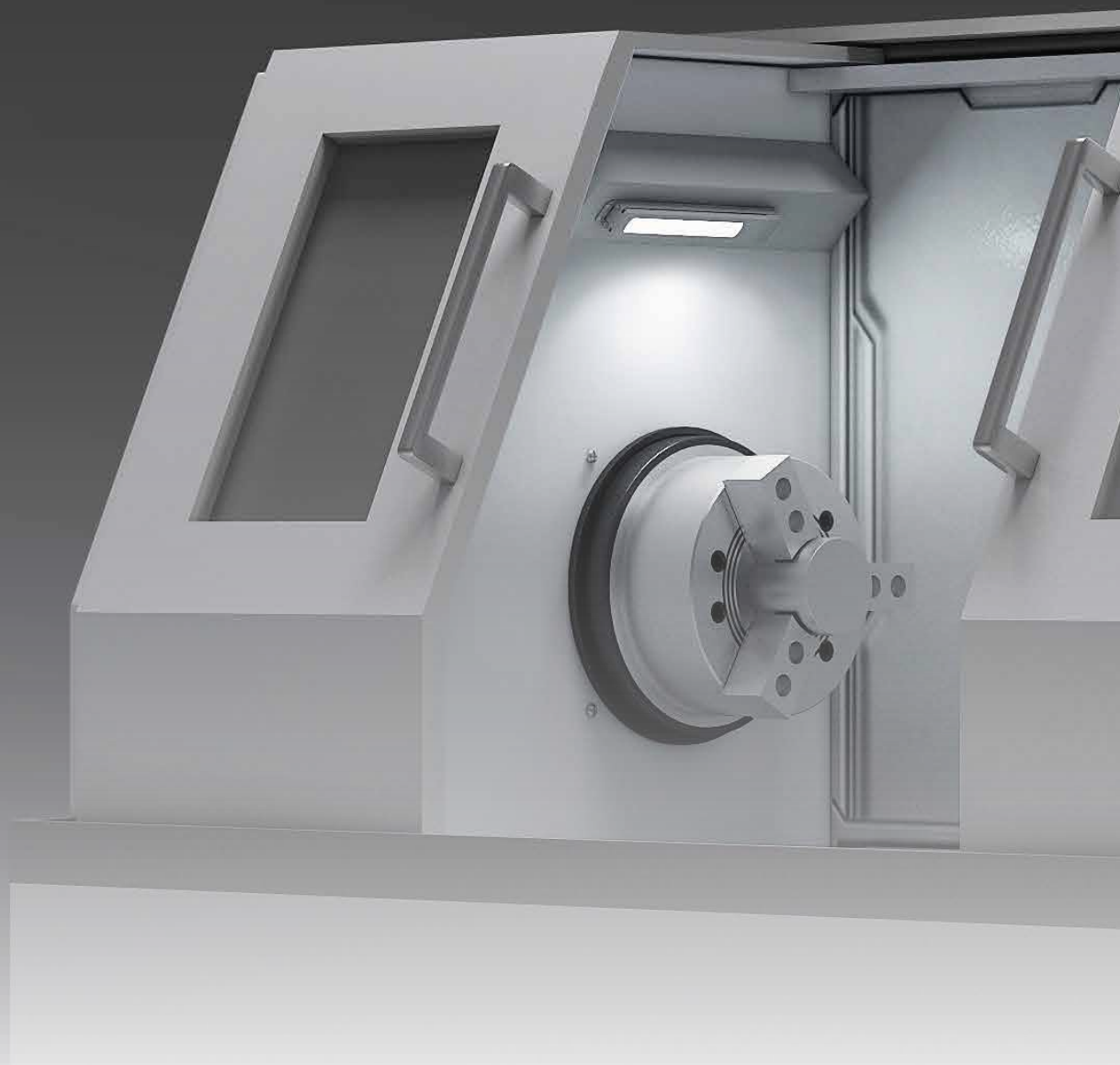
LUMIFA™



Optimal lighting solution for machine tools

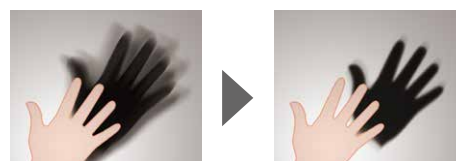
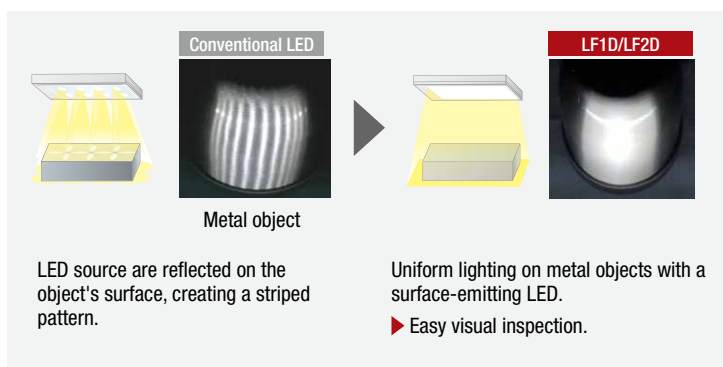
- Uniform light distribution
- Robust, resistant, easy maintenance

IDEC CORPORATION



Brightly lights objects and machine tool tips, making visual checks easy.

Conventional LED lighting has issues such as distracting LED grains, multi-shadows, and reflections of the light source on metal objects or hairline texture. LF1 uniform light emitting face has less LED grains and reduces light source reflection/multi-shadows.



► Reduced multi-shadow makes visual inspection easy.

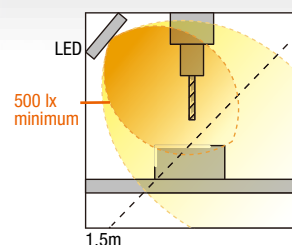


■ Illuminates objects and periphery brightly. Easy maintenance.

Provides wide-angle, high-illuminance lighting. Brightness required by the standard* is achieved. Target objects such as the tip of machine tools and its periphery are lit brighter, making it easier to check.

*EN1837: 1999 + A1: 2009, 4.2

At least 500 lx shall be provided when arranging lighting for machines.



■ Compliant with safety standard of machine tools

Requirement for machine tools (stationary grinding machines)
ISO 16089; 5.8.e

When designing machinery, **lighting intensity, direction, glare**, etc. shall be taken into account.

When necessary, integral lighting shall be provided. Especially the following items shall be taken into account:

- 1) the required lighting intensity depends on the grinding operation to be performed. It shall be at least **300 lx** in the area to be observed and its immediate vicinity;
- 2) glare, **reflections and shadows**, e.g. from workpiece or machine parts, shall be avoided **as far as possible**;
- 3) the lighting source shall be positioned **to minimize its contamination** during machining.



Safety Precautions

- Do not disassemble, repair, or modify LF1D/LF2D. Otherwise electric shock, fire, or malfunction may occur.
- Turn off power before wiring. Make sure that the temperature of LF1D/2D has lowered sufficiently before wiring.
- To prevent electric shock or damage, ensure that the wiring is correct.
- Do not stare directly into the LF1D/LF2D while it is lit, and do not project the light towards other people, otherwise their eyes may be injured.
- The LF1D/LF2D is a general-purpose industrial electric device.
- Ensure correct operating temperature. Otherwise rise in internal temperature may result in damage to the unit.
- Do not use in an application which may cause harm or injury to any-one or threaten life in case a malfunction or failure occurs.
- LF1D/LF2D is for indoor use only. Do not use outdoors, otherwise insulation failure, electric shock, or failure may result.

Operating Instructions

- LED modules and illumination units may vary in illumination colors and illuminance.
- Before designing equipment and powering up illumination units, confirm the specifications described in the instruction sheet.
- Apply voltage within the rated value, otherwise the LED elements may be damaged.
- Do not use or store in a location subjected to vibration and shock, otherwise electric shock or failure will result.
- Do not loosen screws, otherwise the protection characteristics will be impaired.
- To clean the cover, use a soft cloth with water or neutral detergent. Do not use solvents such as thinners, benzene, or alkaline, otherwise discoloration, deterioration, or decrease in strength may occur.
- When using this product in environments subject to dust and water, make sure that the wiring part of cable or wire are dustproof/water-proof. Otherwise leakage, electric shock, or failure may be caused.
- Do not use in the following locations:
 - * Subject to corrosive gases, volatile gases, flammable gases, or chemicals that could affect the safety and reliability of the product.
 - * Subject to electric or magnetic field
 - * Subject to flammable substances
 - * Outdoors
 - * Exposed to direct sunlight, near heaters, high temperatures
 - * Exposed to salt water
 - * Subject to condensation or freezing, such as cold storage warehouse or air cooler outlet (make sure that condensation or freezing do not occur)
 - * Exposed to ozone, radiation, UV or other locations where safety and reliability of the product.
- When using LF1D/LF2D as a UL/c-UL listed product, use a Class 2 power supply.

Warranty

- IDEC warrants LF1D/LF2D to be free from defects in material and workmanship under normal and proper use for a period one (1) year from date of shipment. The warranty period is reduced to six (6) months if LF1D/2D is run continuously over 20 hours. Any defected product will either be replaced or repaired, not including the expense required for mounting, replacing, or installation work.
- Warranty does not apply if LF1D/2D is not operated under conditions described in the instruction sheet or user's manual.

- Illumination units have a product life.
- Because internal elements deteriorate after 8 to 10 years of installation even if they have no defects in appearance, inspection and/or replacement are recommended. Operation condition: temperature 30°C, 3,000-hour operation per year (10 hours per day). (JIS C 8105-1)
- Product life is shortened under high operating temperature or when it is lit for long hours.
- Inspection and/or cleaning by user every 6 months is recommended.
- Inspection by contractors is recommended every 3 years.
- Do not use LF1D/LF2D for a long time without inspection, otherwise smoke, fire, or electric shock may occur.



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