



TECHNICAL BUYER'S GUIDE · PRATISHNA ENGINEERS

LIGHTING & ELECTRICAL COMPONENTS INJECTION MOULDING MACHINE GUIDE

A practical guide for luminaire and lamp component makers: housings, diffusers, potting boxes, end caps, gear trays and cable glands, with materials, moulds, output, automation, quality, worked examples and what to send for a machine recommendation.

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WHO THIS GUIDE IS FOR

Owners, plant and production managers, process engineers and purchase teams moulding lamp bodies, luminaire housings, diffusers, driver boxes and fixture accessories.

HOW TO USE IT

Sections 01 to 04 define the part, material and mould. Section 05 plans output. Sections 06 to 09 cover automation, quality, examples and your enquiry. Clamp force and shot sizing are covered in our Machine Selection Guide.

NEED A RECOMMENDATION?

Send your drawing, material, part weight, cavities and output target to sales@pratishnaengineers.com. The checklist in Section 09 lists what to include.

SECTION 01 · OVERVIEW

LIGHTING & ELECTRICAL COMPONENTS & INJECTION MOULDING

LED lighting has changed what moulders make: fewer lamp bodies, more driver boxes, diffusers, housings and sealed accessories that must survive heat, UV and years of service.

WHERE INJECTION MOULDING FITS IN LIGHTING

A luminaire combines a light source, a driver, optics and a housing. The moulded parts are lamp bodies, diffusers and optic covers, driver and potting boxes, downlight cans and trims, end caps and gear trays, outdoor housing parts and cable glands. Most long bodies of battens and tube fittings are extruded aluminium or PC, not moulded.

The move to LED has been fast in India. By January 2025 the UJALA scheme had distributed 36.87 crore LED bulbs and EESL had installed over 1.34 crore LED streetlights^[1]. LED lamps, drivers and luminaires are covered by BIS registration under the Compulsory Registration Scheme, with IS 16102 for self-ballasted LED lamps and IS 10322 for luminaires^[2].

MAIN COMPONENT CATEGORIES

LAMP BODIES CFL and LED lamp bodies with caps	BATTEN PARTS End caps, gear trays, brackets, clips	DRIVER BOXES LED potting and driver enclosures	OPTICS Diffusers, bulb domes, optic covers
DOWNLIGHTS Housings, cans and trim rings	OUTDOOR Street light housing parts, gear trays	ACCESSORIES Cable glands, strain reliefs	INSERTS Brass caps and contacts in lamp bodies

MOULDED HERE, EXTRUDED OR CAST ELSEWHERE

- Lamp bodies, domes, driver boxes, housings, end caps, trays and glands are injection moulded.
- Tube and batten diffusers and long bodies are usually extruded.
- Large road-lighting bodies are usually die-cast aluminium.
- LED boards, drivers and brass caps are bought in.

TYPICAL MANUFACTURING CHALLENGES

- Heat from drivers for tens of thousands of hours.
- Flow lines that show as hot spots on diffusers.
- Flatness on sealing faces that carry the IP rating.
- Some lamp bodies use thermoset compounds^[4].

WHERE MOULDING SITS IN THE LUMINAIRE CHAIN

RESIN FR, UV, optical grades	TOOLING housings, optics	INJECTION MOULDING bodies, boxes, covers	INSERTS caps, contacts, seals	ASSEMBLY LED, driver, optics	POTTING & TEST IP, safety, photometry	MARKET BIS registered
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KEY REQUIREMENTS FOR LIGHTING PARTS

HEAT Driver compartments run hot for the whole rated life.	FIRE SAFETY Glow-wire tests check ignition of parts near live parts ^[5] .	TRACKING CTI rates resistance to surface tracking ^[6] .
OPTICS PMMA transmits about 92% of light, PC about 88 to 90% ^[3] .	UV PC yellows outdoors unless UV stabilised ^[3] .	SEALING Flat faces and glands deliver the IP rating.

Scope note: this guide covers lamp and luminaire parts. Switches, sockets and wiring accessories are covered in the separate electrical guides.

SECTION 02 · COMPONENTS

MAJOR LIGHTING & ELECTRICAL COMPONENTS

The lighting parts covered by this guide, their materials and what each asks of the moulding process.

COMPONENT	APPLICATION	MATERIAL(S)	INJECTION MOULDING CONSIDERATIONS
CFL holder (lamp body and base housing with ballast and cap)	Lamp-side body carrying the ballast PCB and B22 or E27 cap	FR PC, PBT, PA66-GF, urea formaldehyde, BMC polyester	Continuous heat from electronics needs a heat-aged grade, not only V-0. Brass cap and contacts insert moulded or assembled. Confirm it is not the wall holder, and whether the tool is really for an LED bulb body.
Tube light fixture (batten housing, end caps, brackets, gear tray)	Battens and tube fittings	FR PC, PC/ABS, FR ABS, PP, PA6-GF	Long bodies and diffuser tubes are usually extruded; end caps, gear tray, driver box, brackets and clips are moulded. A fully moulded 2 or 4 ft body needs a long platen and warps easily.
LED potting box	Driver enclosure filled with potting compound	FR PC, PBT-GF, PA66-GF, PPO/PPE, PP	Box and potting compound are one decision. Drivers run at 80 to 120 °C over 50,000 to 100,000 h. Mismatched expansion or exothermic cure can crack a PC box. Fill and vent geometry must allow degassing.
LED diffuser and optic cover	Bulb domes, panels and covers	Diffusion-grade PC, PMMA, PP	Uniform wall is the whole job; flow lines and gate stress show as hot spots. PMMA about 92% transmission but brittle; PC about 88% and tougher, needing higher pressure and mould temperature.
Downlight / spotlight housing and trim	Recessed and surface fittings	FR PC, PC/ABS, PA6-GF, thermally conductive PC	Driver space can reach 80 to 100 °C, so heat-aged performance and glow-wire class apply. Trim ring is the cosmetic part. Spring clip features need fatigue-resistant sections.
Street light / outdoor housing parts and gear tray	Outdoor luminaires	FR PC (UV-stabilised), PA6-GF, PC/ASA	UV stability over a 10 to 15 year outdoor life; standard FR PC yellows without it. Sealing-face flatness delivers the IP rating. Large road bodies are usually die-cast.
Cable gland, strain relief, fixture accessory	Cable entry and fixing	PA6, PA66, TPE, PP	Small high-cavity parts carrying the IP rating at the cable entry. Glands that relax over thermal cycles leak. TPE seals overmoulded or fitted; heat-aged and UV grades outdoors.

Extruded bodies and diffuser tubes, die-cast housings, LED boards, drivers, brass caps and potting compounds are outside this guide.

WHAT IS MOULDED IN EACH FITTING

FITTING	INJECTION MOULDED	USUALLY MADE ANOTHER WAY
LED or CFL lamp	Body, dome, base housing	Brass cap, LED board, driver
Batten and tube fitting	End caps, gear tray, brackets, clips	Long body, diffuser tube
Downlight	Housing, trim, diffuser, clips	Heat sink in some designs
Street light	Housing parts, gear tray, covers	Large die-cast body
Any sealed fitting	Glands, strain reliefs	Gaskets, potting compound

THERMOSET LAMP BODIES

Urea formaldehyde and BMC polyester are thermosets. They are injected from a cooled barrel into a heated mould^[4], so they need a thermoset plasticising unit and heated tooling rather than a standard thermoplastic setup. As CFLs give way to LED, confirm whether a new tool should be a thermoplastic LED body instead.

SECTION 03 · MATERIALS

MATERIALS USED FOR LIGHTING & ELECTRICAL COMPONENTS

Lighting grades are chosen for heat, flame, tracking and light, often in that order, and the same part may need all four.

MATERIAL	TYPICAL COMPONENTS	RELEVANT PROPERTIES	PROCESSING CONSIDERATIONS	LIMITATIONS TO CHECK
PC grades: FR, UV-stabilised, diffusion, thermally conductive	Lamp bodies, battens, potting boxes, diffusers, downlights, outdoor parts	Tough, heat resistant, available in FR and optical grades.	Dry well; higher pressure and mould temperature for optics.	Yellows outdoors without UV stabilisation ^[3] ; stress cracking with some potting cures.
PC/ABS, PC/ASA, FR ABS	Batten parts, downlight housings, outdoor parts (PC/ASA)	Easier flow than PC; ASA adds weathering.	Dry before moulding; good surface finish.	Lower heat than PC; FR class of the grade.
PBT, PBT-GF	Lamp bodies, potting boxes	Heat and electrical properties, dimensional stability.	Dry before moulding; GF grades wear tools.	Warping on GF flat parts.
PA6, PA66, glass-filled PA	Lamp bodies, battens, potting boxes, downlights, outdoor trays, glands	Strength and heat resistance; tough glands.	Must be dried ^[9] ; fibre orientation follows the gate.	Moisture changes size and properties.
PPO/PPE	Potting boxes	Heat resistance, low moisture uptake.	High melt temperature.	Chemical resistance to some compounds.
PP	Batten parts, potting boxes, diffusers, glands	Low cost, chemical resistant.	Easy to mould; shrinkage and warp.	Lower heat and flame performance unless FR grade.
PMMA	Diffusers and optic covers	About 92% transmission, naturally UV stable ^[3] .	Dry; gentle ejection to avoid cracks.	Brittle; limited heat.
TPE	Gland seals	Soft sealing element.	Overmoulded or fitted; bond grade matters.	Relaxation over thermal cycles.
Urea formaldehyde, BMC polyester	CFL lamp bodies	Thermosets with heat and electrical resistance.	Cooled barrel, heated mould ^[4] .	Need a thermoset unit; cannot be remelted.

General material behaviour only. Confirm flame class, glow-wire and CTI values, heat ageing and optical data with the resin supplier for the exact grade and thickness.

MATCHING MATERIAL TO THE PART

Lamp bodies and driver boxes are chosen for heat and potting stress: FR PC, PBT, PA66-GF, PPO/PPE or thermosets. Optics are chosen for light: diffusion PC, PMMA or PP. Outdoor parts and glands are chosen for UV and sealing: UV-stabilised FR PC, PC/ASA, PA grades and TPE.

FLAME CLASS IS ONLY THE START

A V-0 grade can still fail near hot electronics if it loses strength with heat ageing. Ask for heat-aged data, glow-wire results^[5] and CTI^[6] at your wall thickness.

MATERIAL SELECTION QUESTIONS

- ☐ What temperature will the part see in service?
- ☐ Is it near live parts or a driver?
- ☐ Indoor, outdoor or sealed to an IP rating?
- ☐ Does light pass through it?
- ☐ Which potting compound will be used?

SECTION 04 · DESIGN & MOULD

COMPONENT DESIGN & MOULD REQUIREMENTS

Lighting moulds balance three demands: optical walls without flow marks, housings that stay flat for sealing, and features that hold inserts, clips and screws near heat.

DESIGN FEATURES THAT AFFECT MOULDING

FEATURE	WHY IT MATTERS IN LIGHTING	MOULDING IMPLICATION
Uniform optical walls	Flow lines and gate stress show as hot spots.	Gate position, slow controlled fill, polished steel.
Sealing faces	Flatness delivers the IP rating.	Even cooling, balanced packing, stiff sections.
Cap and contact inserts	Lamp bodies carry B22 or E27 caps.	Insert location and retention; heat near inserts.
Potting fill and vents	Trapped bubbles cut dielectric strength.	Fill and vent openings shaped for degassing.
Spring clip mounts	Downlights hold in ceilings by clips.	Fatigue-resistant walls; no sharp corners.
Screw bosses near heat	Housings fixed near drivers.	Boss design for heat-aged grades; weld lines away.
Long thin parts	End caps and trays are small, bodies long.	Warp control; long platens for long parts.

MOULD CONSIDERATIONS

ITEM	LIGHTING POINTS	ITEM	LIGHTING POINTS
Cavity layout	Glands, clips: 8 to 32. End caps: 4 to 16. Housings, domes: 1 to 4.	Steel	Polished for optics; wear-resistant for GF.
Gating	Away from optical zones on diffusers.	Inserts	Loading of caps and contacts.
Cooling	Even cooling for flat seals ^[6] .	Texture	Trims and visible housings.
Venting	Burn marks show on white and clear parts.	Thermosets	Heated moulds for UF and BMC ^[4] .

Where a tool change could affect a certified property such as wall thickness near live parts, record it and check whether the product file needs updating.

PLANNING A LUMINAIRE FAMILY

SHARED BASES	TRIMS	OPTICS	END CAPS
One base, inserts for wattage sizes.	Colour and finish variants of one can.	Clear, opal and prismatic inserts.	Pairs for several batten lengths.

SECONDARY OPERATIONS THAT SHAPE THE MOULD

OPERATION	TYPICAL PARTS	WHAT IT ASKS OF THE MOULDED PART
Potting	Driver and potting boxes	Stable walls under cure heat and shrinkage.
Gasket and seal fitting	Outdoor housings, glands	Grooves and faces to size and flat.
Cap fixing and soldering	Lamp bodies	Cap seats and contact slots to size.
Clip and bracket fitting	Downlights, battens	Slots and bosses that hold spring force.

SECTION 05 · PRODUCTION PLANNING

PRODUCTION CAPACITY & CYCLE-TIME PLANNING

Luminaire output is set by the slowest moulded part in the fitting. Small accessories run many cavities; housings and optics run few.

OUTPUT

Parts/hour = Cavities × 3600 ÷ Cycle time (s)

Effective/hour = Parts/hour × Utilisation

Day = Effective/hour × Hours run

Utilisation covers colour and variant changes, start-up, maintenance and rejects.

EXAMPLE 1 · 8-CAVITY PP BATTEN END CAP

$8 \times 3600 \div 15 \text{ s} = 1,920 \text{ /h}$

$\times 0.85 \text{ utilisation} = 1,632 \text{ /h}$

$\times 22 \text{ h} = 35,904 \text{ /day}$

$\times 26 \text{ days} = 933,504 \text{ /month}$

Two caps per batten: about 466,752 battens a month.

WHAT SETS THE CYCLE TIME

PHASE	LIGHTING INFLUENCE
Injection & hold	Slow controlled fill on optics.
Cooling	Usually the largest share; rises roughly with wall thickness squared ^[8] .
Inserts	Caps and contacts loaded each cycle.
Thermoset cure	Cure time in the heated mould.
Removal	Robot take-out for optical parts.

EXAMPLE 2 · PC DOWNLIGHT HOUSING, 2 CAVITIES

$2 \times 3600 \div 40 \text{ s} = 180 \text{ /h}$

$\times 0.85 = 153 \text{ /h} \cdot \times 22 \text{ h} = 3,366 \text{ /day}$

$\times 26 \text{ days} = 87,516 \text{ /month}$

Working backwards: for 150,000 housings a month in 572 running hours you need 262 per hour. Cavities = $262 \times 40 \div (3600 \times 0.85) \approx 3.4$, so a 4-cavity mould or a second machine.

Illustrative example. Cycle times of 15 s and 40 s, 85% utilisation, 22 h per day and 26 days per month are assumptions. Actual requirements depend on the component, material, mould and production conditions.

BALANCING CAVITIES, CLAMP FORCE AND OUTPUT

PP END CAP MOULD	PROJECTED AREA	CALCULATED FORCE	RATED AT 85%	SHOT	EFFECTIVE OUTPUT
4 cavities	48 cm ²	19 t	23 t	24 g	816 /h
8 cavities	96 cm ²	39 t	45 t	48 g	1,632 /h
16 cavities	192 cm ²	77 t	91 t	96 g	3,264 /h

Illustrative example. Force = projected area × clamp factor K × safety factor S. PP, PE and PS are commonly given 2 to 3 US tons per square inch^[7], about 0.28 to 0.42 t/cm²; K = 0.35 t/cm² and S = 1.15 assumed. Also assumed: 12 cm² and 6 g per cap, hot runner with no runner waste, 15 s cycle, 85% utilisation. FR PC and glass-filled grades need their own factor.

MATCHING A LUMINAIRE

Complete fittings/month = lowest of (each part per month ÷ parts per fitting)

A batten needs two end caps, a gear tray and clips; a downlight needs a can, a trim and a diffuser. Plan the slowest part first. Keep a small buffer of the slowest part so assembly does not stop during mould changes.

End caps serve several batten lengths, so one high-cavity cap mould can feed several body lines. Housings and optics change with wattage and beam angle, so their machine hours come from the whole model mix, not one part.

MACHINE UTILISATION AND PLANNED DOWNTIME

COLOUR CHANGES

White, black and trim colours; purge time.

GRADE CHANGES

FR, UV and optical grades on one machine.

DRYING

PC, PA and PBT dried before runs^[9].

SEASONAL DEMAND

Festive and project peaks.

SECTION 06 · AUTOMATION

AUTOMATION & PRODUCTION EFFICIENCY

In lighting, automation protects surfaces and keeps inserts in place: a scratched diffuser or a missing contact is a reject after assembly.

AUTOMATION	WHERE IT ADDS VALUE IN LIGHTING	WHEN IT USUALLY MAKES SENSE
Robot take-out	Removes diffusers and trims without marks.	Optical and cosmetic parts.
Insert loading	Places caps and contacts in lamp bodies.	Insert-moulded lamp bodies.
Sprue picker and conveyor	Removes runners, carries small parts away.	End caps, clips, glands.
Degating and packing	Clean gate cut on visible parts.	Domes and covers.
Vision inspection	Checks flow marks, black specks, short shots.	Diffusers and white housings.
Dryer and dosing	Controls moisture and colour.	PC, PA, PBT and coloured parts.
Seal and gland assembly	Fits TPE seals and nuts.	Glands and outdoor parts.
Leak testing	Checks sealed housings.	IP-rated fittings.

Optical parts gain most from robots, since every hand touch risks scratches and fingerprints. Small accessories gain most from conveyors and counting, since they run in high volumes and many sizes.

AUTOMATION BY PRODUCT GROUP

PRODUCT GROUP	MAIN AUTOMATION	WHY
Diffusers and domes	Robot, degating, vision	Clean surfaces, no hot spots
Lamp bodies	Insert loading	Caps and contacts every cycle
Housings and trays	Robot, stacking	Larger parts, flatness
Glands and clips	Sprue picker, conveyor, counting	High counts, many sizes

DECIDING ON AUTOMATION

SURFACE QUALITY Robots keep optics and trims unmarked.	INSERTS Automated loading keeps the cycle steady.	VOLUME Accessories in large counts per month.
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INTERFACES TO SPECIFY ON THE MACHINE

ROBOT Signal interface and safety interlocks.	HOT RUNNER Zones for multi-cavity parts.	MOULD TEMPERATURE High-temperature units for optics and PC.	AUXILIARIES Dryer, dosing and conveyor links.
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WHERE THE COST OF A MOULDED PART COMES FROM

MATERIAL FR, UV, optical grades	MACHINE per machine hour	LABOUR handling, inserts	POWER kWh per part	MOULD variants	REJECTION marks, warp	PACKING scratch-free
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On housings and potting boxes, engineering-grade resin cost dominates. On optics, rejection for marks and hot spots often matters more. Use your own rates to compare options.

SECTION 07 · QUALITY

QUALITY, TESTING & COMMON DEFECTS

A lighting part is judged on the ceiling or the pole: it must not burn, yellow, leak, crack or show hot spots over years of use.

TESTS AND CHECKS

CHECK	WHAT IT INVOLVES	LINK TO MOULDING
BIS registration	LED lamps, modules, drivers and luminaires registered under CRS to IS 16102, IS 16103, IS 15885 and IS 10322 ^[2] .	Grade, design and marking held constant
Glow wire	Heated wire test for ignition and flame duration on parts near live parts ^[5] .	Grade, wall thickness
Tracking (CTI)	Resistance to surface tracking between electrodes ^[6] .	Grade, surface contamination
Heat and ageing	Parts hold shape and strength at service temperature.	Grade, moulded-in stress
IP and sealing	Dust and water tests on the sealed fitting.	Flatness, gland and seal geometry
Optical checks	Transmission, uniformity and hot spots.	Wall uniformity, gate, flow lines
UV exposure	Colour and strength after UV for outdoor parts.	UV-stabilised grade

Test methods and limits come from the applicable standard and the product certification. Confirm the current editions, including revised IS 10322 and IS 16102 parts^[2].

IN-PROCESS CONTROLS

FLATNESS Sealing faces on housings and trays.	VISUAL Flow lines, specks and marks on optics.	INSERT CHECK Caps and contacts present and seated.	MOISTURE PC, PA and PBT before moulding ^[9] .
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TROUBLESHOOTING COMMON DEFECTS

DEFECT	POSSIBLE CAUSES	EFFECT ON THE FITTING	AREAS TO INVESTIGATE
Flow lines on diffusers	Uneven fill, gate stress, cold mould	Visible hot spots	Gate position, injection profile, mould temperature
Warped housings	Uneven cooling, GF orientation	Seal leaks, IP failure	Cooling layout, hold, gate
Cracks on PMMA	Aggressive ejection, stress	Broken covers	Ejection, draft, moulded-in stress
Splay and bubbles	Moisture in PC, PA or PBT	Weak parts, visual rejects	Drying
Yellowing	Overheating, non-UV grade outdoors	Light loss, appearance	Residence time, grade selection
Stress cracks after potting	Mismatched compound, moulded-in stress	Box cracks	Compound choice, packing, annealing
Black specks	Degraded material, dirty changeover	Rejects on white and clear parts	Purging, residence time, drying
Loose inserts	Insert seat wear, low hold pressure	Poor cap contact	Insert seats, packing, insert temperature
Gland leaks	Seal relaxation, thread size	Water entry	Seal grade, thread dimensions

SECTION 08 · WORKED EXAMPLES

PRACTICAL MACHINE-SELECTION EXAMPLES

Three typical lighting parts show how the selection logic changes with the component. These are engineering illustrations with assumed inputs, not customer case studies.

A · FR PC LED POTTING BOX		HEAT + POTTING
APPLICATION · MATERIAL	LED driver potting box · FR PC (or PBT-GF)	
CHARACTERISTICS	Box with fill and vent openings, screw bosses	
CAVITIES · OUTPUT	2 to 4 · set by driver volume	
MOULD CONSIDERATIONS	Even walls, low moulded-in stress, venting	
SECONDARY	Driver fitting, potting and cure	
EVALUATE Tonnage needs projected area. Accurate temperature control and low-stress moulding matter because the box must survive potting cure and years of heat. STILL NEEDED drawing, grade data, potting compound, volume.		

B · PP BATTEN END CAP		VOLUME
APPLICATION · MATERIAL	Batten end cap · PP (assumed)	
CHARACTERISTICS	About 6 g, 12 cm ² projected area (assumed); clips	
CAVITIES · OUTPUT	8 · about 1,632 per hour at 15 s (Section 05)	
MOULD CONSIDERATIONS	Hot runner, left and right pairs, clip features	
SECONDARY	Counting and packing in pairs	
EVALUATE The Section 05 table gives about 39 t calculated and a 48 g shot, so a clamp rated around 45 t or more. Cycle time and cavities matter more than tonnage. STILL NEEDED CAD projected area, batten lengths, volume.		

C · UV PC OUTDOOR GEAR TRAY		OUTDOOR + SEALING
APPLICATION · MATERIAL	Street light gear tray · UV-stabilised FR PC or PA6-GF	
CHARACTERISTICS	Large flat part, seal face, driver bosses	
CAVITIES · OUTPUT	1 · set by luminaire volume	
MOULD CONSIDERATIONS	Balanced gating, cooling for flatness, GF wear	
SECONDARY	Gasket fitting and leak test	
EVALUATE Platen size and flatness decide the machine as much as tonnage. Larger road-lighting bodies may be die-cast instead of moulded. STILL NEEDED drawing, grade data, IP rating, volume.		

In each case the operating environment, heat, volume or outdoor exposure, set the grade first. The machine then follows from how that grade must be processed and how large and flat the part must be.

WHAT DECIDED THE MACHINE IN EACH EXAMPLE

SELECTION FACTOR	A · POTTING BOX	B · END CAP	C · GEAR TRAY
Main limit	Heat and stress	Cavities, cycle	Size and flatness
Clamp force	Needs projected area	About 45 t rated	Needs projected area
Auxiliaries	Dryer, robot	Conveyor, counter	Robot, dryer

Illustrative example. Actual requirements depend on the component, material, mould and production conditions.

SECTION 09 • BUYER CHECKLIST

MACHINE BUYER'S CHECKLIST

What to prepare before asking an injection moulding machine manufacturer for a recommendation on a lighting component.

COMPONENT

- ☐ 2D drawing and 3D CAD model
- ☐ Part weight and wall thickness
- ☐ Grade data: FR, glow-wire, CTI, UV
- ☐ Optical or sealing surfaces
- ☐ Inserts and seals
- ☐ Visible and cosmetic faces

PRODUCTION

- ☐ Monthly volume per model
- ☐ Parts per luminaire
- ☐ Cavity count and target cycle time
- ☐ Colour and variant range
- ☐ Operating hours and shifts
- ☐ Seasonal or project peaks

MOULD

- ☐ New or existing mould; size and weight
- ☐ Hot runner and gating
- ☐ Polished or textured surfaces
- ☐ Thermoset or thermoplastic tool
- ☐ Previous machine specification, if any
- ☐ Mould temperature needed

LIGHTING APPLICATION

- ☐ Indoor, outdoor or recessed
- ☐ Service temperature near the driver
- ☐ IP rating required
- ☐ BIS registration and export marks
- ☐ Potting or sealing method
- ☐ Rated life of the fitting

DOCUMENTS TO REQUEST FROM THE MACHINE SUPPLIER

PLATEN DRAWING

Tie-bar spacing, mounting holes, ejector pattern, nozzle details.

LAYOUT

Footprint, robot and conveyor space, access.

UTILITIES

Connected load, cooling water, air and oil needs.

TRIAL REPORT

Trial or acceptance data at your settings.

QUESTIONS TO ASK BEFORE YOU BUY A MACHINE

#	QUESTION	WHY IT MATTERS FOR LIGHTING
1	How accurate is barrel and mould temperature control?	Optics and FR grades.
2	Can the injection profile be controlled in several stages?	Flow lines on diffusers.
3	Is a screw suited to glass-filled PA and PBT available?	Housings, trays, potting boxes.
4	Can the machine be set up for thermoset moulding?	UF and BMC lamp bodies.
5	Will my largest housing fit, with the stroke it needs?	Outdoor and long parts.
6	What shot repeatability does it hold at my shot size?	Flatness and cavity match.
7	What robot and insert-loading interfaces are supported?	Optics and lamp bodies.
8	Can settings be stored for each model and colour?	Frequent variant changes.
9	What is the energy use per part at my cycle?	Price-sensitive fittings.
10	What installation, training and spare-parts support is included?	Seasonal and project peaks.

SECTION 10 • TECHNICAL CONSULTATION

PRATISHNA ENGINEERS & TECHNICAL CONSULTATION

Pratishna Engineers Ltd. is a Mumbai-based injection moulding machine manufacturer with in-house design, manufacturing, assembly, testing and service, supplying plastic component manufacturers in India and international markets.

35+

YEARS OF EXPERIENCE

9,000+

MACHINES SUPPLIED

1,000+

CUSTOMERS

In-house

DESIGN TO SERVICE

Machines are used for automotive, packaging, electrical and electronics, medical, consumer, agriculture and industrial applications.

OUR TECHNICAL APPROACH

COMPONENT	MATERIAL	MOULD	PRODUCTION REQUIREMENT	MACHINE CONFIGURATION
1 • CALCULATE Clamp force and shot weight from part, cavities and grade.	2 • CHECK THE MOULD Size, stroke, core pulls and inserts.	3 • CHECK OUTPUT Cycle and cavities against your volume.	4 • CONFIGURE Screw, barrel, controls and auxiliaries.	

SEND YOUR COMPONENT & PRODUCTION REQUIREMENTS

Component drawing • material • part weight • mould details • cavity count • production requirement • other requirements such as flame, glow-wire, IP or UV requirements.

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