



TECHNICAL BUYER'S GUIDE · PRATISHNA ENGINEERS

OFFICE & PRINTING COMPONENTS INJECTION MOULDING MACHINE GUIDE

A practical guide for makers of toner and ink cartridges, printer parts and office products: components, materials, mould requirements, production planning, 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 cartridge parts, printer internals and covers, ink system parts, pens and filing hardware.

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

OFFICE & PRINTING COMPONENTS & INJECTION MOULDING

Printers, copiers and their consumables are built from small precision mouldings. Cartridges, gears, seals and ink system parts are replaced far more often than the printer itself.

WHERE INJECTION MOULDING FITS IN OFFICE AND PRINTING PRODUCTS

A laser cartridge alone carries a frame, hopper, waste section, gears, flanges, a drive coupling, seals and a shutter. Inkjet and ink tank printers add cartridge housings, refillable tanks, caps and valves. Around them sit paper guides, trays, roller holders, levers and covers, and on the desk, pens, clips, binder parts and organisers.

Printers, multi-function devices and plotters are registered in India under the BIS Compulsory Registration Scheme, which is moving from IS 13252 (Part 1) to IS/IEC 62368-1:2023^[2], with the legacy standards withdrawn after 1 November 2028^[1]. The registration covers the finished printer, so a moulder supplying covers or internal parts works to the printer maker's material and flame specification. In practice this means flame-rated grades for covers and panels near heat and power.

MAIN COMPONENT CATEGORIES

TONER CARTRIDGES Frame, hopper and waste section	TONER BOTTLES Bottles with drive cog or spiral	DRIVE PARTS Gears, roller flanges, couplings	SEALS & SHUTTERS Toner seal, shutter, hopper cap
INK SYSTEMS Cartridge housings, CISS tanks, caps, valves	WASTE TONER Waste toner containers	PRINTER INTERNALS Paper guides, trays, holders, levers; small covers	OFFICE GOODS Pens, binder rings, clips, file spines, organisers

WHY INJECTION MOULDING SUITS THESE PARTS

- Cartridges need many protrusions and recesses that locate them in the printer^[4].
- Gears, couplings and shutters need accurate, repeatable fits.
- Pens, caps and clips run in high-cavity moulds.

TYPICAL MANUFACTURING CHALLENGES

- Injection moulded cartridges cost more than blow moulded ones^[4], so plain bottles are often blow moulded.
- Ink contact limits the choice of resin^[7].
- Large thin parts warp; toner dust and static affect handling.

WHERE MOULDING SITS IN THE PRODUCT CHAIN

RESIN HIPS, POM, PP, PPE	DRYING PA, PC, PBT, PET	INJECTION MOULDING frames, gears, caps	JOINING welding, snap fits	ASSEMBLY gears, rollers, seals	FILL & TEST toner, ink, leak	PACKING sealed, by model
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KEY REQUIREMENTS FOR OFFICE AND PRINTING PARTS

FIT TO THE PRINTER Cartridge features must engage the printer; remanufactured parts must match the OEM part.	TONER AND INK TIGHT Joint faces, seals and valves must not leak in transit or on the shelf.	INK COMPATIBILITY Housings must tolerate the ink chemistry ^[7] .
FLAME RATING Covers near the fuser or power supply need rated grades ^[3] .	SMOOTH PAPER PATH Guides need low, steady friction and little static charge.	COST PER PART Consumables and pens are price-driven: cycle and scrap decide margin.

SECTION 02 · COMPONENTS

MAJOR OFFICE & PRINTING COMPONENTS

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

COMPONENT	APPLICATION	MATERIAL(S)	INJECTION MOULDING CONSIDERATIONS
Toner bottle	Toner supply for copiers and MFDs	HDPE, PP, PET, HIPS	Plain bottles are usually blow moulded; injection moulded when the body carries a drive cog, internal spiral or shutter interface. Antistatic grade, dust-controlled area.
Printer cartridge body (frame, hopper, waste section)	Laser toner cartridge structure	HIPS, ABS, PS, PC/ABS, PP	Many locating features ^[4] . Mating faces must seal against toner; parts may be welded or bonded ^[5] . Remanufacture parts must interchange with the OEM part.
Ink cartridge housing	Inkjet cartridge body	Modified PPO/PPE, polysulfone, PP, PE, POM, PA, PEI, PPS-GF/CF	Resin chosen for ink compatibility first ^{[6][7]} . Often two materials, for example a glass-filled PE ink path with a PPO frame ^[8] . Fine channels.
Cartridge gear, roller flange, drive coupling	Power transmission in the cartridge	POM, PA66, PA66-GF, PBT, PPS	Gear rules for tooth form and shrinkage. Coupling hubs see torque shock. Cavity drift shows as print banding.
Toner seal, shutter, hopper cap	Keeping toner in during transit and insertion	PP, HDPE, POM, TPE	Sliding fit and sealing-lip tolerance. TPE lips overmoulded or fitted. Small parts, high cavitation.
Waste toner container	Collects used toner	HIPS, ABS, PP	Large, flat and thin-walled: warp control decides seating. Sensor window features hold tolerance. Regrind often used.
Ink tank, refill bottle cap, valve (CISS)	Continuous ink supply systems	PP, PE, POM, TPE	Valve and seat must not weep over shelf life. Clarity grade for level windows. Tamper and anti-refill features.
Printer internal part (paper guide, tray, roller holder, lever)	Paper path and mechanism	HIPS, ABS, PC/ABS, POM, PA6-GF	Low, steady friction; long thin guides gated for flatness. POM for sliding points, PA6-GF for loaded levers.
Printer / copier housing panel, cover (small)	External covers	FR ABS, PC/ABS, HIPS	Cosmetic A-surface with snap fits: sink over bosses and ribs is the usual reject. Flame-rated grade near fuser and power supply.
Pen barrel, cap, mechanism	Writing instruments	PS, ABS, PP, POM, PC	16 to 48 cavities, fast cycles. POM click parts; clear barrels need drying and a polished tool.
Filing and desk hardware (binder ring housing, clip, file spine, organiser)	Office filing	PP, PS, ABS, POM	PP living hinges flexed right after ejection. Spring clips pair a moulded body with a steel spring.

Toner, ink, steel springs, rollers and chips are bought-in. Plain toner bottles are often blow moulded or stretch-blow moulded from an injection moulded preform.

GROUPING BY MOULDING DEMAND

PRECISION MECHANISM

Gears, couplings, shutters, valves. Shrinkage control and cavity-to-cavity consistency.

SEALED CONTAINERS

Cartridge frames, waste containers, ink housings. Flat joint faces, warp and material compatibility.

HIGH-CAVITY COMMODITY

Pens, caps, clips, file spines. Cycle time, cavities and colour consistency.

SECTION 03 · MATERIALS

MATERIALS USED FOR OFFICE & PRINTING COMPONENTS

Styrenics for cartridge bodies, acetal and nylon for motion, ink-resistant resins for ink contact, flame-rated blends for covers.

MATERIAL	TYPICAL COMPONENTS	RELEVANT PROPERTIES	PROCESSING CONSIDERATIONS	LIMITATIONS TO CHECK
HIPS, PS	Cartridge frames, waste containers, guides, covers, pens	Low cost, easy to mould; HIPS common in toner cartridges ^[5] .	Easy flow; no drying for most grades.	Impact and chemical limits; brittle in thin PS.
ABS, FR ABS	Cartridge bodies, covers, pens, desk hardware	Tough, good surface.	Needs drying; FR grades are heat sensitive.	Check flame class and thickness ^[3] .
PC/ABS, PC	Covers, frames, pen barrels	Stiff, tough; PC clear.	Dry well; PC needs a hot mould.	Stress cracking with some inks.
PP	Caps, tanks, seals, clips, file spines	Chemical resistant, living hinges; ink compatible ^[7] .	Shrinkage and warp control.	Low stiffness; hard to bond.
HDPE, PE	Toner bottles, seals, ink housings, tanks	Tough, ink compatible ^[7] .	High shrinkage.	Warp; poor bonding.
PET	Toner bottles	Stiff, good barrier.	Must be dried; often a preform route.	Blow moulding may suit plain bottles.
POM	Gears, shutters, click parts, valves	Stiff, low friction ^[12] .	Controlled mould temperature for shrinkage.	Never mixed in a barrel with PVC.
PA6-GF, PA66, PA66-GF	Gears, levers, ink housings	Strength, wear, ink compatible ^[7] .	Must be dried ^[11] .	Moisture changes size and properties.
PBT	Gears, couplings	Dimensionally stable.	Dry before moulding.	Notch sensitivity.
Modified PPO/PPE	Ink cartridge housings	Preferred cartridge resin ^[6] .	High melt temperature.	Cost; solvent resistance by grade.
Polysulfone, PEI, PPS-GF/CF	Ink housings, drive parts	Heat resistance ^[6] .	Very high melt temperatures.	Cost; dedicated barrel set-up.
TPE	Sealing lips, valve seals	Soft, elastic.	Overmoulding needs adhesion match.	Ink swell; compression set.

General material behaviour only. Confirm grade data, ink compatibility and flame ratings with the resin supplier.

MATCHING THE MATERIAL TO WHAT THE PART TOUCHES

CONTACT OR DUTY	MATERIALS IN THIS GUIDE	MAIN CHECK
Toner	HIPS, ABS, PS, PC/ABS, PP, HDPE, PET	Antistatic behaviour, sealing faces
Ink	PPO/PPE, PP, PE, POM, PA, PSU, PEI, PPS ^{[6][7]}	Swell, stress cracking, leaching
Heat and power nearby	FR ABS, PC/ABS	Flame class at the moulded thickness ^[3]
Motion and wear	POM, PA66, PA66-GF, PBT, PPS	Shrinkage, friction, fatigue

MATERIAL SELECTION QUESTIONS

- ☐ Is the part in contact with toner, ink or neither?
- ☐ Does the part need a flame rating, and at what thickness?
- ☐ Which ink chemistry and storage temperature?
- ☐ Must it match an OEM part and its shrinkage?

SECTION 04 · DESIGN & MOULD

COMPONENT DESIGN & MOULD REQUIREMENTS

Printer and cartridge parts are defined by how they fit something else: the printer, a mating half, a gear or a seal. The mould has to hold those interfaces shot after shot.

DESIGN FEATURES THAT AFFECT MOULDING

FEATURE	WHY IT MATTERS IN THESE PARTS	MOULDING IMPLICATION
Locating features	Cartridges engage the printer through protrusions and recesses ^[4] .	Side actions, accurate shrinkage, stable process.
Sealing joint faces	Cartridge halves must not leak toner.	Flatness, gate position, weld preparation.
Gear teeth, couplings	Tooth form sets print quality and noise.	Gate at centre where possible; mould temperature control.
Thin, flat walls	Waste containers and paper guides warp.	Balanced cooling and gating for flatness.
Fine ink channels	Ink housings carry small passages.	Venting, filling of micro features, clean steel.
Threads and valves	Ink caps and refill bottles.	Unscrewing cores or collapsible cores.
Living hinges, snap fits	File spines, clips, covers.	Gate so flow crosses the hinge; flex after ejection.
Clear windows	Ink tanks and pen barrels show level.	Polished steel; dried, clean resin.

MOULD CONSIDERATIONS

ITEM	OFFICE AND PRINTING POINTS	ITEM	OFFICE AND PRINTING POINTS
Cavities	Frames and covers: 1 or 2. Gears and caps: 8 to 32. Pens: 16 to 48.	Two materials	TPE lips or dual-material ink paths ^[8] .
Runner	Hot runners common on high-cavity pen and cap moulds.	Steel	Polished for clear parts; wear-resistant for glass-filled gears.
Side actions	Cartridge frames carry many slides and lifters.	Ejection	Thin parts need even ejection to avoid distortion.
Cooling	Sets the cycle; rises roughly with wall thickness squared ^[10] .	Maintenance	Vents and shut-offs checked often on sealing parts.

FAMILIES AND MODEL VARIANTS

MODEL INSERTS Cartridge variants often share a base with changed features.	FAMILY MOULDS Small caps and seals can share a mould if volumes match.	GEAR SETS Separate moulds per gear keep shrinkage consistent.	OEM MATCHING Remanufacture tooling is built to the OEM part.
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SECONDARY OPERATIONS THAT SHAPE THE MOULD

OPERATION	TYPICAL PARTS	WHAT IT ASKS OF THE MOULDED PART
Welding or bonding	Cartridge halves ^[5] , ink housing covers ^[6]	Weld beads or flat bond faces held to size.
Seal and foam fitting	Hoppers, shutters, caps	Seats and grooves at consistent depth.
Mechanism assembly	Gears, rollers, pens, clips with springs	Bores, pins and snap features on size.

SECTION 05 · PRODUCTION PLANNING

PRODUCTION CAPACITY & CYCLE-TIME PLANNING

Consumables run in long, steady campaigns per printer model. Small parts need high cavitation; large frames and containers set the machine hours.

OUTPUT

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

Effective/hour = Parts/hour × Utilisation

Day = Effective/hour × Hours run

Utilisation covers model changes, start-up, maintenance and rejects.

EXAMPLE 1 · 16-CAVITY POM CARTRIDGE GEAR

16 × 3600 ÷ 18 s = 3,200 /h

× 0.85 utilisation = 2,720 /h

× 22 h = 59,840 /day

× 26 days = 1,555,840 /month

EXAMPLE 2 · 2-CAVITY HIPS CARTRIDGE FRAME

2 × 3600 ÷ 40 s = 180 /h

× 0.85 = 153 /h · × 22 h = 3,366 /day

× 26 days = 87,516 /month

Working backwards: for 120,000 frames a month in 572 running hours, you need 210 per hour. Cavities = $210 \times 40 \div (3600 \times 0.85) \approx 2.7$, so a 3-cavity mould if the platen allows, or a second machine.

Illustrative example. Cycle times of 18 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.

WHAT SETS THE CYCLE TIME

PHASE	OFFICE AND PRINTING INFLUENCE
Injection & hold	Short on thin parts; hold matters on gears.
Cooling	Usually the largest share ^[10] ; flatness can extend it.
Mould actions	Slides on frames, unscrewing on caps.
Handling	Robot take-out of thin, flat parts.

BALANCING CAVITIES, CLAMP FORCE AND OUTPUT

PP REFILL BOTTLE CAP MOULD	PROJECTED AREA	CALCULATED FORCE	RATED AT 85%	SHOT	EFFECTIVE OUTPUT
16 cavities	94 cm ²	38 t	45 t	55 g	3,497 /h
32 cavities	182 cm ²	73 t	86 t	107 g	6,994 /h
48 cavities	270 cm ²	109 t	128 t	159 g	10,491 /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^[9], about 0.28 to 0.42 t/cm²; K = 0.35 t/cm² and S = 1.15 assumed. Also assumed: 5 cm² and 3 g per cap, runner area 14 / 22 / 30 cm² and weight 7 / 11 / 15 g, 14 s cycle with unscrewing, 85% utilisation.

PLANNING TOTAL MACHINE HOURS

Machine hours = Σ (monthly volume per part ÷ effective output per part)

A cartridge is a kit of parts. Add the hours for the frame, hopper, gears, seals and caps of each model, then divide by the running hours per machine (572 here).

Small parts in high-cavity moulds usually finish their share of a model campaign well before the frame. Plan the frame and container moulds first, then fill the smaller machines with gears, seals and caps from several models.

MACHINE UTILISATION AND PLANNED DOWNTIME

MODEL CHANGES Group cartridge models that share mould bases and gear sets.	MATERIAL CHANGES Keep POM, PA and styrenic runs on set machines.	COLOUR CHANGES Pens and covers: sequence light to dark.	DEMAND SWINGS Remanufacture orders move with printer models.
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SECTION 06 · AUTOMATION

AUTOMATION & PRODUCTION EFFICIENCY

Cartridges and pens are assembled products, so most automation value sits in take-out, joining, assembly and counting rather than in the moulding cycle alone.

AUTOMATION	WHERE IT ADDS VALUE IN OFFICE AND PRINTING PARTS	WHEN IT USUALLY MAKES SENSE
Robot take-out	Thin frames, waste containers and covers placed flat to cool.	Large parts where hand removal distorts them.
Sprue picker	Cold runners from gear, seal and clip moulds.	Multi-cavity cold-runner moulds.
Hot runner degating	Pens and caps with no runner to separate.	Very high cavity counts on long runs.
Overmoulding / insert cells	TPE sealing lips, dual-material ink paths ^[8] .	Where a fitted seal would add a step.
Welding stations	Joining cartridge halves ^[5] and housing covers ^[6] .	Sealed containers at volume.
Cartridge and pen assembly	Gears, rollers, seals, springs and caps.	Several parts per product at volume.
Vision and leak checks	Gear features, seal seats, ink tank leaks.	Where one bad part fails a printer.
Counting and packing	Pens, caps and clips by count.	Small parts sold in fixed quantities.

AUTOMATION BY PRODUCT GROUP

PRODUCT GROUP	MAIN AUTOMATION	WHY
Cartridge frames, containers	Robot take-out, welding	Thin parts, sealed joints
Gears, couplings, shutters	Sprue picker, vision	Small precision parts
Ink tanks, caps, valves	Overmoulding, leak test	Seals must not weep
Pens, clips, file spines	Hot runner, counting, assembly	High counts, many small parts

DECIDING ON AUTOMATION

VOLUME & LABOUR Assembly and packing of multi-part consumables add up quickly.	PART HANDLING Thin, flat parts keep their shape when a robot places them.	QUALITY Automated checks catch gear and seal faults before filling.
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INTERFACES TO SPECIFY ON THE MACHINE

ROBOT Signal interface and safety interlocks.	HOT RUNNER Zones and controller connection.	MOULD ACTIONS Core pulls and unscrewing circuits.	AUXILIARIES Dryer, loader, chiller and conveyor links.
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WHERE THE COST OF A MOULDED PART COMES FROM

MATERIAL resin grade	MACHINE per machine hour	LABOUR assembly, packing	POWER kWh per part	MOULD per model	REJECTION warp, leaks	PACKING sealed kits
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On gears and caps, cavities and cycle time dominate. On frames and containers, material and cooling time dominate. Use your own rates to compare options.

SECTION 07 · QUALITY

QUALITY, TESTING & COMMON DEFECTS

An office or printing part is judged inside the machine: it must fit, seal, turn smoothly and print cleanly.

TESTS AND CHECKS

CHECK	WHAT IT INVOLVES	LINK TO MOULDING
Printer safety	Printers are registered under BIS CRS to IS 13252 (Part 1), moving to IS/IEC 62368-1:2023 ^{[1][2]} .	Flame-rated grades, wall thickness
Flammability	Fire enclosure parts meet a minimum class; V-0 satisfies V-1 ^[3] .	Grade, thickness, regrind control
Fit and interchangeability	Cartridge features checked against the printer or the OEM part.	Shrinkage, slide positions
Toner leak	Transport and shake checks to the OEM or customer specification.	Joint flatness, seals, welds
Ink compatibility	Soak or storage tests with the actual ink at storage temperature.	Resin grade, moulded-in stress
Gear inspection	Runout, tooth form and fit on the shaft.	Gate position, mould temperature
Function	Shutter slide, valve seal, pen click and clip spring.	Fit tolerances, surface finish

Test methods and limits come from the applicable standard or customer specification. Confirm the current edition and certification requirements for each product.

IN-PROCESS CONTROLS

WEIGHT BY CAVITY Flags drifting cavities on gears and caps.	FLATNESS Fixture checks on frames and guides.	VISUAL Sink, flash and streaks on covers.	MOISTURE Dryer checks for PA, PC and PET.
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TROUBLESHOOTING COMMON DEFECTS

DEFECT	POSSIBLE CAUSES	EFFECT ON THE PART	AREAS TO INVESTIGATE
Warp	Uneven cooling, thin long walls, gate position	Waste container or guide does not seat	Cooling layout, gating, robot placement
Sink marks	Thick bosses and ribs under A-surfaces	Cosmetic reject on covers	Hold pressure and time, rib design
Gear runout	Off-centre gate, uneven shrinkage, cavity drift	Print banding, noise	Gate, mould temperature, cavity balance
Toner leak at joints	Face not flat, flash, poor weld	Toner escapes in transit	Joint flatness, weld set-up, shut-offs
Short shots	Fine channels, poor venting	Blocked ink path	Venting, injection speed, melt temperature
Stress cracking	Moulded-in stress plus ink or cleaner	Leaks over shelf life	Hold pressure, mould temperature, grade
Splay	Moisture in PA, PC or PET ^[m]	Streaks, weaker parts	Drying
Weld lines	Flow fronts meeting at openings	Cracked clips and hinges	Gate position, melt temperature

SECTION 08 · WORKED EXAMPLES

PRACTICAL MACHINE-SELECTION EXAMPLES

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

A · POM CARTRIDGE GEAR		PRECISION
APPLICATION · MATERIAL	Drive gear inside a toner cartridge · POM	
CHARACTERISTICS	Small gear with hub and teeth; tight runout	
CAVITIES · OUTPUT	16 · about 2,720 per hour at 18 s (Section 05)	
MOULD CONSIDERATIONS	Centre gating or balanced runner, even cooling	
SECONDARY	Vision check, assembly into the cartridge	
EVALUATE Tonnage is small; shot repeatability, temperature control and cavity balance matter more. STILL NEEDED CAD projected area, gear drawing, monthly volume per model.		

B · HIPS CARTRIDGE FRAME		LARGE + SLIDES
APPLICATION · MATERIAL	Toner cartridge frame half · HIPS	
CHARACTERISTICS	Thin walls, many locating features, sealing face	
CAVITIES · OUTPUT	2 · about 153 per hour at 40 s (Section 05)	
MOULD CONSIDERATIONS	Slides and lifters, flatness, weld preparation	
SECONDARY	Welding, seal fitting, assembly, leak check	
EVALUATE Tonnage needs projected area; platen size, opening stroke and core-pull circuits for the slides drive the choice. STILL NEEDED mould drawing, part and runner weight, volume per model.		

C · PP REFILL BOTTLE CAP		HIGH CAVITY
APPLICATION · MATERIAL	Ink refill bottle cap · PP	
CHARACTERISTICS	About 3 g, 5 cm ² projected area (assumed); thread and seal	
CAVITIES · OUTPUT	32 · about 6,994 per hour at 14 s (Section 05)	
MOULD CONSIDERATIONS	Unscrewing cores, hot runner, balanced filling	
SECONDARY	Liner or valve fitting, counting	
EVALUATE The Section 05 table gives about 73 t calculated and a 107 g shot, so a clamp rated around 86 t or more, with an unscrewing drive. STILL NEEDED CAD projected area, valve design, volume.		

WHAT DECIDED THE MACHINE IN EACH EXAMPLE

SELECTION FACTOR	A · CARTRIDGE GEAR	B · CARTRIDGE FRAME	C · REFILL CAP
Main limit	Repeatability, cavity balance	Mould size, slides	Cavities, cycle
Clamp force	Needs projected area	Needs projected area	About 86 t rated
Auxiliaries	Mould temperature, vision	Robot, welding	Unscrewing, hot runner

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 cartridge, printer or office part.

COMPONENT

- ☐ 2D drawing and 3D CAD model
- ☐ Part weight, runner weight, wall thickness
- ☐ Resin grade and data sheet
- ☐ Critical fits, gears and sealing faces
- ☐ Overmoulded or inserted parts

PRODUCTION

- ☐ Monthly volume per model
- ☐ Parts per cartridge or kit
- ☐ Cavity count and target cycle time
- ☐ Operating hours and shifts
- ☐ Colour range for pens and covers

MOULD

- ☐ New or existing mould; size and weight
- ☐ Slides, lifters and unscrewing
- ☐ Hot or cold runner
- ☐ Two-material or overmould needs
- ☐ Previous machine specification, if any

PRINTING APPLICATION

- ☐ OEM part to match, if remanufacture
- ☐ Toner or ink type and storage conditions
- ☐ Flame rating needed
- ☐ Welding, assembly and filling steps
- ☐ Leak and function test specification

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 OFFICE AND PRINTING PARTS
1	What shot repeatability does the machine hold at my shot size?	Gear runout and cavity balance.
2	How many core-pull and unscrewing circuits are available?	Cartridge slides and threaded caps.
3	Will my frame or container mould fit, with the opening stroke it needs?	Large thin parts with slides.
4	Can the screw and barrel handle POM, PA-GF and styrenics without cross-contamination?	Mixed resin families in one plant.
5	Which high-temperature resins can the barrel and heaters run?	PPE, PEI, PPS or polysulfone ink housings.
6	What hot runner and robot interfaces are supported?	Pens, caps and thin frames.
7	Can the control store settings per model and log shot data?	Many cartridge models and traceability.
8	Is a two-material or overmoulding option available?	TPE sealing lips and dual-material ink paths.
9	What is the energy use per part at my cycle?	Price-driven consumables and pens.
10	What installation, training and spare-parts support is included?	Uptime through model campaigns.

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
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SEND YOUR COMPONENT & PRODUCTION REQUIREMENTS

Component drawing · material · part weight · mould details · cavity count · production requirement · other requirements such as OEM compatibility, ink or toner type, flame rating or assembly.

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