



TECHNICAL BUYER'S GUIDE · PRATISHNA ENGINEERS

COSMETICS & PERSONAL CARE COMPONENTS INJECTION MOULDING MACHINE GUIDE

A practical guide for cosmetic packaging and personal care product moulders: 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 making closures, pumps, jars, compacts, lipstick and mascara parts, combs, brushes, toothbrushes and salon products.

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

COSMETICS & PERSONAL CARE COMPONENTS & INJECTION MOULDING

Cosmetic parts are bought on looks and judged on function: a cap must seal, a pump must dose, a lipstick must twist and a comb must not snag.

TWO KINDS OF WORK IN ONE INDUSTRY

Cosmetic packaging covers closures, pumps, jars, compacts, lipstick cases, mascara tubes and stick containers. These run in high volumes, often in many colours, and most are assemblies of several mating mouldings that must fit, seal or slide.

Personal care products cover combs, hair clips and bands, hair and makeup brushes, toothbrushes and holders, salon accessories and appliance housings. Here long thin flow paths, two-shot soft grips and safe, smooth edges set the process. Rigid plastic packaging falls under India's EPR framework, which also promotes reuse and recycled content^[1].

MAIN COMPONENT CATEGORIES

CLOSURES Screw caps, flip-tops, disc-tops	DISPENSING Lotion and airless pumps, roll-on ball and collar	JARS Cream jars, thick-wall acrylic and SAN shells	COLOUR COSMETICS Compacts, lipstick cases, mascara and gloss tubes
STICKS Deodorant and balm stick containers	HAIR CARE Combs, hair clips, headbands, hair brushes	ORAL CARE Toothbrush handles, toothbrush holders	SALON Tint bowls, clips, brush handles, appliance shells

WHY INJECTION MOULDING SUITS THESE PARTS

- High-gloss or textured surfaces straight from the mould.
- Threads, hinges and snap fits in one shot.
- Two-shot soft grips without assembly.
- 16 to 48 cavities for closures and small parts.

TYPICAL MANUFACTURING CHALLENGES

- Colour and gloss matching across resins and batches.
- Mating parts that must seal or slide after shrinkage.
- Short shots at comb and brush tips.
- Dried resins: PMMA, PBT and nylon^{[3][5]}.

WHERE MOULDING SITS IN THE PRODUCT CHAIN

RESIN & COLOUR masterbatch, PCR	DRYING PMMA, PBT, PA, ABS	INJECTION MOULDING caps, cases, handles	DECORATION metallising, printing, hot foil	ASSEMBLY pumps, mechanisms	FILLING by brand owner	PACKING cartons, display
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Not covered: blow-moulded bottle bodies (spray, roll-on, acrylic and PETG bottles), twisted-wire mascara wands, CNC-cut acetate clips and headbands, fabric hair ties, and bought-in ferrules, bristles, springs and mirrors.

KEY REQUIREMENTS FOR COSMETIC AND PERSONAL CARE PARTS

A-SURFACE FINISH Gate marks, flow lines and sinks are visible rejects on show faces.	FIT OF MATING PARTS Pumps, lipstick mechanisms and wipers work only if shrinkage is stable.	PRODUCT COMPATIBILITY Creams, oils, peroxide and bleach attack some resins.
SAFE EDGES Comb teeth, clips and bands must be smooth and radiused.	TOOTHBRUSH STANDARD IS 3387:2026 covers manual toothbrushes in India ^[2] .	RECYCLED CONTENT EPR rules push brand owners toward reuse and recycled plastic ^[1] .

SECTION 02 • COMPONENTS

MAJOR COSMETICS & PERSONAL CARE COMPONENTS

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

COMPONENT	MATERIAL(S)	INJECTION MOULDING CONSIDERATIONS
Cap / closure (screw, flip-top, disc-top)	PP, HDPE, ABS, SAN	Highest volume; 16 to 48 cavities, hot runner. Thin wall, fast fill. Threads usually stripped; flip-top hinge flexed right after ejection.
Lotion / airless pump parts (actuator, piston, stem, housing)	PP, POM, HDPE, LDPE	6 to 10 mouldings that seal against each other; repeatability decides leak-test yield. POM for sliding members.
Roll-on ball, ball seat, collar, cap	PP, HDPE, POM	Ball retention is an interference fit, so small shrinkage changes matter. POM ball with PP housing is usual.
Cream jar (body and lid)	PP, ABS, SAN, PMMA, PETG, PCR-PP	Hide gate marks inside the lid or under the liner. Thread needs unscrewing or stripping. Double-wall jars are two tools.
Thick-wall acrylic / SAN outer jar shell	PMMA, SAN, PETG, PP	Cooling-limited, often 90 to 150 s; slow packing removes sinks and voids. Dry PMMA; high-polish tool.
Compact case (base, lid, mirror frame)	ABS, SAN, PP, PMMA, POM	A-surface, colour consistency. Living hinge in PP or POM; lid must stay flat or powder leaks.
Lipstick case (barrel, base, cap, mechanism)	ABS, PP, POM, SAN, PBT	POM for cup and spiral; ABS or SAN sleeve. Sleeve-to-mechanism fit is a shrinkage problem.
Mascara / lip gloss tube and wand	PP, ABS, PBT, SAN	Wiper interference sets payout. Deep thin tube needs core cooling and core-shift control.
Deodorant / balm stick container	PP, HDPE, ABS	Elevator and screw must run after hot filling; deep barrel limits cycle. No regrind in screw and elevator.
Comb	PP, ABS, POM, PS, PA6	Long flow into thin teeth; short shots and tip flash. Teeth polished along the draw.
Hair clip, hair band / headband	POM, PP, ABS, PA66, PA6, TPE	Clips: 8 to 32 cavities, POM for hinge and spring seat. Bands: long curved part, warp and set. Radiused edges.
Hair brush (paddle base, handle, bristle plate)	ABS, PP, PA6, SAN, TPE/TPR	Flat paddle base; TPE cushion or grip as second shot. Venting at vent holes and cushion pad.
Toothbrush handle (two-shot)	PP, SAN, ABS, TPE	TPE grade matched to the rigid resin for bonding. Round, burr-free tuft holes; long thin handle warps.
Toothbrush holder / stand	PP, ABS, PS, SAN, TPE	Drainage geometry, no water-trapping pockets. Colour matching across a bathroom range.
Makeup / applicator brush handle	ABS, PP, SAN, PCR-ABS	Often insert moulded around a bought-in ferrule; painted or metallised, so no hidden defects.
Salon accessories (tint bowl, brush handle, clips, cup, tray)	PP, ABS, HDPE, POM, TPE	A family: bowls and trays are large flat areas, small items run multi-cavity. PP and HDPE for chemical contact.
Salon appliance housing (dryer, straightener, trimmer)	ABS, PC/ABS, PA6+GF, TPE	Two-shot TPE grip. Heat-rated grade near the element. Tight split lines for screwed and welded shells.

Packaging parts are usually made to a brand owner's drawing and approved sample, so fit and appearance limits are fixed before the mould is built. Personal care products are often the moulder's own design, which leaves more room to choose gates, resins and cavity numbers.

Bottle bodies, springs, mirrors, ferrules and bristle filament are made by other processes or bought in. The toothbrush holder also appears in the household products guide.

SECTION 03 · MATERIALS

MATERIALS USED FOR COSMETICS & PERSONAL CARE

Resin choice balances look, feel, product compatibility and how parts fit and slide against each other.

MATERIAL	TYPICAL COMPONENTS	RELEVANT PROPERTIES	PROCESSING CONSIDERATIONS	LIMITATIONS TO CHECK
PP, PCR-PP	Closures, jars, pumps, sticks, combs, clips, bowls	Tough, low cost, chemical resistant; living hinges.	Hardly absorbs moisture ^[5] . Shrinkage and warp on flat parts.	PCR colour and odour variation.
HDPE, LDPE	Closures, pump parts, roll-on, stick containers	Soft, tough, chemical resistant.	Easy flow; high shrinkage.	Low stiffness; soft feel.
ABS, PCR-ABS	Compacts, lipstick sleeves, brush handles, housings	Rigid, glossy, decorates well.	Dry before moulding. Stress hurts metallised finishes ^[8] .	Resistance to oils and solvents.
SAN	Jars, compacts, lipstick sleeves, toothbrushes	Clear, stiff, glossy.	Dry before moulding.	Brittle at thin sections.
PMMA	Jar shells, compact lids	Glass-like clarity.	Dry to below 0.02% moisture; mould 60 to 90 °C ^[3] .	Splay shows in clear parts.
PETG	Jars, jar shells	Clear, tough.	Dry before moulding.	Heat resistance for hot fill.
PS	Combs, toothbrush holders	Stiff, low cost; listed material for toothbrushes ^[2] .	Easy flow.	Brittle; stress cracking.
POM	Pump members, lipstick mechanisms, hair clips, roll-on balls	Stiff, low friction, good fatigue ^[6] .	Degrades if overheated or held hot.	Narrow processing window.
PBT	Lipstick parts, mascara parts	Stiff, dimensionally stable.	Dry 3 to 5 h at 120 to 130 °C ^[7] ; hydrolysis if wet ^[5] .	Regrind limits ^[7] .
PA6, PA66, PA6+GF	Combs, brushes, clips, bands, appliance housings	Tough, heat resistant with glass.	Hygroscopic; dry before moulding ^[9] .	Moisture changes stiffness.
PC/ABS	Appliance housings	Tough, higher heat than ABS.	Dry thoroughly ^[5] .	Chemical stress cracking.
TPE / TPR	Grips, brush cushions, toothbrush grips	Soft touch.	Grade must bond to the substrate; moisture weakens adhesion ^[4] .	Masterbatch carrier can hurt adhesion ^[4] .

General material behaviour only. Confirm grade data, product compatibility and any food or skin contact declarations with the resin supplier and brand owner.

RESIN PAIRS IN MOVING AND SEALING ASSEMBLIES

ROLL-ON POM ball in a PP housing and seat.	LIPSTICK POM cup and spiral in an ABS or SAN sleeve.	PUMP POM sliding members with PP and PE parts.	GRIPS TPE matched to the PP, SAN or ABS body ^[4] .
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USING PCR GRADES

PCR-PP and PCR-ABS help brand owners meet recycled-content goals^[1]. Expect lot-to-lot changes in melt flow, colour and odour. Plan colour matching, incoming checks and process windows around the PCR supplier's data.

MATERIAL SELECTION QUESTIONS

- ☐ Which product will the part touch, and at what temperature?
- ☐ Clear, glossy, textured or decorated finish?
- ☐ Which parts slide, seal or snap together?
- ☐ Is PCR content or a single-material pack required?

SECTION 04 · DESIGN & MOULD

COMPONENT DESIGN & MOULD REQUIREMENTS

Cosmetic moulds are judged at the show face and at the fit: hidden gates, polished steel and stable shrinkage matter as much as filling.

DESIGN FEATURES THAT AFFECT MOULDING

FEATURE	WHY IT MATTERS IN COSMETIC PARTS	MOULDING IMPLICATION
Show faces	Jars, compacts and sleeves sell on appearance.	Gates hidden inside or under liners; polish and texture control.
Threads	Closures and jars close on filled bottles.	Stripped threads on small PP caps; unscrewing on rigid resins.
Living hinges	Flip-tops, compacts, clips.	PP or POM; gate to flow across the hinge; flex after ejection.
Interference fits	Pump seals, roll-on balls, lipstick mechanisms.	Stable melt and mould temperature for repeatable shrinkage.
Thin teeth and bristles	Combs, moulded wands, brush plates.	Long flow length, full venting, polish along the draw.
Thick clear walls	Acrylic jar shells.	Slow packing and long cooling to avoid sinks and voids ^[3] .
Soft overmoulds	Toothbrushes, brushes, appliance grips.	Second shot on a warm substrate; TPE cooled from one side ^[4] .

MOULD CONSIDERATIONS

ITEM	COSMETIC POINTS	ITEM	COSMETIC POINTS
Cavity layout	Caps and clips: 16 to 48. Jars and cases: 1 to 8.	Steel	Polishable, corrosion-resistant steel for gloss and clarity.
Runner	Hot runners and valve gates for caps and show faces.	Cooling	Core cooling for deep tubes and barrels.
Two-shot	Rotary or index plate for handles and grips.	Ejection	Stripper rings; no marks on show faces.
Venting	Tooth tips, bristle holes, cushion pads.	Colour change	Hot runners that purge quickly between colours.

Cosmetic tools often carry many product variants in one family. Plan interchangeable cavity inserts for different textures and logos, and keep gate positions identical across inserts so process settings carry over.

SECONDARY OPERATIONS THAT SHAPE THE MOULD

OPERATION	TYPICAL PARTS	WHAT IT ASKS OF THE MOULDED PART
Metallising and plating	Lipstick sleeves, caps, brush handles	Low moulded-in stress and clean surfaces; stress affects coating adhesion ^[8] .
Printing, hot foil, labels	Jars, caps, compacts	Flat, clean, stress-free decoration areas.
Assembly	Pumps, lipstick mechanisms, compacts, stick containers	Snap fits and bores held to size across cavities.
Tufting and insert loading	Toothbrushes, hair brushes, makeup brushes	Round tuft holes; accurate insert seats for ferrules.

SECTION 05 · PRODUCTION PLANNING

PRODUCTION CAPACITY & CYCLE-TIME PLANNING

Closures and small parts run in tens of cavities on short cycles, while clear jar shells run slowly in few cavities.

OUTPUT

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

Effective/hour = Parts/hour × Utilisation

Day = Effective/hour × Hours run

Utilisation covers colour changes, drying waits, start-up and rejects.

EXAMPLE 1 · 24-CAVITY PP SCREW CAP

24 × 3600 ÷ 12 s = 7,200 /h

× 0.85 utilisation = 6,120 /h

× 22 h = 134,640 /day

× 26 days = 3,500,640 /month

EXAMPLE 2 · 2-CAVITY PMMA JAR SHELL

2 × 3600 ÷ 100 s = 72 /h

× 0.85 = 61.2 /h · × 22 h = 1,346 /day

× 26 days = 35,006 /month

Working backwards: for 50,000 shells a month in 572 running hours, you need 87 per hour. Cavities = $87 \times 100 \div (3600 \times 0.85) \approx 2.8$, so 3 or 4 cavities or a second machine.

Illustrative example. Cycle times, 85% utilisation, 22 h/day and 26 days/month are assumed. Actual requirements depend on the component, material, mould and production conditions.

WHAT SETS THE CYCLE TIME

PHASE	COSMETIC INFLUENCE
Injection & hold	Fast fill for thin caps; slow packing for clear shells.
Cooling	Usually the largest share; rises roughly with wall thickness squared ^[1] .
Ejection	Stripping threads, flexing hinges, robot pick.

BALANCING CAVITIES, CLAMP FORCE AND OUTPUT

PP SCREW CAP MOULD	PROJECTED AREA	CALCULATED FORCE	RATED AT 85%	SHOT	EFFECTIVE OUTPUT
16 cavities	96 cm ²	44 t	52 t	48 g	4,080 /h
24 cavities	144 cm ²	66 t	78 t	72 g	6,120 /h
32 cavities	192 cm ²	88 t	104 t	96 g	8,160 /h
48 cavities	288 cm ²	132 t	156 t	144 g	12,240 /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^[10], about 0.28 to 0.42 t/cm²; K = 0.40 t/cm² assumed for thin, fast-filled caps, S = 1.15. Also assumed: 6 cm² and 3 g per cap, hot runner with no runner area, 12 s cycle, 85% utilisation.

WHAT LIMITS OUTPUT BY PRODUCT GROUP

PRODUCT GROUP	USUAL LIMIT	PLANNING POINT
Jars and shells	Cooling of thick or clear walls	Add cavities before adding machines
Pumps, lipstick, sticks	Slowest tool in the set	Balance every tool to the assembly rate
Toothbrushes, brushes	Two-shot mould and tufting speed	Match moulding to the tufting line

MACHINE UTILISATION AND PLANNED DOWNTIME

COLOUR CHANGES	DRYING	LAUNCH PEAKS	PCR LOTS
Run light to dark; plan hot-runner purging.	Start dryers before PMMA, PBT and PA runs ^{[3][7]} .	New shades and festive packs spike demand.	Allow for resetting when a new PCR lot arrives.

SECTION 06 · AUTOMATION

AUTOMATION & PRODUCTION EFFICIENCY

Automation protects show surfaces, feeds assembly lines and handles two-shot, inserts and tufting.

AUTOMATION	WHERE IT ADDS VALUE IN COSMETIC PARTS	WHEN IT USUALLY MAKES SENSE
Robot take-out	Picks glossy jars, compacts and sleeves without scratches.	Cosmetic A-surface parts, clear shells.
Hinge closing	Closes flip-top caps and compacts at ejection.	Living-hinge parts at volume.
Hot runner and colour control	Short colour changes, no runner scrap.	Multi-cavity closures and small parts.
Dryers and closed loaders	Keep PMMA, PBT and PA dry to the hopper ^{[3][5]} .	Every hygroscopic resin run.
Two-shot handling	Rotary or index moulds for grips and cushions.	Toothbrushes, hair brushes, appliance grips.
Insert loading	Places ferrules or brush heads in the mould.	Makeup brushes and applicators.
Assembly and leak test	Builds pumps, lipstick mechanisms and stick containers.	Multi-part packs at volume.
Vision inspection	Checks colour, flow marks and short shots.	Show-face parts and fine teeth.

Brand owners judge moulded packaging on appearance across millions of parts. Automation that removes hand contact between the mould and the carton often pays back through fewer cosmetic rejects rather than lower labour cost.

AUTOMATION BY PRODUCT GROUP

PRODUCT GROUP	MAIN AUTOMATION	WHY
Closures	Hot runner, hinge closing, counting	Very high counts, living hinges
Pumps, sticks, lipstick	Assembly, leak and function test	Several mating parts per unit
Jars and compacts	Robot take-out, vision	Show surfaces scratch easily
Toothbrushes and brushes	Two-shot, tufting feed, insert loading	Soft grips and bristles

DECIDING ON AUTOMATION

VOLUME & LABOUR Closures and pump parts run in the millions each month.	COSMETIC YIELD Every touch on a glossy part is a scratch risk.	REPEATABILITY Steady cycles keep interference fits in size.
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INTERFACES TO SPECIFY ON THE MACHINE

HOT RUNNER Controller zones and valve-gate sequencing.	ROBOT Signal interface and safety interlocks.	CORE AND ROTARY Circuits for stripping, unscrewing and index plates.	AUXILIARIES Dryer, loader, conveyor and vision links.
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WHERE THE COST OF A MOULDED PART COMES FROM

MATERIAL resin, masterbatch	MACHINE per machine hour	LABOUR assembly, packing	POWER drying and moulding	MOULD polished, multi-cavity	REJECTION cosmetic, fit	PACKING clean handling
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SECTION 07 · QUALITY

QUALITY, TESTING & COMMON DEFECTS

A cosmetic part fails in the hand: a cap that leaks, a pump that will not prime, a crooked lid.

TESTS AND CHECKS

CHECK	WHAT IT INVOLVES	LINK TO MOULDING
Appearance	Gloss, colour, flow marks, sinks and gate marks against approved limit samples.	Mould temperature, polish, gating, drying
Colour match	Instrument or visual match to the brand master across resins and lots.	Masterbatch dosing, melt temperature, PCR lots
Closure fit and torque	Application and removal torque, and leak checks on filled packs.	Thread dimensions, shrinkage
Pump function	Priming, dose and leak checks on assembled pumps.	Bore and seal dimensions, repeatability
Product compatibility	Storage with the actual product to check swelling, cracking or staining.	Resin grade, moulded-in stress
Hinge and snap life	Repeated opening of flip-tops, compacts and clips.	Hinge gating, flexing after ejection
Toothbrush specification	IS 3387:2026 for manual toothbrushes, referring to IS 1843 filaments and IS 2267 polystyrene ^[2] .	Handle material, tuft holes

Most packaging checks are agreed with the brand owner. Confirm the current IS 3387 edition and certification needs.

IN-PROCESS CONTROLS

LIMIT SAMPLES Colour and finish at the machine.	MOISTURE CHECK Before PMMA, PBT and PA runs ^{[3][7]} .	WEIGHT BY CAVITY Flags imbalance in multi-cavity tools.	FIT GAUGES Threads, bores and pump seats.
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TROUBLESHOOTING COMMON DEFECTS

DEFECT	POSSIBLE CAUSES	EFFECT ON THE PART	AREAS TO INVESTIGATE
Splay in clear parts	Moisture in PMMA or PETG ^[3]	Visible reject, lost clarity	Drying time, temperature, hopper
Sinks and voids	Thick walls, short packing	Cosmetic reject in jar shells	Hold pressure and time, gate size
Short shots at tips	Long flow into thin teeth, poor venting	Incomplete combs and wands	Venting, injection speed, melt temperature
Tip and parting flash	Worn shut-offs, excess pressure	Snags hair, cuts skin	Parting line, pressure profile
Colour streaks	Poor mixing, dosing, PCR variation	Batch rejected by brand owner	Masterbatch, back pressure, screw
Weak TPE bond	Wrong TPE grade, moisture, cold substrate ^[4]	Grip peels off	Grade pairing, drying, transfer time
Brittle PBT or PA parts	Wet resin ^{[5][9]}	Cracks in mechanisms	Dryer settings, residence time
Warped lids and bands	Uneven cooling, early ejection	Powder leaks, poor fit	Cooling layout, mould temperature

SECTION 08 · WORKED EXAMPLES

PRACTICAL MACHINE-SELECTION EXAMPLES

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

A · PP SCREW CAP		VOLUME
APPLICATION · MATERIAL	28 mm class screw cap · PP	
CHARACTERISTICS	About 3 g, 6 cm ² projected area (assumed); stripped thread	
CAVITIES · OUTPUT	32 · about 8,160 per hour at 12 s (Section 05)	
MOULD CONSIDERATIONS	Hot runner, stripper ring, balanced cooling	
SECONDARY	Liner fitting, counting, packing	
EVALUATE The Section 05 table gives about 88 t calculated and a 96 g shot, so a clamp rated around 104 t or more. Fast, repeatable injection matters more than extra tonnage. STILL NEEDED CAD projected area, cap weight, monthly volume per colour.		

B · TWO-SHOT TOOTHBRUSH HANDLE		PP + TPE
APPLICATION · MATERIAL	Manual toothbrush handle · PP body with TPE grip	
CHARACTERISTICS	Long thin handle, tuft holes, soft grip bonded to body	
CAVITIES · OUTPUT	Set by the two-shot mould and tufting rate	
MOULD CONSIDERATIONS	Rotary or index plate, core-shift control, venting	
SECONDARY	Tufting with bought-in filament, end rounding, packing	
EVALUATE The machine needs a second injection unit sized for the TPE shot and control of the rotation. TPE grade must suit PP ^[4] . STILL NEEDED handle and grip drawings, TPE grade, tufting line speed.		

C · PMMA JAR SHELL		CLEAR, COOLING-LIMITED
APPLICATION · MATERIAL	Thick-wall cream jar shell · PMMA	
CHARACTERISTICS	About 38 cm ² and 90 g per shell (assumed), thick clear wall	
CAVITIES · OUTPUT	2 · about 61 per hour at 100 s (Section 05)	
MOULD CONSIDERATIONS	High polish, large gates, slow packing, venting	
SECONDARY	Robot take-out, assembly with inner cup	
EVALUATE With 8 cm ² of runner and K = 0.50 t/cm ² (PMMA is given 3 to 4 US tons per square inch ^[3]), force ≈ 84 × 0.50 × 1.15 ≈ 48 t, so a clamp rated around 57 t or more. With a 10 g runner the shot is about 190 g. Drying and cooling decide output. STILL NEEDED CAD projected area, shell weight, volume.		

WHAT DECIDED THE MACHINE IN EACH EXAMPLE

SELECTION FACTOR	A · SCREW CAP	B · TOOTHBRUSH	C · JAR SHELL
Main limit	Cavities and cycle	Two-shot process	Cooling and clarity
Clamp force	About 104 t rated	Needs projected area	About 57 t rated
Auxiliaries	Hot runner, counter	Second injection unit, tufting	Dryer, robot

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 cosmetic or personal care part.

COMPONENT

- ☐ 2D drawing and 3D CAD model
- ☐ Part weight, runner weight, wall thickness
- ☐ Resin grade, PCR content, masterbatch
- ☐ Mating parts and fit tolerances
- ☐ Show faces and finish standard
- ☐ Samples of the current part

PRODUCTION

- ☐ Monthly volume per colour and shade
- ☐ Assembly rate for multi-part packs
- ☐ Cavity count and target cycle time
- ☐ Operating hours and shifts
- ☐ Launch and festive peaks
- ☐ Packing and carton counts

MOULD

- ☐ New or existing mould; size and weight
- ☐ Hot runner zones and valve gates
- ☐ Stripping, unscrewing or rotary action
- ☐ Two-shot or insert moulding
- ☐ Previous machine specification, if any
- ☐ Colour change frequency

COSMETIC APPLICATION

- ☐ Product the pack will hold
- ☐ Decoration: metallising, print, foil
- ☐ Brand owner quality standards
- ☐ Hinge, snap and leak requirements
- ☐ EPR and recycled-content targets
- ☐ Skin or food contact declarations

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 COSMETIC PARTS
1	What shot repeatability does the machine hold at my shot size?	Pump seals, roll-on balls and mechanisms.
2	How fast and how precisely can injection speed be profiled?	Thin caps and flow marks on show faces.
3	How many hot-runner zones and valve-gate outputs are supported?	Multi-cavity closures and hidden gates.
4	Can a second injection unit or rotary table be added?	Toothbrushes, brushes, appliance grips.
5	Will my largest tray, paddle or comb tool fit the tie bars and platens?	Mould size, not tonnage, may decide.
6	What robot, dryer and vision interfaces are supported?	Scratch-free handling and dried resins.
7	Can the control store settings for each colour and product?	Frequent colour and shade changes.
8	What is the energy use per part at my cycle?	Low price per closure.
9	Can the machine log shot data for traceability?	Brand owner audits and complaints.
10	What installation, training and spare-parts support is included?	Launch deadlines and peak demand.

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 decoration, two-shot, PCR content or assembly.

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A1-4, Vaibhav Ind. Premises, Opp. Oxford Chambers, Saki Vihar Road, Andheri (E), Mumbai 400 072, India

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