



TECHNICAL BUYER'S GUIDE · PRATISHNA ENGINEERS

BUILDING & CONSTRUCTION COMPONENTS INJECTION MOULDING MACHINE GUIDE

A practical guide for building and construction product manufacturers: 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 plumbing, sanitary, electrical and fixing products for buildings.

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

BUILDING & CONSTRUCTION COMPONENTS & INJECTION MOULDING

Which plastic parts go into a building's plumbing, bathrooms and wiring, and what builders, plumbers and electricians expect from them.

WHERE INJECTION MOULDING FITS IN BUILDING PRODUCTS

Pipes and conduits are extruded, but most parts that join, close, finish or fix them are injection moulded: pipe and conduit fittings, junction boxes, switch plates, bath fittings, flush tanks, toilet seats, floor drains, wall plugs, cable ties and tile spacers. Some, like chrome-plated bath fittings and switch plates, are also judged on appearance.

Demand follows construction activity. Under the Pradhan Mantri Awaas Yojana-Gramin alone, the government reports 2.81 crore rural houses completed and 3.84 crore sanctioned as of July 2025^[1]. Each house needs plumbing, sanitary and electrical parts.

MAIN COMPONENT CATEGORIES

PLUMBING FITTINGS UPVC and CPVC pipe fittings, floor drains, traps, gratings	BATH FITTINGS Tap and flush parts, health faucets, aerators and nozzles	SANITARYWARE Concealed flush tanks and cisterns, toilet seats and covers	BATH ACCESSORIES Towel bars, hooks, holders, soap dishes
ELECTRICAL WIRING Conduit bends, boxes, couplers; junction boxes	SWITCHES & SOCKETS Modular switch and socket plates, wall switches	FIXINGS Wall plugs and anchors; cable ties, clips and saddles	FINISHING AIDS Tile spacers, levelling clips

WHY INJECTION MOULDING SUITS THESE PARTS

- Accurate sockets, threads and bores for leak-free joints.
- Very high output of small parts such as clips, plugs and spacers in multi-cavity moulds.
- Corrosion-free parts in place of metal, with plating or colour where looks matter.

TYPICAL MANUFACTURING CHALLENGES

- Heat-sensitive PVC that degrades if overheated^[4].
- Filling balance across multi-cavity fitting moulds^[4].
- Surface quality for chrome plating and gloss.

WHERE MOULDING SITS IN THE PRODUCT CHAIN

COMPOUND UPVC, CPVC, PP, ABS, PA	DRYING ABS, PC, PA, SAN	INJECTION MOULDING fittings, plates, parts	FINISHING plating, printing	ASSEMBLY taps, switches, cisterns	TESTING pressure, fit, safety	DISTRIBUTION dealers, projects
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KEY REQUIREMENTS FOR BUILDING COMPONENTS

LEAK-TIGHT FIT Pipe fittings join with solvent cement; IS 7834 covers injection-moulded PVC socket fittings for water supply ^[2] .	ELECTRICAL SAFETY Conduit fittings, boxes and switch plates must insulate and resist flame; project specifications cite IS 9537, IS 3419 and IS 14772 ^[3] .	APPEARANCE Bath fittings and switch plates need gloss, colour match or chrome plating without defects.
WATER & CHEMICALS Bathroom parts face water, soap and cleaners daily.	STRENGTH Anchors, cable ties and saddles must hold rated loads without breaking.	LOW COST PER PART Commodity items with tight prices, so cycle time and scrap decide margin.

SECTION 02 · COMPONENTS

MAJOR BUILDING & CONSTRUCTION COMPONENTS

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

COMPONENT	APPLICATION	MATERIAL(S)	INJECTION MOULDING CONSIDERATIONS
PVC / UPVC pipe fitting	Elbows, tees, couplings	UPVC, CPVC, PP, ABS	Socket dimensions for solvent joints ^[2] . Larger diameters need core-pulling or unscrewing moulds. Heat-sensitive PVC melt ^[4] .
Electrical conduit fitting	Bends, boxes, couplers	UPVC, PVC, PP	High-impact UPVC to IS 9537 and IS 3419 ^[3] . Socket fit to conduit; knockouts on boxes.
Modular switch / socket plate	Wiring devices	PC, FR-PC, glass-filled nylon, urea, ABS	Flame-retardant grades; high-gloss polished cavities. Urea is a thermoset made by compression moulding, not on a thermoplastic machine.
Wall switch / junction box	Switch and wiring enclosures	ABS, PVC, PC	Flame-retardant, insulating; integrated knockouts and mounting points.
Wall plug / anchor / fastener	Fixing into masonry	Nylon (PA6/PA66), PP, PE	Nylon for grip and expansion strength; small multi-cavity tooling.
Cable tie / clip / saddle	Cable fixing and routing	Nylon (PA66), PP	PA66 for tensile strength and flexibility; high-cavity moulds. Moisture content affects performance.
Bathroom fitting	Tap, flush parts, health faucet	ABS (chrome-plated), PVC, POM, PP	Chrome-plated ABS for looks; POM for valve and moving parts; PVC for corrosion-free parts.
Faucet aerator / nozzle	Water outlet	POM, ABS, PP	POM for internal water-flow and threaded parts. Fine holes and mesh features.
Flush tank / cistern (concealed)	Toilet flushing	HDPE, PP, ABS	Large hollow part; size drives the machine. Wall flatness and fixing points.
Toilet seat & cover	WC seat	PP, ABS, urea	Large flat part; warpage control. Urea seats use a thermoset compression process.
Floor drain / trap / grating	Bathroom and floor drainage	ABS, PP, PVC	Grating slots and water seal geometry; surface finish on visible gratings.
Bathroom accessory	Towel bars, hooks, holders	ABS, PP, SAN, PVC	ABS often chrome-plated for a metallic finish; surface quality before plating.
Soap dish	Bath accessory	PP, ABS, SAN, HDPE	Small part with drainage ridges; recycled PP and HDPE options.
Tile spacer / levelling clip	Tiling	PP, PE	Small disposable part in very high-cavity moulds; lowest cost per part.

Not injection moulded: pipes and conduits, which are extruded. Urea switch plates and seats are thermoset compression-moulded parts.

WHERE THE PARTS GO IN A BUILDING

WATER & DRAINAGE

Pipe fittings, floor drains, traps and gratings.

BATHROOM

Taps, flush parts, faucets, aerators, cisterns, seats, accessories, soap dishes.

ELECTRICAL

Conduit fittings, junction boxes, switch and socket plates, cable clips.

FIXING & FINISHING

Wall plugs, anchors, cable ties, tile spacers and levelling clips.

SECTION 03 · MATERIALS

MATERIALS USED FOR BUILDING & CONSTRUCTION COMPONENTS

PVC, PP and ABS carry most of the volume. Nylon, POM and PC are used where strength, wear or flame performance matter.

MATERIAL	TYPICAL COMPONENTS	RELEVANT PROPERTIES	PROCESSING CONSIDERATIONS	LIMITATIONS TO CHECK
UPVC / PVC	Pipe and conduit fittings, junction boxes, floor drains, bath parts	Rigid, chemically resistant, self-extinguishing, electrical insulator ^[5] .	Temperature-sensitive melt that decomposes and burns if overheated ^[4] . Corrosion-resistant screw, barrel and mould steel; careful purging.	Not for high-temperature use ^[5] .
CPVC	Hot and cold water pipe fittings	Higher temperature resistance than UPVC.	Narrower processing window than UPVC; same corrosion precautions.	Compound compatibility with pipe and cement.
PP	Fittings, conduit parts, cisterns, seats, drains, accessories, plugs, clips, spacers	Low cost, tough, chemical resistant.	Semi-crystalline: shrinkage and warpage on large flat parts.	UV stabilisation where exposed; low stiffness.
PE / HDPE	Flush tanks, soap dishes, wall plugs, tile spacers	Tough, flexible, low cost.	High shrinkage; plan cooling on large parts.	Low stiffness; poor paint and plating adhesion.
ABS	Bath fittings and accessories, seats, drains, switches, boxes, cisterns	Good surface, platable (chrome) and paintable.	Needs drying; low moulded-in stress for plating.	UV resistance; chemical attack from some cleaners.
SAN	Bath accessories, soap dishes	Clear or glossy, rigid.	Needs drying.	Brittle compared with ABS.
PC, FR-PC	Switch and socket plates, wall switches, boxes	Tough, heat resistant; FR grades for wiring devices.	Must be dried; high melt and mould temperatures.	Stress cracking with some chemicals.
Nylon (PA6, PA66), glass-filled nylon	Wall plugs, anchors, cable ties, clips, saddles, switch parts	Strength, toughness, flexibility.	Hygroscopic: moisture above 0.2% harms moulding ^[8] ; glass fibre wears screws.	Properties change with moisture content.
POM	Tap and valve internals, aerators	Stiff, low friction; listed for pumps, valves and water softeners ^[9] .	Avoid overheating; never mix with PVC in the barrel.	Not recommended outside pH 4 to 9 ^[9] .
Urea (thermoset)	Switch plates, toilet seats	Hard, heat resistant, glossy.	Compression moulding, not thermoplastic injection moulding.	Needs separate equipment.

General material behaviour only. Confirm properties and standard compliance for the exact grade with the supplier.

PVC AND POM IN THE SAME PLANT

Many building-product plants run both PVC fittings and POM tap parts. Common practice is to keep the two on separate machines, or purge very thoroughly between them, and never mix their regrind. Follow the resin supplier's processing guide for both.

MATERIAL SELECTION QUESTIONS

- ☐ Which IS standard must the product meet?
- ☐ Will the part be plated, painted or moulded-in-colour?
- ☐ Does it need flame retardance or insulation?
- ☐ Will it carry load or water pressure?

SECTION 04 · DESIGN & MOULD

COMPONENT DESIGN & MOULD REQUIREMENTS

Building parts are simple to look at but demanding in fit. The mould holds socket sizes, threads and surfaces that installers depend on.

DESIGN FEATURES THAT AFFECT MOULDING

FEATURE	WHY IT MATTERS IN BUILDING PARTS	MOULDING IMPLICATION
Sockets & bores	Solvent-cement and push-fit joints depend on socket size and taper.	Accurate core pins, stable shrinkage, controlled cooling.
Threads	Threaded fittings, tap bodies, aerators and caps.	Unscrewing or collapsible cores; thread-start accuracy.
Thick walls	Pipe fittings and boxes have thick sections.	Sink and void risk; long cooling; careful packing.
Knockouts & bosses	Junction and switch boxes need knockouts and screw bosses.	Thin knockout webs that fill yet break out cleanly.
Plating surfaces	Chrome-plated taps and accessories show every flaw.	Polished steel, gates off visible faces, low moulded-in stress.
Gloss faces	Switch plates and bath accessories are judged by gloss and colour.	High-polish cavities; clean material handling.
Flexible features	Cable tie teeth, wall plug fins and clip latches.	Fine features filled completely; drying for PA.
Large flat parts	Toilet seats and cistern walls must stay flat.	Ribbing, uniform walls, balanced filling and even cooling.

MOULD CONSIDERATIONS

ITEM	BUILDING-PRODUCT POINTS	ITEM	BUILDING-PRODUCT POINTS
Cavity layout	Spacers, clips, plugs: 16 to 64+. Small fittings: 4 to 16. Seats and cisterns: 1.	Steel	Corrosion-resistant steel for PVC; polished steel for plated and gloss parts.
Runner	Balanced layouts matter for multi-cavity PVC fittings ^[4] ; hot runners on small PP and PA parts.	Cooling	Thick fittings and large seats set the cycle.
Core pulls	Tees and elbows need side cores; larger sizes need unscrewing or core pulling.	Family moulds	Seat and cover, or box and lid, sometimes in one mould.
Venting	Good venting avoids burning and short shots in PVC.	Mould size	Cistern and seat moulds are large; get dimensions early.

SECONDARY OPERATIONS THAT SHAPE THE MOULD

OPERATION	TYPICAL PARTS	WHAT IT ASKS OF THE MOULDED PART
Chrome plating	Taps, health faucets, towel bars, hooks	Plating-grade ABS, low stress, no flow lines or sinks.
Printing & marking	Switch plates, fittings (size and standard marks)	Clean surface; moulded-in marks held to shape.
Assembly	Switches, cisterns, taps	Accurate snap fits, bosses and seal seats.

SECTION 05 · PRODUCTION PLANNING

PRODUCTION CAPACITY & CYCLE-TIME PLANNING

Small fixings run in high-cavity moulds, thick PVC fittings run slower, and seats and cisterns run one per cycle. Plan each against dealer and project demand.

OUTPUT

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

Effective/hour = Parts/hour × Utilisation

Day = Effective/hour × Hours run

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

EXAMPLE 1 · 32-CAVITY PA66 CABLE CLIP

32 × 3600 ÷ 15 s = 7,680 /h

× 0.85 utilisation = 6,528 /h

× 22 h = 143,616 /day

× 26 days = 3,734,016 /month

EXAMPLE 2 · 8-CAVITY UPVC ELBOW

8 × 3600 ÷ 30 s = 960 /h

× 0.85 = 816 /h · × 22 h = 17,952 /day

× 26 days = 466,752 /month

Working backwards: for 600,000 elbows a month in 572 running hours, you need 1,049 per hour. Cavities = $1,049 \times 30 \div (3600 \times 0.85) \approx 10.3$, so a 12-cavity mould, or a second machine.

Illustrative example. Cycle times of 15 s and 30 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	BUILDING-PRODUCT INFLUENCE
Injection & hold	Controlled filling of heat-sensitive PVC.
Cooling	Usually the largest share; rises roughly with wall thickness squared ^[7] .
Core pulls	Side cores and unscrewing on fittings add time.
Part removal	Careful handling of plated and gloss parts.
Material	Undried PA, ABS or PC causes splay and rejects.

BALANCING CAVITIES, CLAMP FORCE AND OUTPUT

PA66 CABLE CLIP MOULD	PROJECTED AREA	CALCULATED FORCE	RATED AT 85%	SHOT	EFFECTIVE OUTPUT
16 cavities	60 cm ²	38 t	45 t	38 g	3,264 /h
32 cavities	114 cm ²	72 t	85 t	73 g	6,528 /h
48 cavities	170 cm ²	108 t	127 t	109 g	9,792 /h

Illustrative example. Force = projected area × clamp factor K × safety factor S. PA is commonly given 3 to 5 US tons per square inch^[6], about 0.42 to 0.70 t/cm²; K = 0.55 t/cm² and S = 1.15 assumed. Also assumed: 3 cm² and 2 g per clip, runner area 12 / 18 / 26 cm² and weight 6 / 9 / 13 g, 15 s cycle, 85% utilisation.

PLANNING A FITTING SIZE RANGE

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

Illustrative: 20 mm elbows 400,000 at 816/h = 490 h; 25 mm 250,000 at 720/h = 347 h; 32 mm 100,000 at 306/h (4 cavities) = 327 h. Total about 1,164 h against 572 h per machine a month, so about two machines at full load; plan a third or extra shifts for mould changes and peaks.

MACHINE UTILISATION AND PLANNED DOWNTIME**SIZE CHANGES**

Fitting ranges come in many sizes; group sizes that share a mould base.

PVC PURGING

Purge PVC out before shutdowns and before any other material.

DRYING

PA, ABS, PC and SAN need drying before use.

COLOUR CHANGES

Switch plates, seats and accessories come in colour ranges.

SECTION 06 · AUTOMATION

AUTOMATION & PRODUCTION EFFICIENCY

Building products are sold on price, so automation is justified mainly by labour saved on counting, packing and handling of high-volume parts.

AUTOMATION	WHERE IT ADDS VALUE IN BUILDING PARTS	WHEN IT USUALLY MAKES SENSE
Sprue picker	Removes cold runners from fitting, plug and clip moulds.	Multi-cavity cold-runner moulds on continuous runs.
Robot take-out	Removes seats, cisterns and plated or gloss parts without marking them.	Large or appearance-critical parts.
Conveyors & separators	Carry small parts away and separate them from runners.	Spacers, clips, plugs and small fittings.
Counting & bagging	Counts parts into dealer and retail packs.	Small parts sold in fixed pack quantities.
Printing & marking	Size, standard and brand marks on fittings and plates.	Where marks are not moulded in.
Assembly	Switch mechanisms into plates, cistern internals, tap assemblies.	Multi-part products at volume.
Vision inspection	Checks short shots, flash and missing features.	Knockout boxes, switch plates, fine-featured parts.
Degating & trimming	Removes gates and vestiges on visible and plated parts.	Bath fittings and accessories before plating.
Leak testing	Checks cisterns, drains and tap assemblies for leaks.	Water-carrying assemblies.
Material handling	Central loading, dryers for PA and ABS, dosing for colours.	Several machines on the same materials.

DECIDING ON AUTOMATION

VOLUME & LABOUR Counting and packing small parts by hand is slow and error-prone.	SURFACE Plated and gloss parts are easily scratched by manual handling.	REPEATABILITY A fixed cycle keeps socket sizes and shrinkage steady.
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INTERFACES TO SPECIFY ON THE MACHINE

ROBOT Signal interface and safety interlocks for take-out.	CORE PULLS Circuits for side cores and unscrewing on fittings.	HOT RUNNER Zones for multi-cavity PP and PA moulds.	AUXILIARIES Conveyor, counter, loader and dryer connections.
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WHERE THE COST OF A MOULDED PART COMES FROM

MATERIAL compound + colour	MACHINE cost per machine hour	LABOUR handling, packing	POWER kWh per part	MOULD amortisation, upkeep	REJECTION burns, sinks, scrap	PACKING dealer packs
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On thick PVC fittings and large seats, material and cooling time dominate. On spacers, clips and plugs, machine hours and packing labour dominate. Plating adds a large finishing cost, so moulding rejects on plated parts are expensive. Use your own rates to compare options.

SECTION 07 · QUALITY

QUALITY, TESTING & COMMON DEFECTS

Building parts are judged by installers on site: does it fit, does it leak, does it break, does it look right.

TESTS AND CHECKS

CHECK	WHAT IT INVOLVES	LINK TO MOULDING
Pipe fittings	IS 7834 covers injection-moulded PVC socket fittings for water supply, including general requirements and specific parts for elbows, tees and unions ^[2] . Dimensional and performance tests are set in the standard.	Socket dimensions, voids, weld lines
Conduit fittings	Fittings for rigid non-metallic conduits under IS 3419, used with conduits to IS 9537 (Part 3) ^[3] .	Fit, impact resistance, material
Wiring accessories	Accessories for household fixed installations under IS 14772 ^[3] ; flame and insulation checks per the applicable standard.	Material grade, wall thickness
Plating quality	Adhesion and appearance checks on chrome-plated parts, per customer specification.	Moulded-in stress, surface defects
Function	Leak and operation checks on taps, cisterns and drains, per customer specification.	Seal seats, threads, flatness
Mechanical	Pull-out of anchors, tensile of cable ties, load on seats.	Moisture in PA, weld lines, voids

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

IN-PROCESS CONTROLS

SOCKET GAUGES Go / no-go checks on socket and bore sizes.	WEIGHT BY CAVITY Flags filling imbalance and short shots.	VISUAL Burns, flash and surface flaws on visible parts.	MOISTURE Resin moisture checks for PA and ABS.
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TROUBLESHOOTING COMMON DEFECTS

DEFECT	POSSIBLE CAUSES	EFFECT ON THE BUILDING PART	AREAS TO INVESTIGATE
Burn marks, black streaks	Overheated or degraded PVC, high shear, trapped air ^[4]	Weak fittings, visual rejects	Barrel temperatures, residence time, venting, purging
Unbalanced filling	Runner imbalance in multi-cavity moulds ^[4]	Short or overpacked cavities	Runner layout, injection rate
Sink marks & voids	Thick fitting walls, short hold	Weak sockets, leaks	Wall design, hold pressure and time
Plating blisters	Moulded-in stress, surface contamination	Rejects after costly plating	Melt and mould temperature, fill speed, release agents
Warpage	Uneven cooling on large flat parts	Seats and cistern walls that do not sit flat	Cooling layout, gate position, packing
Splay	Moisture in PA, ABS, PC or SAN	Streaks, lower strength	Dryer settings, dew point
Brittle ties and plugs	Dry-as-moulded PA, degraded material	Breakage during installation	Drying, melt temperature, conditioning

SECTION 08 · WORKED EXAMPLES

PRACTICAL MACHINE-SELECTION EXAMPLES

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

A · PA66 CABLE CLIP		VOLUME + FINE FEATURES
APPLICATION · MATERIAL	Cable fixing clip · PA66	
CHARACTERISTICS	About 2 g, 3 cm ² projected area (assumed); nail slot and flexible arms	
CAVITIES · OUTPUT	32 · about 6,500 per hour at 15 s (Section 05)	
MOULD CONSIDERATIONS	Balanced runner, venting at thin arms, hardened steel	
SECONDARY	Counting and bagging	
EVALUATE The Section 05 table gives about 72 t calculated and a 73 g shot, so a clamp rated around 85 t or more. Drying and a screw sized for the small shot matter as much as tonnage. STILL NEEDED CAD projected area, runner design, monthly volume.		

B · UPVC PIPE ELBOW		HEAT-SENSITIVE MATERIAL
APPLICATION · MATERIAL	Water supply fitting to IS 7834 ^[2] · UPVC compound	
CHARACTERISTICS	Thick-walled socket fitting; size range from small to large diameters	
CAVITIES · OUTPUT	8 for small sizes · about 816 per hour at 30 s (Section 05)	
MOULD CONSIDERATIONS	Side cores for sockets, balanced runner, corrosion-resistant steel, venting	
SECONDARY	Marking, packing by size	
EVALUATE Tonnage needs the projected area. Machine choice is driven by PVC-ready screw and barrel, accurate temperature control and core-pull circuits. STILL NEEDED fitting sizes, compound data, mould drawings, monthly volume per size.		

C · CHROME-PLATED ABS HEALTH FAUCET BODY		SURFACE QUALITY
APPLICATION · MATERIAL	Bathroom health faucet · plating-grade ABS	
CHARACTERISTICS	Curved hollow body with thread and trigger mount	
CAVITIES · OUTPUT	1 to 4 · volume set by sales plan	
MOULD CONSIDERATIONS	Polished steel, gates off visible faces, cores for bores	
SECONDARY	Chrome plating, then assembly with POM internals	
EVALUATE Tonnage needs projected area. Low moulded-in stress, drying and repeatable filling decide plating yield. STILL NEEDED part drawing, grade, plating specification, mould size.		

WHAT DECIDED THE MACHINE IN EACH EXAMPLE

SELECTION FACTOR	A · CABLE CLIP	B · UPVC ELBOW	C · FAUCET BODY
Main limit	Fine features, cavity count	PVC processing, core pulls	Surface for plating
Clamp force	About 85 t rated	Needs projected area	Needs projected area
Auxiliaries	Dryer, counter	Core-pull control, sprue picker	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 building or construction component.

COMPONENT

- ☐ 2D drawing and 3D CAD model
- ☐ Part weight, runner weight, wall thickness
- ☐ Material grade or PVC compound data
- ☐ Critical dimensions: sockets, threads, bores
- ☐ Surface: plated, gloss or moulded-in colour

PRODUCTION

- ☐ Monthly and yearly volume per size
- ☐ Size and colour ranges
- ☐ Cavity count and target cycle time
- ☐ Operating hours and shifts
- ☐ Packing quantities

MOULD

- ☐ New or existing mould; size and weight
- ☐ Hot or cold runner; number of zones
- ☐ Side cores, unscrewing, core pulls
- ☐ Mould steel (corrosion-resistant for PVC)
- ☐ Previous machine specification, if any

BUILDING APPLICATION

- ☐ IS standard and certification needed
- ☐ Water pressure or electrical rating
- ☐ Flame and insulation requirements
- ☐ Plating or finishing route
- ☐ Load requirements for fixings

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 BUILDING PARTS
1	Is a PVC-ready screw, barrel and nozzle available, and how is it protected from corrosion?	UPVC and CPVC fittings and conduit parts.
2	How accurate is barrel temperature control?	PVC degrades if overheated.
3	How many core-pull and unscrewing circuits are available?	Tees, elbows and threaded parts.
4	What shot repeatability does the machine hold at my shot size?	Socket sizes and cavity balance.
5	How many hot-runner zones can the control run?	Multi-cavity clips, plugs and spacers.
6	Will my largest mould fit, with the stroke it needs?	Seats and cisterns.
7	What robot and conveyor interfaces are supported?	Plated parts and small-part counting.
8	Can the control store settings for each size and colour?	Frequent size and colour changes.
9	What is the energy use per part at my cycle?	Low price per part.
10	What installation, training and spare-parts support is included?	Construction demand needs reliable supply.

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 process requirements such as standards, plating or automation.

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