



TECHNICAL BUYER'S GUIDE · PRATISHNA ENGINEERS

ENGINEERING COMPONENTS INJECTION MOULDING MACHINE GUIDE

A practical guide for makers of plastic gears, bushings, rollers, fittings and precision mechanical parts: 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 engineering plastic parts for machinery, conveyors, pneumatics, pumps and equipment.

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

ENGINEERING COMPONENTS & INJECTION MOULDING

Machines, conveyors, pumps and pneumatic systems use moulded plastic parts where they move, slide, seal or carry load. This guide covers those functional parts.

WHERE INJECTION MOULDING FITS IN ENGINEERING PRODUCTS

Engineering is India's largest export segment: EEPC India reports engineering exports of USD 122.43 billion in 2025-26, 27.71% of merchandise exports^[1]. Behind the metal machinery sit many moulded plastic parts: gears, bushings, rollers, pulleys, conveyor links, fittings and small precision parts that replace machined metal where weight, noise, corrosion or cost matter.

These are functional parts. Tolerances on drawings are increasingly agreed against ISO 20457, which gives tolerance and acceptance rules made for plastic moulded parts^[2].

Many of these parts replace machined metal or are supplied to machine builders as ready-to-fit components, so the buyer judges them on fit, running behaviour and life in the assembly rather than on appearance.

MAIN COMPONENT CATEGORIES

POWER TRANSMISSION Gears, sprockets, pulleys, timing pulleys	BEARINGS Bushings, bearing cages, races, housings	ROLLERS & WHEELS Conveyor rollers, castor and roller wheels	CONVEYING Belt links, flights, drag chain links
FLUID HANDLING Push-in fittings, couplers, valve bodies	ROTORS Impellers, fan blades, pump rotors	PRECISION PARTS Cams, levers, sliders, spacers	HARDWARE Brackets, knobs, handwheels, clips

WHY INJECTION MOULDING SUITS THESE PARTS

- Gear teeth, splines and bores formed complete in one shot.
- Self-lubricating grades run without grease.
- Corrosion-free, light parts at a lower cost than machining.

TYPICAL MANUFACTURING CHALLENGES

- Shrinkage sets tooth, bore and pitch accuracy^[4].
- Nylon changes size and stiffness with moisture.
- Glass fibre orientation causes warp.
- Thick hubs and treads are sink- and void-prone.

WHERE MOULDING SITS IN THE PRODUCT CHAIN

RESIN POM, PA, PBT, PEEK	DRYING PA, PBT, PEEK	INJECTION MOULDING gears, bodies, links	CONDITIONING nylon moisture	INSERTS & ASSEMBLY bearings, O-rings	INSPECTION gear, bore, runout	EQUIPMENT OEM fitted to machines
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KEY REQUIREMENTS FOR ENGINEERING PARTS

DIMENSIONAL ACCURACY Bores, teeth and sealing grooves need tolerances agreed for plastics ^{[2][3]} .	WEAR AND FRICTION Sliding parts are sized to the PV limit of the compound ^[7] .	LOAD AND CREEP Brackets and wheels must hold load over time, not only on day one.
ENVIRONMENT Moisture, temperature, chemicals and UV change plastic behaviour.	NOISE AND RUNOUT Gears, rollers and rotors must run quiet and balanced.	COST PER PART Commodity links and clips need high cavitation and short cycles.

SECTION 02 · COMPONENTS

MAJOR ENGINEERING COMPONENTS

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

COMPONENT	MATERIAL(S)	INJECTION MOULDING CONSIDERATIONS
Plastic gear (spur, helical, worm wheel)	POM, PA66, PA66-GF, PA46, PBT, PEEK	Shrinkage compensation decides pitch and backlash. Centre or balanced multi-gating; a side gate makes an oval gear. Wire-EDM tooth cavities.
Sprocket, pulley and timing pulley	POM, POM+MoS2, PA66, PA66-GF, PBT	Same shrinkage discipline as gears; pitch accuracy across the diameter. Hub bore and keyway tolerance stop slipping.
Bushing (sleeve and flanged)	POM, POM+PTFE, PA66, PA66+MoS2, PA66 oil-filled, PEEK, PPS	Size to the compound PV limit. Uniform wall keeps the bore round; press fit closes the bore. PTFE and UHMW-PE bushings are machined, not moulded.
Plastic bearing (cages, races, housings)	POM, PA66, PA46, PEEK, PPS, PTFE-filled compounds	Only polymer parts are moulded; balls are assembled. Cages need stability under temperature. Specify conditioned nylon dimensions.
Roller (conveyor, guide, idler)	POM, PA6, PA6-GF, HDPE, PP, PBT	Core out thick hubs to avoid sinks and voids. Runout and concentricity decide noise. Races pressed in or insert moulded.
Castor wheel and roller wheel	PA6, PP, POM, TPU, TPE	Rigid hub with overmoulded TPU or TPE tread; bond checked by peel test. Thick treads are cooling-limited. Load rating is a creep question.
Chain and conveyor component (belt links, flights)	POM, PA6, HDPE, PP	High cavitation; cycle time is the margin. Pin holes must stay round. Food lines need compliant natural grades. Guides and wear strips are extruded.
Cable drag chain link	PA6, PA66, PA6-GF, PP	Hinge and snap pins flex millions of times; condition nylon. Multi-cavity hot-runner tools for identical links.
Impeller, fan blade and pump rotor	PA66-GF, PPS, PBT-GF, POM	Balance is the acceptance test. Keep weld lines off blade roots. PPS for chemical and hot pump duty.
Industrial fitting (push-in, coupler, hose body)	POM, PA66, PA66-GF, PBT	Wall uniformity and smooth bores set pressure rating. O-ring groove tolerance decides sealing. Moulded threads need unscrewing cores.
Valve body and manifold component	PA66-GF, PPS, PBT-GF, POM	Pressure part: uniform walls, no flash on sealing faces. Check chemical compatibility at operating temperature.
Precision mechanical part (cams, levers, sliders, spacers, small housings)	POM, PA46, PBT, PEEK, PPS, PC, LCP	Agree the ISO 20457 tolerance class on the drawing. Shot-to-shot stability, dry resin and stable mould temperature hold tolerance.
Plastic bracket (structural)	PA6-GF30, PA66-GF, PP-GF, PBT-GF, ABS	Warp is a gate-and-flow problem with glass fibre. Check creep at service temperature. Design to conditioned nylon properties; inserts moulded in or staked.
Knob, handwheel, lever and handle	PA6-GF, ABS, PP, POM	Core and rib bosses under show faces. Threaded inserts moulded in or pressed. Phenolic handwheels are compression-moulded thermoset.
Snap-fit fastener, clip and spacer	PA66, POM, PP, PC	Cavitation and cycle drive cost. Size snap strain on conditioned modulus. POM holds critical retention dimensions.

Not injection moulded: PTFE and UHMW-PE bushings (machined), phenolic handwheels (compression moulded), chain guides and wear strips (extruded), metal balls, gripping rings and inserts (bought-in).

SECTION 03 · MATERIALS

MATERIALS USED FOR ENGINEERING COMPONENTS

Engineering parts are chosen on wear, stiffness, creep, dimensional stability and environment, then checked against how consistently the grade moulds.

MATERIAL	TYPICAL COMPONENTS	RELEVANT PROPERTIES	PROCESSING CONSIDERATIONS	LIMITATIONS TO CHECK
POM, POM+PTFE, POM+MoS2	Gears, pulleys, bushings, cages, clips, fittings, precision parts	Stiff, low friction, low moisture uptake ^[9] .	High but predictable shrinkage; never share a barrel with PVC.	Acids and alkalis outside pH 4 to 9 ^[9] .
PA66, PA6	Gears, bushings, wheels, links, clips, brackets	Tough, fatigue resistant.	Must be dried before moulding ^[10] .	Absorbs moisture; size and stiffness change.
PA66-GF, PA6-GF30	Brackets, impellers, valve bodies, fittings, gears	High stiffness and strength.	Abrasive; fibre orientation drives warp.	Anisotropic shrinkage; weld-line strength.
PA66+MoS2, oil-filled PA66, PTFE-filled compounds	Bushings, bearing parts	Built-in lubrication, low friction.	Mould like the base resin; dry nylons.	PV limit of the compound ^[7] . Pure PTFE is not moulded.
PA46	Gears, bearing cages, precision parts	Higher heat resistance than PA66.	High melt temperature; dry well.	Moisture uptake.
PBT, PBT-GF	Gears, pulleys, rollers, impellers, valve bodies, fittings	Dimensionally stable, low moisture uptake.	Dry before moulding; GF wears screw.	Hydrolysis in hot water.
PEEK, PPS	Bushings, bearings, gears, rotors, precision parts	High temperature and chemical resistance.	Very high melt and mould temperatures.	Material cost; dedicated setup.
LCP, PC	Precision parts, small housings	Thin-wall flow (LCP); toughness (PC).	Dry; LCP flows very easily.	PC chemical resistance.
PP, PP-GF, HDPE	Rollers, links, drag chain, brackets, wheels	Low cost, chemical resistant.	Shrinkage and warp.	Lower stiffness and creep resistance.
ABS	Knobs, handles, brackets	Good surface, easy to mould.	Dry before moulding.	Creep under load, chemicals.
TPU, TPE	Wheel treads	Grip and shock absorption.	Overmoulded onto a rigid hub.	Bond strength to the hub.

General material behaviour only. Confirm wear, PV and conditioned property data with the compound supplier.

POM OR NYLON: A COMMON FIRST DECISION

CONSIDERATION	POM	PA66 / PA6
Moisture	Low uptake, stable size ^[9]	Absorbs moisture; grows and softens
Best fit	Gears, clips, precision parts	Hinges, links, brackets, wheels

DRY, CONDITIONED AND IN SERVICE

Nylon parts are brittle and undersize straight from the tool, then absorb moisture and grow. Specify which state the drawing dimensions and test values refer to, and condition parts before gauging and packing when the customer expects conditioned properties.

MATERIAL SELECTION QUESTIONS

- ☐ Does the part slide or mesh, and at what load and speed?
- ☐ What service temperature and chemicals?
- ☐ Continuous load that could cause creep?
- ☐ Which tolerance class, and dry or conditioned?
- ☐ Any food-contact, UV or outdoor exposure?

SECTION 04 · DESIGN & MOULD

COMPONENT DESIGN & MOULD REQUIREMENTS

For engineering parts the mould is judged on concentricity and repeatability: round bores, true teeth and parts that match from cavity to cavity.

DESIGN FEATURES THAT AFFECT MOULDING

FEATURE	WHY IT MATTERS IN ENGINEERING PARTS	MOULDING IMPLICATION
Gear teeth	Profile and pitch set noise and backlash.	Final size depends on material, pressures, temperatures, hold and gating ^[4] .
Bores and bearing seats	Fit on shafts and bearings.	Uniform walls around the core; allow for press-fit closure.
Thick hubs and treads	Rollers, wheels and pulleys carry load.	Core out and rib; cooling rises roughly with wall squared ^[12] .
Glass-filled ribs	Brackets and rotors need stiffness.	Fibre orientation sets warp; gate position matters.
Snap arms and hinges	Clips and drag chain links flex repeatedly.	Radii at roots; no weld lines at the hinge.
O-ring grooves and seal faces	Fittings and valve bodies seal under pressure.	Flash-free parting lines; tight groove tolerance.
Threads	Fittings and couplers connect to systems.	Unscrewing cores and concentric thread starts.
Inserts	Brackets, knobs and rollers take metal parts.	Insert seats, retention and loading every cycle.

MOULD CONSIDERATIONS

ITEM	ENGINEERING POINTS	ITEM	ENGINEERING POINTS
Gating	Centre or diaphragm gates for round parts; precision gears often need 3-plate moulds ^[5] .	Steel	Wear-resistant steel for glass-filled grades; stable steel for precision.
Cavity layout	Links and clips: 16 to 64. Gears: 1 to 8. Brackets and rotors: 1 to 4.	Tooth cavities	Wire EDM; the finish transfers to gear noise.
Cooling	Even mould temperature gives even shrinkage around the part.	Cores	Unscrewing cores for threads; side cores for ports.
Venting	Tooth tips and thin ribs trap air.	Size correction	Cavity steel left safe for correction after first trials.

SHRINKAGE IS DESIGNED INTO THE STEEL

Gear and bore cavities are cut oversize to allow for shrinkage, and the same mould can produce different sizes if moulding parameters change^[4]. Precision moulds are therefore finalised after trial parts are measured at fixed settings, which must then be held in production.

SECONDARY OPERATIONS THAT SHAPE THE MOULD

OPERATION	TYPICAL PARTS	WHAT IT ASKS OF THE MOULDED PART
Moisture conditioning	Nylon gears, links, clips, brackets	Parts measured and packed in a defined state.
Bearing or insert pressing	Rollers, wheels, knobs	Seat diameter and depth held after shrinkage.
Overmoulding	Castor and roller wheels	Hub surface and locking features for the tread.

SECTION 05 · PRODUCTION PLANNING

PRODUCTION CAPACITY & CYCLE-TIME PLANNING

Engineering plants mix small high-cavitation parts with slower precision and thick-section parts. Plan each on its own cycle and cavities, then total the machine hours.

OUTPUT

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

Effective/hour = Parts/hour × Utilisation

Day = Effective/hour × Hours run

Utilisation covers mould changes, drying, start-up, first-off inspection, maintenance and rejects.

EXAMPLE 1 · 16-CAVITY POM SNAP CLIP

16 × 3600 ÷ 14 s = 4,114 /h
× 0.85 utilisation = 3,497 /h
× 22 h = 76,937 /day
× 26 days = 2,000,366 /month

EXAMPLE 2 · 4-CAVITY POM SPUR GEAR

4 × 3600 ÷ 35 s = 411 /h
× 0.85 = 350 /h · × 22 h = 7,694 /day
× 26 days = 200,037 /month

Working backwards: for 300,000 gears a month in 572 running hours you need 524 per hour. Cavities = 524 × 35 ÷ (3600 × 0.85) ≈ 6.0, so a balanced 8-cavity mould or a second 4-cavity mould.

WHAT SETS THE CYCLE TIME

PHASE	ENGINEERING INFLUENCE
Injection & hold	Long hold on gears and bores to control shrinkage.
Cooling	Thick hubs and treads; rises with wall squared ^[12] .
Unscrewing	Thread cores add time on fittings.
Inserts	Metal parts loaded each cycle.

Illustrative example. Cycle times of 14 s and 35 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 CONVEYOR BELT LINK	PROJECTED AREA	CALCULATED FORCE	RATED AT 85%	SHOT	EFFECTIVE OUTPUT
4 cavities	78 cm ²	31 t	37 t	83 g	408 /h
8 cavities	154 cm ²	62 t	73 t	165 g	816 /h
16 cavities	304 cm ²	122 t	144 t	328 g	1,632 /h

Illustrative example. Force = projected area × clamp factor K × safety factor S. PP is commonly given 2 to 3 US tons per square inch^[11], about 0.28 to 0.42 t/cm²; K = 0.35 t/cm² and S = 1.15 assumed. Also assumed: 18 cm² and 20 g per link, runner area 6 / 10 / 16 cm² and weight 3 / 5 / 8 g, 30 s cycle, 85% utilisation.

PLANNING TOTAL MACHINE HOURS

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

Add the hours for every part number, then divide by the running hours per machine (572 here). Precision parts may need dedicated machines so settings stay fixed.

MACHINE UTILISATION AND PLANNED DOWNTIME

DRYING Nylon, PBT and PEEK need dry resin before start-up.	FIRST-OFF CHECKS Gears and bores are measured before release.	MATERIAL CHANGES Purge fully between POM, nylon and PBT.	SMALL BATCHES Many part numbers mean frequent mould changes.
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SECTION 06 · AUTOMATION

AUTOMATION & PRODUCTION EFFICIENCY

In engineering moulding, automation mostly protects accuracy: parts kept separated by cavity, inserts placed the same way every cycle and nylon conditioned before packing.

AUTOMATION	WHERE IT ADDS VALUE IN ENGINEERING PARTS	WHEN IT USUALLY MAKES SENSE
Robot take-out	Removes gears and precision parts without damage, keeping cavity order.	Precision parts and parts traced by cavity.
Sprue picker	Removes cold runners from link and clip moulds.	Multi-cavity cold-runner moulds.
Insert loading	Places threaded inserts, bearing races or shafts.	Brackets, knobs and rollers at volume.
Overmoulding cell	Transfers hubs for tread moulding.	Castor and roller wheels.
Conditioning	Brings nylon parts to a defined moisture state.	Nylon gears, links, clips and brackets.
Inline measurement	Checks bores, runout or gear size on samples.	Tight-tolerance parts and long runs.
Assembly and leak test	O-rings and grip rings into fittings; pressure checks.	Fittings and valve bodies.

Engineering plants often run many part numbers in modest batches. Shared resin drying, closed conveying and quick mould change usually pay back before automation built around one mould.

AUTOMATION BY PRODUCT GROUP

PRODUCT GROUP	MAIN AUTOMATION	WHY
Gears and precision parts	Robot, cavity separation, sampling	Accuracy traced to each cavity
Links, clips, spacers	Sprue picker, conveyor, counting	High counts per hour
Rollers, wheels, brackets	Insert loading, overmoulding	Metal and soft parts added
Fittings and valve bodies	Assembly and pressure test	Sealing parts checked in line

DECIDING ON AUTOMATION

ACCURACY Consistent removal and handling keep dimensions consistent.	INSERTS Automated loading keeps hands out and the cycle steady.	VOLUME High-count links and clips justify conveying and counting.
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INTERFACES TO SPECIFY ON THE MACHINE

CORE PULLS Circuits for unscrewing and side cores.	ROBOT Signal interface and safety interlocks.	PROCESS DATA Shot logging and alarms for precision parts.	AUXILIARIES Dryer, loader and mould temperature units.
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WHERE THE COST OF A MOULDED PART COMES FROM

MATERIAL engineering grades	MACHINE per machine hour	LABOUR inserts, checks	POWER heating, drying	MOULD EDM, correction	REJECTION size, warp	PACKING by count
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On gears and precision parts, mould cost and rejection dominate. On links and clips, machine hours and material dominate. Use your own rates to compare options.

SECTION 07 · QUALITY

QUALITY, TESTING & COMMON DEFECTS

An engineering part is judged in the assembly: it must fit, mesh, run true, seal and keep doing so under load and moisture.

TESTS AND CHECKS

CHECK	WHAT IT INVOLVES	LINK TO MOULDING
Tolerance acceptance	ISO 20457 sets general tolerances, direct tolerances and acceptance conditions for moulded parts ^[2] . A standard group such as TG6 is common, with tighter groups for function-critical dimensions ^[3] .	Shrinkage, cavity balance, process stability
Gear inspection	Tooth size, runout and composite checks against the agreed gear quality; AGMA Q8 to Q10 is reported for well-controlled moulding ^[6] .	Gating, cooling, hold
PV and wear	Bearing and bushing compounds checked against their limiting PV for the duty ^{[7][8]} .	Grade, bore roundness
Runout and balance	Rollers, pulleys and rotors spun for runout or balance.	Core shift, fibre orientation
Pressure and leak	Fittings and valve bodies tested to the customer rating.	Wall uniformity, weld lines, voids
Load and creep	Brackets and wheels held under load over time.	Grade, moisture state, section design
Conditioned dimensions	Nylon parts measured in the agreed moisture state.	Drying, conditioning

Test methods and limits come from the customer specification or the applicable standard. ISO 20457 was revised in 2026^[2]; confirm which edition the drawing refers to.

IN-PROCESS CONTROLS

RESIN MOISTURE	WEIGHT BY CAVITY	BORE AND OD GAUGES	PROCESS ALARMS
Check drying before start-up for nylon, PBT and PEEK.	Flags imbalance and short teeth.	Go / no-go on bores, hubs and pins.	Hold time and cushion within limits.

TROUBLESHOOTING COMMON DEFECTS

DEFECT	POSSIBLE CAUSES	EFFECT ON THE PART	AREAS TO INVESTIGATE
Oval gear or bore	Side gating, uneven cooling	Noise, backlash, poor fit	Gate type, cooling balance
Pitch or size out	Shrinkage shift, process drift	Meshing error, fit failure	Hold pressure and time, mould temperature
Sink and voids	Thick hubs and treads, short hold	Weak hubs, poor seats	Coring, hold, cooling
Warp	Glass fibre orientation	Brackets and bodies out of flat	Gate location, rib layout
Weld-line cracks	Flow fronts at blade roots or hinges	Failure under load or flexing	Gate position, melt temperature
Brittle nylon	Dry-as-moulded, degraded resin	Clips and links snap	Drying, conditioning, residence time
Flash on seal faces	Worn shut-offs, low clamp	Leaks in fittings and valves	Parting line, clamp setting
Short teeth or ribs	Poor venting, cold mould	Weak teeth, missing features	Venting, injection speed

SECTION 08 · WORKED EXAMPLES

PRACTICAL MACHINE-SELECTION EXAMPLES

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

A · POM SPUR GEAR		PRECISION
APPLICATION · MATERIAL	Drive gear in a small gearbox · POM	
CHARACTERISTICS	Wire-EDM teeth, centre bore, web; agreed gear quality	
CAVITIES · OUTPUT	4 · about 350 per hour at 35 s (Section 05)	
MOULD CONSIDERATIONS	Centre or diaphragm gate, 3-plate mould, even cooling ^[5]	
SECONDARY	Gear inspection, cavity-wise sampling	
EVALUATE Shot repeatability and stable hold control decide the result more than tonnage. Tonnage follows from projected area and is usually modest. STILL NEEDED gear drawing and quality class, volume, mating part.		

B · PA66-GF MOUNTING BRACKET		STRUCTURAL
APPLICATION · MATERIAL	Machine mounting bracket · PA66-GF (grade to be confirmed)	
CHARACTERISTICS	Ribbed body, threaded inserts, continuous load	
CAVITIES · OUTPUT	2 · set by volume	
MOULD CONSIDERATIONS	Gate for fibre orientation, wear-resistant steel, insert seats	
SECONDARY	Conditioning, insert check, creep validation	
EVALUATE Wear-resistant screw and barrel, insert-loading interface and drying drive the choice. Tonnage needs the projected area of ribs and body. STILL NEEDED CAD model, load case, service temperature, volume.		

C · CASTOR WHEEL WITH TPU TREAD		OVERMOULDING
APPLICATION · MATERIAL	Industrial castor · PA6 hub, TPU tread	
CHARACTERISTICS	Thick tread, bearing seat, bonded interface	
CAVITIES · OUTPUT	1 to 2 per station · cooling-limited	
MOULD CONSIDERATIONS	Hub locking features, tread cooling, bearing seat size	
SECONDARY	Bearing press-in, peel and load tests	
EVALUATE Two stages: hub moulding and tread overmoulding, on two machines or a two-component setup. Tread shot size and cooling time set the cell. STILL NEEDED hub and tread drawings, load rating, TPU grade, volume.		

WHAT DECIDED THE MACHINE IN EACH EXAMPLE

SELECTION FACTOR	A · GEAR	B · BRACKET	C · CASTOR WHEEL
Main limit	Repeatability	Filled resin, inserts	Two materials, cooling
Clamp force	Modest; area-based	Needs projected area	Per stage, area-based
Auxiliaries	Robot, sampling	Dryer, insert loading	Transfer, bearing press

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 an engineering component.

COMPONENT

- ☐ 2D drawing with tolerance class and 3D model
- ☐ Part weight, runner weight, wall thickness
- ☐ Grade data sheet, dry or conditioned
- ☐ Gear data or critical bores
- ☐ Inserts, threads, overmoulded parts

PRODUCTION

- ☐ Monthly volume per part number
- ☐ Number of part numbers and batch sizes
- ☐ Cavity count and target cycle time
- ☐ Operating hours and shifts
- ☐ Inspection frequency

MOULD

- ☐ New or existing mould; size and weight
- ☐ Hot or cold runner, gate type
- ☐ Steel for filled grades
- ☐ Unscrewing and side cores
- ☐ Previous machine specification, if any

ENGINEERING APPLICATION

- ☐ Load, speed and PV of sliding parts
- ☐ Service temperature and chemicals
- ☐ Pressure rating for fluid parts
- ☐ Mating parts and assembly method
- ☐ Customer or standard test requirements

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 ENGINEERING PARTS
1	What shot repeatability does the machine hold at my shot size?	Gear and bore accuracy.
2	Can hold pressure and time be profiled and held stable?	Shrinkage control on precision parts.
3	Is a wear-resistant screw and barrel available?	Glass-filled nylon, PBT and PPS.
4	Can the barrel and mould reach the temperatures my grades need?	PEEK, PPS and PA46.
5	How many core-pull and unscrewing circuits are available?	Threaded fittings and ported bodies.
6	What robot and insert-loading interfaces are supported?	Inserts, overmoulding, cavity separation.
7	Can the control store settings for each part number?	Many parts in modest batches.
8	Can shot data be logged and alarmed?	Traceable precision parts.
9	What is the energy use per part at my cycle?	Long runs of links and clips.
10	What installation, training and spare-parts support is included?	Uptime for OEM delivery schedules.

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 tolerance class, gear quality, inserts or overmoulding.

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