



TECHNICAL BUYER'S GUIDE · PRATISHNA ENGINEERS

DEFENCE SECTOR COMPONENTS INJECTION MOULDING MACHINE GUIDE

A practical guide for moulders supplying drone, field equipment and connector programmes: 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 and quality engineers and purchase teams supplying moulded drone, enclosure, connector and battery parts to defence programmes.

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

DEFENCE SECTOR COMPONENTS & INJECTION MOULDING

Moulded defence parts are small in number but high in consequence: a cracked drone arm, a leaking enclosure or a flashed connector can end a mission.

WHERE MOULDERS FIT IN DEFENCE SUPPLY

India's annual defence production reached a record Rs 1.78 lakh crore in FY 2025-26, 15.6% above the previous year, with the private sector share rising to about 24%^[1]. Much of the moulding work sits in sub-assemblies: drone airframes and propellers, rugged enclosures for radios and sensors, connector parts and battery housings.

These parts are made in hundreds or thousands rather than millions, but each batch must be traceable and each process repeatable. Engineering resins, many of them glass or carbon filled, replace metal to save weight.

For a moulder moving from commercial work, the practical change is discipline: a qualified mould, resin and setting stay fixed for the life of the part, and every batch leaves with its records.

MAIN COMPONENT CATEGORIES

DRONE AIRFRAME Frames, arms, motor mounts, landing gear, shells	PROPELLERS Blades in matched pairs, propeller guards	COVERS Battery cowlings, payload bay covers	CAMERA MOUNTS Gimbal and camera housings with dampers
ENCLOSURES Radio, sensor and control boxes	CONNECTORS Backshells, inserts, cable glands	BATTERY PACKS Portable and field battery housings	SUB-ASSEMBLIES Parts with inserts, seals and fasteners

WHY INJECTION MOULDING SUITS THESE PARTS

- Light, stiff filled resins in place of machined metal.
- Bosses, ribs, snap latches and seal grooves in one shot.
- Repeatable parts once the process is frozen.
- Metal contacts and threads held by insert moulding.

TYPICAL MANUFACTURING CHALLENGES

- Weld lines weaken glass-filled parts^[2].
- Abrasive fibres wear screws, barrels and gates.
- Warp on large thin covers and seal faces.
- Re-qualification after any resin or process change.

WHERE MOULDING SITS IN THE PRODUCT CHAIN

RESIN certified lots, FR, filled	DRYING PA, PC, PBT, TPU	INJECTION MOULDING frozen process	INSERTS & SEALS contacts, threads, gaskets	ASSEMBLY welding, fastening	QUALIFICATION environmental, IP	DELIVERY with batch records
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Not covered: machined carbon-composite racing props, metal structures, and weapon or munition components. EMI shielding coatings and gaskets are separate processes.

KEY REQUIREMENTS FOR DEFENCE COMPONENTS

STRUCTURAL RELIABILITY Arms, mounts and bosses carry crash and vibration loads.	ENVIRONMENTAL ENDURANCE MIL-STD-810H tests cover temperature, humidity, shock, vibration, altitude and contaminants ^[4] .	INGRESS PROTECTION IP codes under IEC 60529 rate protection against solids and water ^[3] .
FLAME PERFORMANCE FR grades around cells and electronics.	WEIGHT CONTROL Every gram counts on an airframe.	TRACEABILITY Material lots and process records kept per batch.

SECTION 02 · COMPONENTS

MAJOR DEFENCE SECTOR COMPONENTS

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

COMPONENT	APPLICATION	MATERIAL(S)	INJECTION MOULDING CONSIDERATIONS
Drone component (frame, arms, motor mounts, landing gear, body shells)	UAV airframe structure	PA6-GF30, PA6-CF30, PA66, PC, PC/ABS, ABS, TPU	Glass and carbon fibres are abrasive: wear-resistant screw and barrel. Gate position is structural because weld lines and fibre orientation at arm roots and motor bosses fail in a crash. Glass often preferred over carbon, as carbon shards are conductive. Weight and dimensional check on every structural part.
Drone propeller and propeller guard	Lift and blade protection	PA6-GF30, PA66-GF, PA6-CF, PC	Blades balanced and made in matched pairs. Flash at tip or trailing edge is a flight-safety reject. Gate on the hub; consistent fibre orientation along the blade. Guards are large but light, so footprint sets the force.
Drone battery cowling and payload bay cover	Quick-swap covers	PC/ABS, ABS (UV-stabilised), ASA, PA6-GF	Snap-fit fatigue on quick-swap latches; resin must keep impact after UV exposure. Thin large covers warp, so pack and cool evenly. Heat-tolerant grade near motors and ESCs.
Drone gimbal / camera housing with overmoulded dampers	Camera isolation	PC, PC/ABS, PA6-GF, TPU	Two-shot rigid housing with TPU isolators, or separate dampers. Damper hardness is a flight-test variable. Matte finish avoids reflections. TPU dried; bond to PC validated.
Rugged field equipment enclosure (radio, sensor, control boxes)	Housing electronics outdoors	FR PC/ABS, PA6-GF30, PC-GF, PBT-GF	Seal groove flatness decides the IP rating, so warp control comes before finish. Traceability, batch certification and a frozen process; a resin or process change means re-qualification. EMI shielding decided at design stage.
Connector backshell, insert and cable gland	Cable and contact housings	PA66-GF, PBT-GF, PPS, PEI	Often insert moulded around metal contacts or threaded shells. PPS and PEI where solder heat or fire classification demand it. Tight contact spacing; flash in a contact bore scraps the part.
Portable / field battery pack housing	Enclosing cells	FR PC/ABS, PA6-GF, FR PP, PC	FR grade essential around cells; check the certificate covers the moulded part, not just the pellet. Rigid under vibration without extra mass. Ultrasonic weld joints need consistent shrinkage, so avoid regrind.

Metal inserts, contacts, seals, gaskets, fasteners and shielding coatings are bought in or applied later.

GROUPING BY MOULDING DEMAND

STRUCTURAL FILLED PARTS Arms, frames, mounts, propellers. Fibre orientation, weld lines, wear.	SEALED HOUSINGS Enclosures, covers, battery packs. Flatness, FR grades, welding.	PRECISION AND MULTI-MATERIAL Connectors, gimbals. Inserts, two-shot, contact spacing.
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HOW DEFENCE PARTS DIFFER FROM COMMERCIAL VERSIONS

ASPECT	COMMERCIAL PART	DEFENCE PROGRAMME PART
Volume	Continuous, high	Batches against orders, often low
Process changes	Made when useful	Controlled; may need re-qualification
Records	Basic production data	Material lots, settings and inspection per batch
Testing	Functional checks	Environmental, ingress and flame tests as specified

SECTION 03 · MATERIALS

MATERIALS USED FOR DEFENCE SECTOR COMPONENTS

Most defence mouldings use engineering resins, often filled or flame retardant, chosen for stiffness per gram and survival outdoors.

MATERIAL	TYPICAL COMPONENTS	RELEVANT PROPERTIES	PROCESSING CONSIDERATIONS	LIMITATIONS TO CHECK
PA6-GF30, PA66-GF, PA66	Arms, frames, propellers, covers, enclosures, connectors, battery housings	Stiff and strong; glass raises strength and heat resistance.	Dry before moulding ^{[6][8]} . Abrasive fill wears screw, barrel and gates.	Weld lines much weaker than the base resin ^[2] .
PA6-CF30, PA6-CF	Arms, frames, propellers	Higher stiffness per weight than glass.	Abrasive; dry before moulding.	Conductive fragments near batteries.
PC, PC-GF	Propeller guards, gimbals, enclosures, battery housings	Tough; clear or matte.	Hydrolysis-sensitive; dry thoroughly ^[8] .	Chemical stress cracking.
PC/ABS, FR PC/ABS	Shells, covers, gimbals, enclosures, battery housings	Tough, easy to mould; FR grades for electronics.	Dry; watch melt temperature on FR grades.	FR rating must apply to the moulded part.
ABS (UV-stabilised), ASA	Body shells, covers	Rigid; ASA keeps colour and impact outdoors.	Dry before moulding.	Heat near motors and ESCs.
TPU	Landing gear parts, dampers	Tough, elastic, abrasion resistant.	Dry below 0.1% for bonding grades ^[7] .	Bond to substrate must be tested ^[7] .
PBT-GF	Enclosures, connectors	Stiff, dimensionally stable, good electrical properties.	Dry 3 to 5 h at 120 to 130 °C ^[9] .	Hydrolysis if moulded wet ^[6] .
PPS, PEI	Connector backshells and inserts	High temperature, inherent flame resistance.	High melt and mould temperatures; dry PEI.	Cost; high-temperature equipment.
FR PP	Battery pack housings	Light, chemical resistant, weldable.	Hardly absorbs moisture ^[6] ; shrinkage and warp.	Lower stiffness than filled grades.

General material behaviour only. Confirm grade data, flame classification, UV and temperature ratings with the resin supplier and the programme specification.

GLASS OR CARBON FILL?

POINT	GLASS-FILLED	CARBON-FILLED
Stiffness per gram	Good	Higher
Conductivity	Insulating	Conductive fibres
Crash debris	Non-conductive fragments	Conductive shards near batteries
Wear on machine	Abrasive	Abrasive

MATERIAL TRACEABILITY

Programmes usually fix the resin grade, supplier and sometimes the lot. Keep lot certificates, dryer records and regrind rules with each batch, and treat a grade substitution as a design change.

MATERIAL SELECTION QUESTIONS

- ☐ What loads, temperatures and UV must the part survive?
- ☐ Is a flame class required, and for which part?
- ☐ Must the part be conductive or insulating?
- ☐ Which resin grade is frozen in the specification?

SECTION 04 · DESIGN & MOULD

COMPONENT DESIGN & MOULD REQUIREMENTS

In filled structural parts, the gate position decides where the part is weak; in housings, cooling decides whether it seals.

DESIGN FEATURES THAT AFFECT MOULDING

FEATURE	WHY IT MATTERS IN DEFENCE PARTS	MOULDING IMPLICATION
Arm roots and motor bosses	Crash and vibration loads concentrate here.	Gate so weld lines fall away from loaded zones ^[2] .
Propeller blades	Balance and matched pairs.	Hub gating, balanced filling, flash-free edges.
Seal grooves	IP rating depends on groove flatness ^[3] .	Uniform cooling, balanced wall, stable shrinkage.
Snap latches	Quick-swap covers flex many times.	Gate and fibre orientation across the latch.
Metal inserts	Contacts, threaded shells, bushes.	Insert location, preheating, flash control.
Weld joints	Battery housings closed by ultrasonic welding.	Consistent shrinkage and energy directors held to size.
Overmoulded dampers	Gimbal isolation.	Two-shot or insert mould; TPU bond ^[7] .

MOULD CONSIDERATIONS

ITEM	DEFENCE POINTS	ITEM	DEFENCE POINTS
Cavity layout	Mostly 1 to 4; matched family moulds for propellers.	Steel	Hardened, wear-resistant steel at gates for filled resins.
Gating	Structural decision; simulate fibre orientation.	Cooling	Even cooling for covers and seal faces.
Venting	Full venting at weld lines and thin tips.	Temperature	High mould temperatures for PPS, PEI and filled PA.
Inserts	Accurate seats; checks for missing inserts.	Documentation	Mould records kept for qualification.

Filled resins wear gates, vents and shut-offs faster than unfilled grades. Plan wear inserts at the gates and a measured maintenance interval so the qualified mould stays within its drawing.

SECONDARY OPERATIONS THAT SHAPE THE MOULD

OPERATION	TYPICAL PARTS	WHAT IT ASKS OF THE MOULDED PART
Ultrasonic welding	Battery housings, covers	Energy directors and joint faces held to size; no regrind.
Gasket and seal fitting	Enclosures, cable glands	Flat, clean groove faces.
EMI coating	Enclosures	Surfaces suited to the coating chosen at design.
Balancing and marking	Propellers, housings	Consistent mass; part and lot marks.

DESIGN REVIEWS BEFORE STEEL IS CUT

FLOW SIMULATION Weld lines and fibre orientation.	WARP PREDICTION Covers and seal faces.	INSERT CHECK Seat, preheat and retention.	TEST PLAN Which tests the first parts will face.
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SECTION 05 · PRODUCTION PLANNING

PRODUCTION CAPACITY & CYCLE-TIME PLANNING

Defence moulding is planned in machine hours per order, with many part numbers sharing machines between batches.

OUTPUT

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

Effective/hour = Parts/hour × Utilisation

Machine hours = Batch quantity ÷ Effective/hour

Utilisation covers mould changes, drying, first-article checks and rejects.

EXAMPLE 1 · 4-CAVITY PA6-6F30 PROPELLER FAMILY

4 × 3600 ÷ 35 s = 411 /h

× 0.85 utilisation = 350 /h

× 22 h = 7,694 /day

× 26 days = 200,037 /month

Two clockwise and two counter-clockwise blades give two matched pairs per shot.

EXAMPLE 2 · 1-CAVITY FR PC/ABS ENCLOSURE BODY

1 × 3600 ÷ 60 s = 60 /h

× 0.85 = 51 /h

Machine hours: an order of 5,000 bodies needs 5,000 ÷ 51 ≈ 98 hours, so one machine covers it in about a week and a half of 22-hour days and is then free for other part numbers.

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	DEFENCE INFLUENCE
Injection & hold	Controlled filling for fibre orientation.
Cooling	Usually the largest share; rises roughly with wall thickness squared ^[11] .
Inserts	Loading contacts or shells each cycle.

BALANCING CAVITIES, CLAMP FORCE AND OUTPUT

FR PP BATTERY HOUSING HALF	PROJECTED AREA	CALCULATED FORCE	RATED AT 85%	SHOT	EFFECTIVE OUTPUT
1 cavity	158 cm ²	64 t	75 t	96 g	68 /h
2 cavities	316 cm ²	127 t	150 t	192 g	136 /h
4 cavities	630 cm ²	254 t	298 t	382 g	272 /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 = 0.35 t/cm² and S = 1.15 assumed, to be checked against the FR grade data. Also assumed: 150 cm² and 90 g per half, runner area 8 / 16 / 30 cm² and weight 6 / 12 / 22 g, 45 s cycle, 85% utilisation.

PLANNING A MIX OF PART NUMBERS

PLANNING ITEM	WHY IT MATTERS IN DEFENCE WORK
Machine hours per order	Orders arrive in batches, not as a flow.
Changeover and drying	Many resins and moulds share one machine.
First-article time	Each batch may need inspection before release.
Frozen settings	Each part runs on its qualified machine and settings.

MACHINE UTILISATION AND PLANNED DOWNTIME

DRYING

Start dryers before PA, PC, PBT and TPU runs^{[6][9]}.

WEAR CHECKS

Inspect screw and check ring on filled resins.

MOULD CARE

Gates and vents wear with glass fibre.

RECORDS

Time for batch documents and release.

SECTION 06 · AUTOMATION

AUTOMATION & PRODUCTION EFFICIENCY

In defence moulding, automation earns its place through repeatability and records more than through labour saving.

AUTOMATION	WHERE IT ADDS VALUE IN DEFENCE PARTS	WHEN IT USUALLY MAKES SENSE
Robot take-out	Consistent ejection and cooling time for every shot.	Structural and sealed parts where cycle consistency matters.
Insert loading	Places contacts, bushes and threaded shells.	Connectors and housings with metal inserts.
Dryer and closed loader	Keeps filled PA, PC, PBT and TPU dry ^[6] .	Every hygroscopic resin run.
Mould temperature control	Holds high, stable mould temperatures.	PPS, PEI, filled PA and flat covers.
Weighing and sorting	Weighs each part or shot and diverts outliers.	Airframe parts with tight mass limits.
Process monitoring	Logs pressure, temperature and cycle per shot.	Any programme needing batch records.
Ultrasonic welding cell	Closes battery housings and covers.	Welded assemblies in repeat batches.
Vision and insert check	Detects missing inserts and flash in bores.	Connectors and insert-moulded parts.

A robot that removes every part at the same moment gives the same cooling history shot after shot. For filled resins and seal faces, that consistency matters more for warp and dimensions than the labour it saves.

AUTOMATION BY PRODUCT GROUP

PRODUCT GROUP	MAIN AUTOMATION	WHY
Drone arms, frames, propellers	Robot, weighing, sorting	Mass and balance limits
Enclosures, covers	Robot, mould temperature control	Flatness of seal faces
Connectors, glands	Insert loading, vision	Contact position, flash in bores
Battery housings	Welding cell, leak or seal check	Closed, sealed assemblies

DECIDING ON AUTOMATION

RECORDS Automated monitoring creates the batch evidence customers ask for.	REPEATABILITY Same timing every shot keeps the qualified process stable.	LOW VOLUMES Choose automation that moves between part numbers.
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INTERFACES TO SPECIFY ON THE MACHINE

DATA OUTPUT Shot data for batch records.	ROBOT Signal interface and safety interlocks.	CORE AND INSERT Circuits and sensors for inserts.	TEMPERATURE Controller zones for hot moulds.
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WHERE THE COST OF A MOULDED PART COMES FROM

MATERIAL filled, FR resins	MACHINE per machine hour	LABOUR inspection, records	POWER drying, hot moulds	MOULD hardened steel	REJECTION qualification lots	PACKING protective, labelled
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SECTION 07 · QUALITY

QUALITY, TESTING & COMMON DEFECTS

Defence parts are accepted on evidence: dimensions, test results and the records that show every batch was made the same way.

TESTS AND CHECKS

CHECK	WHAT IT INVOLVES	LINK TO MOULDING
Environmental	MIL-STD-810H test methods tailored to the equipment's life-cycle environments ^{[4][5]} .	Moulded-in stress, weld lines, material grade
Ingress protection	IEC 60529 IP code: first digit for solids, second for water ^[3] .	Seal groove flatness, warp, wall integrity
Flame performance	Flame class as specified, confirmed on the moulded part.	Resin grade, melt temperature, wall thickness
Dimensional and mass	Full inspection on first articles, sampling on batches.	Shrinkage, fibre orientation, packing
Propeller balance	Balance and matching of blade pairs.	Filling balance, flash, fibre orientation
Bond and insert pull	Pull or peel tests on TPU dampers and metal inserts ^[7] .	Drying, substrate temperature, insert seat
Traceability	Resin lot, machine, mould and settings recorded per batch.	Process monitoring, labelling

Laboratory results do not guarantee field performance, so engineering judgment is still needed^[5]. Test levels come from the programme specification, not from this guide.

IN-PROCESS CONTROLS

PART WEIGHT Every shot or sampled against limits.	MOISTURE CHECK Before PA, PC, PBT and TPU runs ^[6] .	FLATNESS Seal faces on a gauge plate.	INSERT PRESENCE Vision or sensor check.
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TROUBLESHOOTING COMMON DEFECTS

DEFECT	POSSIBLE CAUSES	EFFECT ON THE PART	AREAS TO INVESTIGATE
Cracks at weld lines	Fibre orientation at the weld ^[2] , gate position	Arm or boss fails under load	Gate location, melt and mould temperature
Fibres on the surface	Low mould temperature, slow fill	Rough, weaker surface	Mould temperature, injection speed
Warped covers and lids	Uneven cooling, fibre orientation	Seal leaks, poor latch fit	Cooling layout, packing, ejection
Flash in contact bores	Worn shut-offs, insert mismatch	Scrapped connector	Mould wear, insert tolerance, pressure
Brittle nylon parts	Wet resin ^{[6][8]}	Cracks in service	Dryer settings, hopper time
Splay in PC parts	Moisture	Weak, visible defects	Drying, dew point
TPU damper peeling	Moisture, cold substrate ^[7]	Camera vibration	Drying, transfer time, grade pairing
Mass out of limit	Short shots, packing variation	Airframe weight error	Shot size, hold pressure, check ring wear

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 · PA6-GF30 PROPELLER FAMILY

FILLED + BALANCE

APPLICATION · MATERIAL	Drone propeller blades · PA6-GF30
CHARACTERISTICS	Two CW and two CCW blades per shot; hub gated
CAVITIES · OUTPUT	4 · about 350 per hour at 35 s (Section 05)
MOULD CONSIDERATIONS	Balanced runner, flash-free edges, wear-resistant gates
SECONDARY	Balancing, pairing, marking
EVALUATE Tonnage needs projected area of blades and runner. Wear-resistant screw and barrel, shot repeatability and balanced filling decide the machine more than force. STILL NEEDED CAD of blades, resin grade, balance tolerance, volume.	

B · FR PC/ABS FIELD ENCLOSURE

SEALED + QUALIFIED

APPLICATION · MATERIAL	Radio enclosure body · FR PC/ABS
CHARACTERISTICS	Seal groove, bosses for inserts, IP rating required
CAVITIES · OUTPUT	1 · about 51 per hour at 60 s (Section 05)
MOULD CONSIDERATIONS	Even cooling for groove flatness, venting, insert seats
SECONDARY	Gasket fitting, EMI coating, IP test
EVALUATE Tonnage needs the projected area. Mould temperature control, shot data logging and a stable qualified process matter most. STILL NEEDED CAD, IP and flame requirements, batch sizes.	

C · FR PP BATTERY HOUSING HALF

AREA + WELDING

APPLICATION · MATERIAL	Portable battery pack housing half · FR PP
CHARACTERISTICS	About 150 cm ² and 90 g per half (assumed); weld joint
CAVITIES · OUTPUT	2 · about 136 per hour at 45 s (Section 05)
MOULD CONSIDERATIONS	Energy directors to size, even cooling, no regrind
SECONDARY	Ultrasonic welding, seal check
EVALUATE The Section 05 table gives about 127 t calculated and a 192 g shot, so a clamp rated around 150 t or more. STILL NEEDED FR grade data, CAD area, weld design, volume.	

Only the battery housing is sized mainly by clamp force. For the propellers and the enclosure, the enquiry should lead with resin, repeatability and records, and the tonnage follows from the drawing.

WHAT DECIDED THE MACHINE IN EACH EXAMPLE

SELECTION FACTOR	A · PROPELLERS	B · ENCLOSURE	C · BATTERY HOUSING
Main limit	Balance and fibre wear	Flatness and qualification	Projected area
Clamp force	Needs projected area	Needs projected area	About 150 t rated
Auxiliaries	Wear-resistant screw, weighing	Mould temperature, data logging	Robot, welding cell

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 defence component.

COMPONENT

- ☐ 2D drawing and 3D CAD model
- ☐ Part weight and mass tolerance
- ☐ Resin grade frozen in the specification
- ☐ Load, seal and insert features
- ☐ Critical dimensions and weld-line limits
- ☐ Sample or drawing of the current part

PRODUCTION

- ☐ Batch sizes and delivery schedule
- ☐ Number of part numbers per machine
- ☐ Cavity count and target cycle time
- ☐ Operating hours and shifts
- ☐ First-article and release steps
- ☐ Programme duration in years

MOULD

- ☐ New or existing mould; size and weight
- ☐ Gate positions and flow simulation
- ☐ Hardened steel for filled resins
- ☐ Inserts, two-shot or cores
- ☐ Previous machine specification, if any
- ☐ Maintenance plan for gates and vents

DEFENCE APPLICATION

- ☐ Environmental test requirements
- ☐ IP rating and flame class
- ☐ Traceability and record format
- ☐ Qualification and change rules
- ☐ Customer or inspection agency audits
- ☐ Export or security handling rules

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 DEFENCE PARTS
1	Is a wear-resistant screw, barrel and check ring available?	Glass and carbon filled resins.
2	What shot repeatability does the machine hold at my shot size?	Mass limits and qualified processes.
3	Can the machine log and export shot data per batch?	Traceability records.
4	How precisely are barrel and mould temperatures controlled?	PPS, PEI, filled PA and seal faces.
5	How is the qualified setting protected from changes?	Frozen process rules.
6	What robot, insert and two-shot interfaces are supported?	Connectors and gimbal housings.
7	Will my largest enclosure mould fit the tie bars and platens?	Housings set the machine size.
8	What is the energy use per part at my cycle?	Cost across long programme lives.
9	How long will spare parts be supported?	Programmes run for many years.
10	What installation, training and service support is included?	Delivery deadlines and audits.

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 qualification, traceability, flame class or IP rating.

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TECHNICAL DISCLAIMER

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