



TECHNICAL BUYER'S GUIDE · PRATISHNA ENGINEERS

INDUSTRIAL PACKAGING COMPONENTS INJECTION MOULDING MACHINE GUIDE

A practical guide for makers of pails, lids, tubs, closures, bungs, spouts and seals for paints, lubricants and chemicals: components, materials, moulds, output, automation, quality, worked examples and what to send for a machine recommendation.

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WHO THIS GUIDE IS FOR

Owners, plant and production managers, process engineers and purchase teams moulding pails, containers, caps, bungs, taps and security seals for paint, lubricant and chemical packaging.

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

INDUSTRIAL PACKAGING COMPONENTS & INJECTION MOULDING

Paint, lubricant and chemical packs are built from moulded pails, lids, tubs and a family of closures. The container is only as good as the closure that seals it.

WHAT INDUSTRIAL PACKAGING ASKS OF A MOULDER

A 20 L paint pail ships as three moulded items: body, lid and handle grip. A lubricant or chemical pack adds caps, spouts, taps, bungs and security seals. Most of these parts are made in large numbers, so cycle time and cavity count decide the cost, while the closures decide whether the pack passes its leak and transport tests.

Packs for dangerous goods must pass UN performance tests: drop, leakproofness, internal pressure and stacking^[1]. In India, UN certificates for such packages are issued by the Indian Institute of Packaging after testing^[2]. Rigid plastic packaging also carries recycled content targets under the amended Plastic Waste Management Rules, from 30% in 2025-26 rising to 60% from 2028-29^[3].

MAIN COMPONENT CATEGORIES

PAILS & LIDS 5 to 20 L paint pails, lids with tamper-evident rings	LUBE PACKS Lubricant pails, caps, handles, spouts	THIN-WALL TUBS Square containers and tubs, 1 to 5 L	JERRYCAN CAPS DIN 51 and DIN 61 / S60x6 screw caps
BOTTLE CLOSURES Screw caps, 28 to 63 mm	DRUM BUNGS 2 inch and 3/4 inch BSP bungs and plugs	SPOUTS & TAPS Pourers, vented closures, dispensing taps	GRIPS & SEALS Bail handle grips, security seals

MOULDED HERE, BLOW MOULDED ELSEWHERE

- Open-head pails, lids, tubs, caps, bungs, spouts, taps, grips and seals are injection moulded.
- Jerrycan bodies, closed-head containers and 1 to 5 L lube bottles are normally blow moulded.
- Steel bail wires, gaskets and foam wads are bought in and assembled.
- Metal pails and drums are outside this guide.

TYPICAL MANUFACTURING CHALLENGES

- Long flow paths in thin pail and tub walls^[4].
- Lid and body must seal as a pair.
- Closure families: one neck, many tool variants.
- Recycled content without losing drop and stack strength^[3].

WHERE MOULDING SITS IN THE PACK CHAIN

RESIN virgin, recycled, IML grade	LABELS printed IML film	INJECTION MOULDING pails, lids, closures	ASSEMBLY grips, wads, gaskets	TESTING leak, drop, stack	FILLING paint, oil, chemicals	TRANSPORT stacked, UN marked
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KEY REQUIREMENTS FOR INDUSTRIAL PACKS

TRANSPORT TESTS Drop, leak, pressure and stack tests for dangerous goods packs ^[1] .	CLOSURE SYSTEM A UN rating applies to the container with its specified closure and gasket.	STACK STRENGTH Filled pails are stacked in warehouses and trucks for weeks.
TAMPER EVIDENCE Bands and seals must break by hand, not in transit.	DECORATION In-mould labels fuse with the pail wall during moulding ^[5] .	RECYCLED CONTENT Rigid packs must meet rising recycled content targets ^[3] .

SECTION 02 • COMPONENTS

MAJOR INDUSTRIAL PACKAGING COMPONENTS

The moulded parts covered by this guide, their materials and the points that decide how each one is moulded.

COMPONENT	APPLICATION	MATERIAL(S)	INJECTION MOULDING CONSIDERATIONS
Paint pail (5 to 20 L, lid and handle)	Paints, coatings, pastes	PP copolymer, HDPE, IML-grade PP, recycled PP blend	Pail, lid and handle are three tools, quoted as a set. IML is the usual decoration and must be designed into mould and robot from the start.
Lube container (5 to 20 L pail and closed-head container)	Oils and greases	HDPE, PP copolymer, recycled HDPE blend	Only pails, caps, handles and spouts are moulded; 1 and 5 L bottles are blow moulded. UN rating covers container, gasket and closure as a system.
Jerrycan cap (DIN 51, DIN 61 / S60x6)	Jerrycan necks, 5 to 30 L	HDPE, PP, LDPE	About 17.5 g HDPE with a break-away band; wad fitted later. Vented, degassing, child-resistant and spout versions need separate tools.
Pail and tub lid with tamper-evident ring	Lids up to 10 L	PP copolymer, HDPE, IML-grade PP	Large flat area can need as much clamp as the body. Break bridges must open by hand only. Qualify lid and body as a pair.
Thin-wall square container / tub (1 to 5 L)	Pastes, adhesives, chemicals	PP copolymer, IML-grade PP	High speed and pressure; flow length to wall ratio is the limit. Radius and rib the square corners.
Drum bung and plug (2 inch, 3/4 inch BSP)	Closed-head drums	HDPE, PP	A certified safety part: thread form, gasket seat and torque retention are tested. Approved with a specific drum.
Spout, pourer and vented closure	Pouring and venting	HDPE, PP, LDPE	Living hinge or telescoping spout plus dust cap. Vent membranes are a separate assembly step.
Dispensing tap / valve	Jerrycans, bag-in-box	HDPE, PP, POM, LDPE	Must still seal after weeks of use. POM for the moving valve part. Check compatibility at storage temperature.
Pail bail handle grip	Carrying filled pails	PP, HDPE, PA6	High-cavity small part on bought-in steel wire. Grip bore sets retention; colour match to the pail.
Screw cap for lube and chemical bottles (28 to 63 mm)	Bottle closures	PP, HDPE, LDPE	Hot runner, 16 to 48 cavities; balance sets scrap. Threads usually stripped. Liners fitted after moulding.
Security seal / tamper-evident lock	Securing closures in transit	PA66, PP, HDPE	Break strength and no reassembly. Nylon needs drying; numbering by mould inserts or laser.

Blow-moulded bodies, steel bail wires, gaskets, wads and liners are outside this guide. Where a closure is part of a UN-rated pack, any change of cap, gasket or resin is a change to the tested design.

CLOSURE SYSTEMS AND WHAT THEY ASK OF THE PART

CLOSURE	SEALS AGAINST	MOULDING FOCUS
Pail lid with tamper ring	Pail rim, often with a gasket	Lid skirt size, bridges, flatness
Jerrycan and bottle cap	Neck finish with wad or liner	Thread, band, wad seat
Drum bung	Drum bung hole with gasket	Thread form, gasket seat, torque
Spout, vented cap, tap	Neck plus internal valve or vent	Hinges, vents, mating bores

SECTION 03 · MATERIALS

MATERIALS USED FOR INDUSTRIAL PACKAGING COMPONENTS

Polyolefins dominate. The choice between PP and HDPE, virgin and recycled, is driven by impact at low temperature, chemical contact and stack load.

MATERIAL	TYPICAL COMPONENTS	RELEVANT PROPERTIES	PROCESSING CONSIDERATIONS	LIMITATIONS TO CHECK
PP, PP copolymer	Paint and lube pails, lids, tubs, caps, bungs, spouts, taps, grips, seals	Stiff for its weight; copolymer grades add impact strength. Allows living hinges.	High-flow grades suit thin walls ^[4] . Shrinkage and warpage on flat lids.	Low-temperature impact of the grade; drop tests on plastic jerricans are run at -18 °C or lower ^[1] .
IML-grade PP	Paint pails, lids, tubs	Flow and bonding suited to in-mould labels.	Label film is usually PP, 15 to 40 µm thick ^[5] , fused during moulding.	Label and body resin must match for recycling.
HDPE	Lube pails, jerrycan and bottle caps, bungs, spouts, taps, grips	Tough, chemical resistant, good at low temperature.	Higher shrinkage than PP; control cooling on threads and seal faces.	Check stress cracking with the fill product.
Recycled PP and HDPE blends	Paint and lube pails	Help meet recycled content targets ^[3] .	Filter and dry; batch variation in melt flow and colour.	Drop and stack strength; contamination with chemical packs.
LDPE	Jerrycan caps, spouts, taps, bottle caps	Soft and flexible; seals by deforming.	Low processing temperature; fast cycles.	Low stiffness and heat resistance.
POM	Valve parts in dispensing taps	Stiff, low friction; used for pumps and valves ^[6] .	Never process in the same barrel as PVC.	Not recommended outside pH 4 to 9 ^[8] .
PA6, PA66	Handle grips (PA6), security seals (PA66)	Strength and toughness.	Must be dried before moulding ^[9] .	Properties change with moisture uptake.

General material behaviour only. Confirm grade data, fill-product compatibility and test results with the resin supplier and test house.

MATCHING MATERIAL TO THE PACK

PACK	FILL PRODUCT	MATERIALS IN THIS GUIDE
Paint pail with lid	Water or solvent paints, pastes	PP copolymer, IML-grade PP, HDPE, recycled PP blend
Lube pail and closures	Oils and greases	HDPE, PP copolymer, recycled HDPE blend, LDPE
Chemical closures and taps	Chemicals, detergents	HDPE, PP, LDPE, POM
Square tubs	Adhesives, pastes	PP copolymer, IML-grade PP
Drum bungs	Liquids in closed-head drums	HDPE, PP
Seals and grips	Transport security, handling	PA66, PA6, PP, HDPE

VIRGIN OR RECYCLED?

Recycled content targets apply to rigid plastic packaging^[3], but a UN-rated or chemical pack is tested with a specific resin. Qualify each recycled blend by test on the finished pack before changing it in production.

MATERIAL SELECTION QUESTIONS

- ☐ What is the fill product and storage temperature?
- ☐ Is the pack UN-rated for dangerous goods?
- ☐ What stack height and drop height must it survive?
- ☐ Is IML or a recycled content share required?

SECTION 04 · DESIGN & MOULD

COMPONENT DESIGN & MOULD REQUIREMENTS

Pail and tub moulds are about fast, even filling of long thin walls. Closure moulds are about many cavities, clean tamper bands and seal faces that hold size.

DESIGN FEATURES THAT AFFECT MOULDING

FEATURE	WHY IT MATTERS IN PACKAGING	MOULDING IMPLICATION
Thin walls, long flow	Packaging thin walls can be under 0.62 mm with flow length over 200 times the wall ^[4] .	High injection speed and pressure; high-flow grade; gate placement.
Lid and rim seal	Pail and lid seal only if both hold size.	Matched shrinkage; controlled cooling on rim and lid skirt.
Tamper-evident bands	Bridges must break by hand, not in transit.	Bridge thickness held tight; clean ejection or stripping.
Threads	Caps, bungs and taps carry the seal load.	Stripped or unscrewed cores; thread-start and seat accuracy.
Stacking and nesting	Empty pails nest, full pails stack.	Stack ribs, rim stiffness and even walls to avoid ovality.
Handle lugs	Bail wire carries the full pail weight.	Lug wall thickness, weld lines and ejection near lugs.
Hinges and vents	Spouts, pourers and vented caps.	PP living hinges; small vent features that fill every shot.

MOULD CONSIDERATIONS

ITEM	PACKAGING POINTS	ITEM	PACKAGING POINTS
Cavity layout	Pails: usually 1. Lids and tubs: 1 to 4. Caps and grips: 16 or more.	Mould build	Thin-wall moulds must take high pressures ^[4] .
Runner	Hot runners for thin-wall parts and high-cavity caps.	IML	Label held by static charge or vacuum ^[5] .
Cooling	Core cooling on deep pails sets cycle and roundness ^[7] .	Stripping	Tamper bands and caps stripped from cores.
Venting	Vent the end of fill on thin walls and rims.	Variants	Closure families on shared bases with inserts.

PLANNING A CLOSURE FAMILY

SHARED NECK	INSERT SETS	LINER STEP	PAIR TESTING
One neck finish, many cap types: plain, vented, spout.	Change the functional core, keep the base.	Wads and liners are fitted after moulding.	Test each cap variant on the container it seals.

SECONDARY OPERATIONS THAT SHAPE THE MOULD

OPERATION	TYPICAL PARTS	WHAT IT ASKS OF THE MOULDED PART
In-mould labelling	Pails, lids, tubs	Flat, stable label areas; robot access and cycle time.
Handle and bail assembly	Paint and lube pails	Lug holes to size and strong enough for a full pail.
Wad, liner and gasket fitting	Caps, bungs, lube pails	Seat and groove dimensions held to size.

SECTION 05 · PRODUCTION PLANNING

PRODUCTION CAPACITY & CYCLE-TIME PLANNING

Pails run one per shot, closures run dozens per shot. A pack plant has to plan both so bodies, lids, grips and caps come out in matching numbers.

OUTPUT

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

Effective/hour = Parts/hour × Utilisation

Day = Effective/hour × Hours run

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

EXAMPLE 1 · 24-CAVITY 38 MM HDPE CAP

24 × 3600 ÷ 10 s = 8,640 /h

× 0.85 utilisation = 7,344 /h

× 22 h = 161,568 /day

× 26 days = 4,200,768 /month

EXAMPLE 2 · 20 L PP PAINT PAIL, 1 CAVITY

1 × 3600 ÷ 20 s = 180 /h

× 0.85 = 153 /h · × 22 h = 3,366 /day

× 26 days = 87,516 /month

Working backwards: for 150,000 pails a month in 572 running hours you need 262 per hour. Cavities = $262 \times 20 \div (3600 \times 0.85) \approx 1.7$. With one cavity, that needs about an 11.7 s cycle or a second machine.

Illustrative example. Cycle times of 10 s and 20 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	PACKAGING INFLUENCE
Injection	Very fast fill on thin walls ^[4] .
Cooling	Usually the largest share; rises roughly with wall thickness squared ^[7] .
Mould open	Label placement and part removal by robot.
Ejection	Stripping of caps and tamper bands.

BALANCING CAVITIES, CLAMP FORCE AND OUTPUT

38 MM CAP MOULD	PROJECTED AREA	CALCULATED FORCE	RATED AT 85%	SHOT	EFFECTIVE OUTPUT
16 cavities	181 cm ²	73 t	86 t	64 g	4,896 /h
24 cavities	272 cm ²	110 t	129 t	96 g	7,344 /h
32 cavities	363 cm ²	146 t	172 t	128 g	9,792 /h
48 cavities	544 cm ²	219 t	258 t	192 g	14,688 /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^[6], about 0.28 to 0.42 t/cm²; K = 0.35 t/cm² and S = 1.15 assumed. Also assumed: 11.3 cm² and 4 g per cap, hot runner with no runner waste, 10 s cycle, 85% utilisation. Thin-wall pails and tubs usually need a higher factor.

MATCHING A PAIL SET

Complete sets/month = lowest of (bodies, lids, handle grips) per month

A lid mould on a separate machine must keep pace with the body. Plan grips and caps in one high-cavity mould serving several body machines.

Where pails feed a filling plant, pack size changes follow the filler schedule. Keep lid and body moulds for the same size on machines that can run the same shifts.

MACHINE UTILISATION AND PLANNED DOWNTIME

COLOUR CHANGES

Pails and lids come in many colours; group runs by colour.

LABEL CHANGES

IML label changes for each brand and size.

RECYCLED BATCHES

Adjust settings when a new recycled lot arrives.

SEASONAL DEMAND

Paint and lube demand peaks; build stock ahead.

SECTION 06 · AUTOMATION

AUTOMATION & PRODUCTION EFFICIENCY

Industrial packaging is one of the most automated moulding sectors: labels go in, parts come out and closures are finished without being touched by hand.

AUTOMATION	WHERE IT ADDS VALUE IN PACKAGING	WHEN IT USUALLY MAKES SENSE
IML robot	Places labels and removes labelled pails and lids ^[5] .	Branded pails and tubs; designed with the mould.
Take-out robot and stacker	Removes pails and lids and stacks them.	Large parts on short cycles.
Handle assembly	Fits grips and bail wires to pails.	High pail volumes.
Wad and liner insertion	Fits foam wads and liners into caps.	Jerrycan and bottle caps.
Band slitting and folding	Finishes tamper-evident bands on caps.	Caps with tamper bands.
Vision inspection	Checks labels, short shots and bands.	IML parts and high-cavity closures.
Leak testing	Checks taps, spouts and closure assemblies.	Functional and UN-rated closures.
Dosing and blending	Controls colour and recycled content share.	Several resins and colours per line.

Specify the IML robot, mould and label magazine together. For closures, finishing after the mould often sets output.

AUTOMATION BY PRODUCT GROUP

PRODUCT GROUP	MAIN AUTOMATION	WHY
Pails, lids, tubs	IML robot, take-out, stacking	Large parts, labels every cycle
Caps and bungs	Wadding, slitting, vision, counting	Many parts per shot, sealing function
Spouts and taps	Assembly and leak test	Several parts per function
Grips and seals	Conveyor, counting, assembly	Small parts, fixed pack counts

DECIDING ON AUTOMATION

VOLUME Closures in millions per month justify inline finishing.	DECORATION IML removes a separate labelling step ^[5] .	CONSISTENCY Robots keep the open time and cycle steady.
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INTERFACES TO SPECIFY ON THE MACHINE

ROBOT Signal interface, safety interlocks, mould-open time.	HOT RUNNER Zones and controller connections.	EJECTION Stripper plate and air valve circuits.	AUXILIARIES Dosing, conveyor, counter and vision links.
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WHERE THE COST OF A MOULDED PART COMES FROM

MATERIAL resin, labels	MACHINE per machine hour	LABOUR handling, packing	POWER kWh per part	MOULD sets and variants	REJECTION labels, leaks	PACKING nested stacks
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On pails, resin weight and label cost dominate, so a lighter thin wall pays back quickly. On caps, machine hours, hot runner upkeep and finishing dominate. Use your own rates to compare options.

SECTION 07 · QUALITY

QUALITY, TESTING & COMMON DEFECTS

An industrial pack is judged when it is dropped, stacked or left in a hot warehouse. Most failures start at the closure.

TESTS AND CHECKS

CHECK	WHAT IT INVOLVES	LINK TO MOULDING
UN drop test	Filled pack dropped in the worst orientation; plastic jerricans and drums conditioned to -18 °C or lower ^[1] .	Low-temperature impact, weld lines, lugs
Leakproofness	Air pressure test for liquid packs, three samples per design type and manufacturer ^[1] .	Seal faces, threads, gasket seats
Internal pressure	Hydraulic pressure held for the set time without leaking ^[1] .	Wall thickness, bung threads
Stacking	Load held for 24 hours, or 28 days for plastic drums and jerricans for liquids ^[1] .	Rim and wall stiffness, even walls
UN certificate	Testing and certification for dangerous goods packs in India by the Indian Institute of Packaging ^[2] .	Stable design, resin and closure
Closure torque	Application and removal torque, tamper band break.	Thread size, band bridges
Label and decoration	IML position, adhesion and print.	Label placement, fill speed

Test methods and limits come from the applicable regulation or customer specification. Rev.18 of the UN Model Regulations was read; check the current edition and the certifying body's requirements.

IN-PROCESS CONTROLS

WEIGHT Shot and part weight by cavity.	RIM AND LID GAUGES Diameter and ovality of seal areas.	TAMPER BANDS Bridge check and trial opening.	LABEL CHECK Position and wrinkles on IML parts.
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TROUBLESHOOTING COMMON DEFECTS

DEFECT	POSSIBLE CAUSES	EFFECT ON THE PACK	AREAS TO INVESTIGATE
Short shot at far wall	Flow length too long for speed or grade ^[4]	Weak rim, rejects	Injection speed, melt temperature, grade, gate
Oval or warped lids	Uneven cooling, flat large area	Lid does not seal	Cooling layout, hold, shrinkage match
Label shift or wrinkle	Label charge or position lost during fill ^[5]	Visual reject	Static charge, vacuum, fill speed
Brittle at cold drop	Grade, recycled content, weld lines	Fails drop test	Resin grade, weld line position, blend share
Band breaks early or not at all	Bridge size varies between cavities	Tamper evidence lost	Cavity balance, band steel, slitting
Thread or seat off size	Shrinkage variation, core wear	Leaks, torque loss	Cooling, core condition, hold
Flash on rims	Worn shut-offs, platen deflection	Poor seal, trimming	Parting line, clamp setting
Black specks, streaks	Contaminated recycled lots, degraded melt	Visual and strength rejects	Filtering, drying, residence time

SECTION 08 · WORKED EXAMPLES

PRACTICAL MACHINE-SELECTION EXAMPLES

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

A · 20 L IML PAINT PAIL		THIN WALL + IML
APPLICATION · MATERIAL	Paint pail body · PP copolymer, IML-grade	
CHARACTERISTICS	Deep thin-wall body, rim seal, handle lugs, wraparound label	
CAVITIES · OUTPUT	1 · about 153 per hour at 20 s (Section 05)	
MOULD CONSIDERATIONS	Hot runner, strong core cooling, label holding, venting	
SECONDARY	IML robot, stacking, handle assembly	
EVALUATE Tonnage needs the CAD projected area, and thin walls usually need a higher clamp factor than general parts. Injection speed, mould-open time for the label robot and platen size for a deep mould decide the choice. STILL NEEDED CAD model, wall thickness, grade data, label size, volume.		

B · 38 MM HDPE LUBE BOTTLE CAP		HIGH CAVITATION
APPLICATION · MATERIAL	Screw cap with tamper band · HDPE	
CHARACTERISTICS	About 4 g, 11.3 cm ² projected area (assumed); stripped thread	
CAVITIES · OUTPUT	24 · about 7,344 per hour at 10 s (Section 05)	
MOULD CONSIDERATIONS	Balanced hot runner, stripping, band steel	
SECONDARY	Liner fitting, band slitting, counting	
EVALUATE The Section 05 table gives about 110 t calculated and a 96 g shot, so a clamp rated around 129 t or more. Fast dry cycle and cavity balance matter more than tonnage. STILL NEEDED CAD projected area, liner type, volume.		

C · 2 INCH HDPE DRUM BUNG		CERTIFIED CLOSURE
APPLICATION · MATERIAL	Closed-head drum bung · HDPE	
CHARACTERISTICS	Thread, gasket seat, torque retention	
CAVITIES · OUTPUT	Set by drum volume and the mould	
MOULD CONSIDERATIONS	Unscrewing or collapsible core, seat accuracy	
SECONDARY	Gasket fitting, torque and leak checks	
EVALUATE Dimensional repeatability of thread and seat decides the machine more than size. The bung is tested with the drum, so process changes need retesting. STILL NEEDED drawing, gasket spec, drum approval, volume.		

WHAT DECIDED THE MACHINE IN EACH EXAMPLE

SELECTION FACTOR	A · PAINT PAIL	B · BOTTLE CAP	C · DRUM BUNG
Main limit	Fill speed, platen, IML	Cavities, cycle	Thread and seat accuracy
Clamp force	Needs projected area	About 129 t rated	Needs projected area
Auxiliaries	IML robot, stacker	Liner, slitter, vision	Unscrewing, leak check

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 pail, lid, closure or seal.

COMPONENT

- ☐ 2D drawing and 3D CAD model
- ☐ Part weight and wall thickness
- ☐ Resin grade and recycled share
- ☐ Seal, thread and band details
- ☐ Label size and position

PRODUCTION

- ☐ Monthly volume per size and colour
- ☐ Target cycle time
- ☐ Pail sets: body, lid, grip
- ☐ Operating hours and shifts
- ☐ Packing and stacking method

MOULD

- ☐ New or existing mould; size and weight
- ☐ Cavities and hot runner zones
- ☐ Stripping, unscrewing, IML
- ☐ Stack height of the mould
- ☐ Previous machine specification, if any

PACK APPLICATION

- ☐ Fill product and storage temperature
- ☐ UN rating and packing group
- ☐ Drop and stack requirements
- ☐ Closure and gasket combination
- ☐ Customer or brand approvals

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 PACKAGING
1	What injection speed and pressure can the unit hold on a thin-wall part?	Pails and tubs with long flow paths.
2	What is the dry cycle and mould-open time with my robot?	IML and short packaging cycles.
3	Will a deep pail mould fit, with the opening stroke needed to remove the part?	Tall 20 L moulds.
4	How many hot runner zones and air valve circuits are available?	High-cavity caps and thin-wall parts.
5	What shot repeatability does the machine hold at my shot size?	Cavity balance and tamper bands.
6	Which robot and IML interfaces are supported?	Label placement and take-out.
7	Can the control store settings for each size, colour and recycled lot?	Frequent product changes.
8	What is the energy use per part at my cycle?	Low price per pail or cap.
9	Can the machine log shot data for traceability?	UN-rated and certified packs.
10	What installation, training and spare-parts support is included?	Continuous high-volume running.

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 UN rating, IML, fill product or recycled content.

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TECHNICAL REFERENCES

- [1] UNECE - UN Recommendations on the Transport of Dangerous Goods, Model Regulations Rev.18, Volume II, Part 6 (construction and testing of packagings) - https://unece.org/DAM/trans/danger/publi/unrec/rev18/English/Rev18_Volume2_Part67.pdf
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