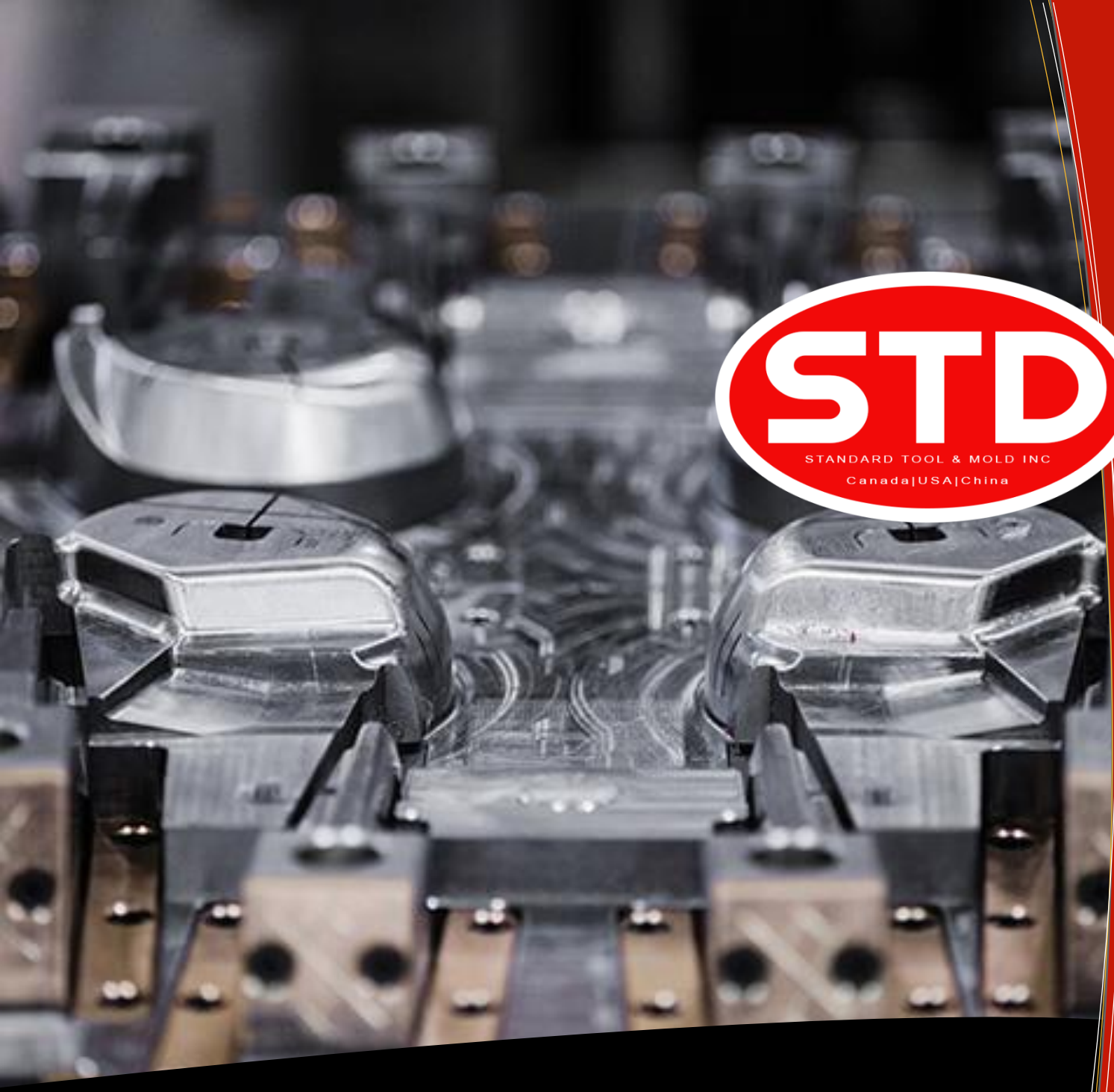

STD

STANDARD TOOL & MOLD INC

Canada|USA|China

Mold Warranty and Maintenance

CERTIFIED SUPPLIER

CAMSC

CANADIAN ABORIGINAL and MINORITY SUPPLIER COUNCIL

Standard Injection | Two Shot – Rotary and Pick and Place | Insert Molding | Gas Assist | Proto-type Tooling

MOLD WARRANTY:

Standard Tool and Mold offers the following insured warranty on all new injection mold tooling that is manufactured

-500,000 mold cycles (shots) and/or 3 years.

Warranty is for whichever of the above milestones is achieved first.

Warranty is null and void if the Maintenance Guidelines laid out in this document are not followed.

Documentation of the Maintenance performed must be provided for review at the time of claim.

Standard Tool and Mold reserves the right to review and analyze tooling failures to determine if failure is available for warranty claim.

MAINTENANCE GUIDELINES:

- Do NOT use hard tools (screw drivers, hammers, punches, knives on ANY molding surface, parting, or shutoff surface. (We recommend having "soft" tooling like rubber mallets, punches and pliers made from plastic, copper, or brass on hand to avoid damaging the mold).
- Avoid excessive clamp pressures, high injection pressures, and over-packing/flashing the mold.
- Be sure there are no obstructions in the molding area before closing the tool, parts, tools, cleaning supplies etc.

Maintenance Levels:

- **Preventative:** Every day, and every time the mold is pulled from production or put back into production
- **Inspection:** Every 20,000 cycles (or every 10 days of production)
- **Maintenance:** Every 100,000 cycles (or every 10 production runs)
- **Major Maintenance:** Every 250,000 cycles (or half the anticipated life time volume)

Preventative Measures

- The parting surfaces, core, and cavity should be gently cleaned with a mild, clean solvent and soft, clean towels to remove any buildup from vented gases, greases, and other resins that accumulate. Recommended at Mold Start-up, and end of production.
- Before the mold is removed from the press the mold should be returned to room temperature to avoid condensation which will cause rust.
- All water lines should be drained and blown free of all residual water to avoid build up of rust due to standing water.

- The parting surfaces, core, and cavity should be gently cleaned with a mild, clean solvent and soft, clean towels to remove unwanted contamination.

- The ejector system should be moved fully forward, then spray both mold halves with light rust preventive lubricant (Slide Mold Shield #42910P). Retract ejector system and close the mold.

- The parting surfaces, core, and cavity should be gently cleaned with a mild, clean solvent and soft, clean towels to remove unwanted contamination.

- The ejector system should be moved fully forward, then spray both mold halves with light rust preventive lubricant (Slide Mold Shield #42910P). Retract ejector system and close the mold.

- Check and assure all bolts, plates, etc. are in place and tight.

- Apply a thin film of new grease to moving components where applicable such as slides, lifters ejector pins, ejector guide, guide pins etc.

- Do not grease Selflube aluminum bronze/graphite components such as bushings, wear plates or gibs.

- Be sure all safety components are in place and in working condition before installing and cycling the mold. Including but not limited to, limit switches, mold protection cages, installation components (Lift Ring), shipping straps, warning plaques etc.

CAUTION: Highly polished mold surfaces should NOT be wiped with a towel or rag. Instead spray these surfaces with solvent and blow off with clean, filtered, compressed air to remove the majority of dirt and residue, then clean with mild, clean solvent and clean facial tissue or cotton balls. Be very careful with polished surfaces, dust or dirt on your fingers, on your tissues (or cotton balls), or in your air lines could potentially damage the surfaces. Slide Mold Cleaners are recommended for this process. *www.slideproducts.com*

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Inspection

All notes in the preventative measures section apply in addition to the following:

- Inspect the tool for core cavity damage and excessive wear.
- Check for any loose or missing components.
- The vents should be checked for depth around the cavity face.
- Replace damaged ejector pins.

Maintenance

All notes in the preventative measures and Inspection sections apply in addition to the following:

- Complete mold disassembly and assembly are required by a certified employee. **CAUTION: Highly polished mold surfaces should NOT be wiped with a towel or rag. Instead spray these surfaces with solvent and blow off with clean, filtered, compressed air to remove the majority of dirt and residue, then clean with mild, clean solvent and clean facial tissue or cotton balls. Be very careful with polished surfaces, dust or dirt on your fingers, on your tissues (or cotton balls), or in your air lines could potentially damage the surfaces. Slide Mold Cleaners are recommended for this process.** www.slideproducts.com

- All components must be checked for wear. Any excessive wear must be repaired or replaced.

- Any cavity detail area with dings, dents or other signs of wear or abuse should be considered critical and should be carefully analyzed before any other replacements or repairs proceed.

- Apply new lubricant to all necessary components with the exception of Selflube products which contain graphite inserts.

- Vents should be checked for depth, width and land and a determination made if repair is needed. Maintaining good venting prevents fill problems, excessive fill pressures, material "burning", etc. They should also be checked for corrosion and vent burns to see if additional venting may be required.

- "O" rings, seals and gaskets should be checked for integrity and replaced if damaged or leaking.

- Check the entire water system for flow and adequate flow

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- Replace damaged or over compressed mold springs such as ejector springs, slide / lifter spring, third plate springs etc.
- Inspect mold for surface erosion as a result of the abrasive characteristics of some plastic resins. (Start inspection in the gate area)
- Verify gates are to specification to reduce production processing issues.

Major Maintenance

All notes in the previous three sections apply in addition to the following:

- Worn leader pins, bushings and all bearing moving surfaces (gibs, wear plates, wedge blocks, etc.) should be checked for wear and replaced/repaired as required.

- All return springs in the ejector plate should be replaced with new springs to avoid fatigue.

- All water lines should be flushed with descaling agent to remove scale build up.

- All "O" rings, internal plugs, seals and gaskets should be replaced.

- Plates and mold cavity surfaces should be checked for parallel and ground flat if required.

- Mold cavity surfaces should be cleaned and polished as required to the original surface requirements.

- Any dings, dents, or scratches should be worked out until the surface is fully in compliance to the original print specifications.

- Ensure all textured surfaces are free of damage, erosion, burrs and gloss issues.

- Inspect all plated surfaces for wear, this includes but is not limited to Teflon coatings, Nickel coatings, Dyna-blue etc.

- All moving components should be checked for ease of movement (ejector box, slides, lifters, etc.). Adjustments should be made as required.

- For tools requiring high production, the cavities should be removed and stress relieved to remove work hardening and material embrittlement. The entire mold/cavity set must be re-inspected and made as "like-new" as possible.

- Inspect mold for cracks which could lead to potential tool failure during production

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The information provided in this document is to ensure that our customers are able to have a quality product to meet their production requirements. If you have any questions regarding Standard Tool and Mold's Warranty service or Maintenance Guidelines, please contact us by email at sales@standard-mold.com .

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