Shenzhen Sixth CNC Service Co., Ltd.

PRODUCT ENGINEERING & MOLD DESIGN DFM CHECKLIST

Customer: _____	Project No: _____	Part No: _____

SECTION	NO.	INSPECTION ITEM DESCRIPTION	OK	NG
1. PRODUCT ENGINEERING DEPARTMENT				
2D Drawings	1	Producibility assessment of product raw material selection.		
	2	Evaluation of un-tolerated linear/angular dimensions and special precision tolerances.		
	3	Producibility assessment of specified geometric dimensioning and datum features.		
	4	Producibility assessment of functional sizes and critical-to-quality (CTQ) dimensions.		
	5	Tolerance and manufacturability evaluation for blind holes, through holes, threaded holes, and irregular geometries.		
	6	Manufacturability assessment of customer-specific technical guidelines and manufacturing standards.		
	7	Producibility assessment of auxiliary assembly hardware, inserts, and secondary components.		
	8	Evaluation of surface treatment specifications, anti-corrosion properties, and functional testability.		
	9	Manufacturability evaluation of cosmetic criteria, visual surface specifications, and designated roughness.		
	10	Evaluation of part engraving/marking placement, legibility, and technical font requirements.		
	11	Cross-verify 2D layout layout consistency against the 3D solid model and confirm master revision alignment.		
3D Part Model	12	Calculation and assessment of the 3D component total mass/weight and total surface area.		
	13	Feasibility evaluation and risk mitigation for high-pressure die-casting (HPDC) mass production.		
	14	Verify structural consistency and engineering change order (ECO) status between 3D and 2D models.		
	15	Evaluation of nominal wall thickness uniformity to prevent shrinkage defects or porosity.		
	16	Evaluation of structural draft angles to ensure clean, deformation-free part ejection.		
	17	Feasibility assessment of component structural geometries for secondary high-precision CNC machining operations.		

SECTION	NO.	INSPECTION ITEM DESCRIPTION	OK	NG
	18	Production risk assessment for deep cavities, ultra-thin ribs, deep-hole placement, and complex/irregular geometric profiles.		
Review Meeting	19	Feasibility assessment of the actual production routing, shop floor constraints, and global process flowsheet.		
	20	Demand, capacity, and interference assessment for quick-change fixtures, manufacturing tooling, and checking gauges.		
	21	Comprehensive identification and risk assessment for critical or unstable manufacturing steps.		
	22	Consolidate engineering and tooling issues discovered during all stages to compile the final formal DFM report.		
	23	Transmit customer's feedback and approval comments on the DFM report back to respective inner functional teams.		
2. MOLD DESIGN DEPARTMENT				
Mold Design	1	Evaluation and verification of die-casting machine locking force, tonnage, and shot-end compatibility.		
	2	Review of the main mold parting line layout, splitting strategy, and gating/ runner system design.		
	3	Review of the ejector pin layout, distribution, push-out balance, and avoidance of cosmetic interference.		
	4	Evaluation of the mold core/cavity cooling lines, thermal management circuits, and water-flow optimization.		
	5	Review and mandatory input registration of critical product dimensions and special product tolerances into tool planning.		
	6	Evaluation of tool dimensions accounting for specific post-casting machining stock allowances and shrinkage rates.		
	7	Manufacturing feasibility and structural strength assessment for core-pulling pins, custom sub-inserts, and mechanical sliders.		
	8	Cross-functional critical design review (CDR) of final casting product prints and full assembly mold design layouts.		