

Injection Mold Tooling Responsibilities

Johnson Controls Managed Tooling

Introduction

- ❖ This document contains tooling specific responsibilities. When conflicts arise between program specific statements of work (SOW) and these tooling responsibilities, this document will prevail.
- ❖ This document outlines the tooling expectations and definitions of responsibilities associated with the development of injection mold tooling for Johnson Controls, Inc. (JCI) or its part supplier (PS) through a Global Tooling Supplier (GTS) for JCI sourced and managed tools. JCI part suppliers (PS) that purchase and manage their own tooling are not governed by this document.
- ❖ All Tooling is subject to audit and approval by Johnson Controls – AE.
- ❖ THIS DOCUMENT IS NEITHER A SUPPLY AGREEMENT NOR A PROMISE TO ENTER INTO A SUPPLY AGREEMENT. In the event Part Supplier enters into a contractual relationship with JCI (pursuant to a Purchase Order, Long-Term Agreement or some other written document executed by JCI designated as a form of supply agreement, hereafter called the “Contract”), the Contract shall govern the terms and conditions of the Part Supplier -JCI contractual relationship.
- ❖ In the event of any conflict between a term of the Contract and a provision of these Global Tooling Supplier responsibilities document, the Contract shall supersede and govern. In the event that a Contract has been or is entered into between Supplier and JCI, the procedures and obligations set forth herein shall be met by Suppliers and, if a Contract is consummated, shall become express warranties made by Supplier and JCI.

Johnson Controls Automotive Experience
Global Supplier Standards Manual
Chapter 2
Tooling & Equipment
(May 16, 2013)

JCI Purchasing Responsibilities

JCI Tool Purchasing (JCI TP) is responsible to source, manage costs, and build injection molds (tools) for JCI's Molding Facilities and potentially JCI's Part Suppliers with the cooperation of its Global Tooling Suppliers (GTS). This is to include the original build of the tools and any subsequent engineering changes prior to PPAP.

The GTS is a tool supplier to JCI that manages the construction of tools for JCI both within and outside the borders of the United States. The GTS can be a domestic tool shop, a tool broker, or any other entity that JCI enters into a contract with to purchase tools. Special circumstances may arise that cause discrepancies between the responsibilities contained in this document and other JCI documents, Part Supplier expectations, JCI program expectations, and GTS capabilities. Under those circumstances, the JCI tool buyer will determine the resolution to any discrepancies.

For the purposes of this document, the acronym PS will refer to the part supplier whether that supplier is a JCI Molding Facility or an external Part Supplier.

Global Tooling Supplier (GTS) Responsibilities

1. The GTS is responsible to be the mold 'Builder of Record' for all molds (tools) produced in its facilities as well as all tools produced in its subcontracted facilities both within and outside the borders of the United States. This means that the GTS is solely responsible for the performance of its subcontractors which will include, but not be limited to: timing commitments, tool quality, data integrity, tool functional try-outs, JCI quoted cycle times, shipment, delivery, adherence to applicable tool standards, and tool warranty. All tools will be designed and built with consideration for operator safety and ergonomics and in compliance with all OSHA standards. If tooling issues are not resolved through the GTS, JCI reserves the right to redirect the tool source and any subsequent costs incurred will be the responsibility of the GTS.
2. The GTS is responsible to coordinate and cooperate with Ontrax as a third party certifier of responsibility compliance and to supply information requested by Ontrax. JCI will specify the level of service required by Ontrax and include the appropriate funding for Ontrax in its purchase order to the GTS. The GTS will pay Ontrax for 100% of its fees within 10 days of receiving the first progress payment from JCI. If GTS fails to timely pay Ontrax, JCI may, but is not required to, pay Ontrax directly and debit a corresponding amount from its payment to the GTS.
3. The GTS is responsible to present its subcontracted tools to JCI and its Part Suppliers (PS) as its own tools. This means that tools built offshore will be delivered to the GTS's dock and will bear the GTS's identification label. The GTS will make the process of subcontracting tools as transparent as possible to both JCI and its PSs.
4. The GTS is responsible to mark the tool such that it contains the required information as specified in the JCI Injection Mold Tooling Standards and by the JCI TE, including the manner in which the tool is

Johnson Controls Automotive Experience
Global Supplier Standards Manual
Chapter 2
Tooling & Equipment
(May 16, 2013)

marked (plaques, engraving, etc.). Contact the JCI TE to assure the latest copy of the mold tooling standards is applied.

5. The GTS is responsible to design all tools to the latest level of JCI or PS specified CAD data and track and log all data levels and transmissions.
6. The GTS is responsible to insure and protect tools against loss or damage.
7. The GTS is responsible to obtain written authorization to proceed with tooling from JCI TP.
8. The GTS is responsible to submit costs within adequate timing to resolve any cost issues prior to the tooling release date.
9. The GTS is responsible to obtain approval from JCI TP before subcontracting tools to international locations other than in North America. The GTS will only use international tool suppliers that are approved by JCI TP or on the JCI Approved Supplier List.
10. The GTS is responsible for the design, build, and prove-out of all tools that will meet production part manufacturing requirements for JCI through its PS. The GTS is responsible to construct the tools to meet JCI's tooling & gage standards. This includes constructing tools that run in an automatic mode and meet quoted cycle times and press sizes. The GTS must inform JCI in writing of any tool that cannot be designed and built to meet these requirements with sufficient notice to allow correction of the deficiency without interruption to program timing and production.
11. The GTS is responsible to provide written weekly progress reports and tool-tracking spreadsheets throughout the build of the tools. The specific milestones used in the progress reports and tool-tracking spreadsheets are to be negotiated with JCI and the PS. The GTS is further responsible to communicate this information to Ontrax.
12. The GTS is responsible to maintain a written tool issues list during the design, build, and prove-out phases of the tool build. The GTS is responsible to create the list, add items as directed from Ontrax, JCI, and the PS and resolve those issues to the satisfaction of JCI, Ontrax, and the PS. The exact form of the list is at the discretion of the GTS, but at a minimum, it must include the following information: issue description, date issue was opened, person who opened it, resolution, date closed, and verifying person.
13. The GTS is responsible to provide support as requested for tool engineering services with JCI Tool Engineering. This includes attendance at all requested tool meetings at JCI and JCI's customer sites. The GTS is responsible to verify part/tool feasibility, record any issues found in an open issues format, and coordinate resolution of those issues with JCI Tool Engineering before tool kick-off. Tool issues will include, but not be limited to: part functionality and appearance, part dimensional criteria and stability, tool standards, quoted press sizes and cycle times, and tool integrity.
14. The GTS is responsible to obtain the material type and shrink rate from JCI-TE in writing.
15. The GTS is responsible to obtain the gating locations and types from JCI-TE in writing.

Johnson Controls Automotive Experience
Global Supplier Standards Manual
Chapter 2
Tooling & Equipment
(May 16, 2013)

16. The GTS is responsible to gain written approval from JCI for all parting lines. The form of this approval should be JCI's approval of the final tool designs. The GTS must communicate the parting line requirements during the part design and preliminary tool design stages of the program.
17. The GTS is responsible to provide all necessary tool tryouts for the purpose of functional tryouts, pre-grain tryout, post-grain confirmation, and process and tool prove-out. At a minimum, a functional tryout with 50 parts (including a 6-piece full layout of all dimensions on the part print on a gage supplied by JCI if specifically stipulated in the RFQ and PO) (T1), a pre-grain tryout with parts from 50 consecutive cycles (T2), a post-grain confirmation tryout with parts from 300 consecutive cycles (T3), and an additional confirmation tryout for tight tolerance parts if specified by JCI-TE with parts from 50 consecutive cycles (T4). The parts from each of these tryouts will be made available to JCI, the PS, and Ontrax. The GTS will provide the packaging and delivery for these parts. The GTS will invite representatives from JCI, PS, and Ontrax to each tryout.
18. The GTS, with functional support from Ontrax, is responsible for conducting a detailed tool and process prove-out as specified by JCI-TE through Ontrax.
19. The GTS will supply JCI BU with quantities, specifications, and required dates of materials necessary for mold tryouts and samples both in North America and LCC within three weeks of receiving tooling PO.
20. The GTS is responsible to certify the tool steel to all dimensions on the part print.
21. The GTS is responsible to grain the tool and correct any new tool issues that are a result of graining the tool.
22. The GTS will transfer the tool to the PS after the JCI-TE has approved the tool transfer. The GTS, with the functional support of Ontrax, will supply the PS with a package before or, preferable, at the time of tool transfer that contains the following items at minimum: Final tool 2D designs in PDF format, 3D designs and all surface data in IGES format, part and steel dimensional certifications, a copy of the process sheet from the last functional tryout, a copy of the tool issues list signed off by Ontrax, and a copy of both the pre-grain and post-grain approval by the customer.
23. The GTS will correct any further tool issues that arise from the PS's tool runs after transfer and before PPAP that are a result of tool function or steel dimensions.
24. The GTS will warrant the tools for tool functionality for one year after the start of production date as specified by JCI.

Johnson Controls Automotive Experience
Global Supplier Standards Manual
Chapter 2
Tooling & Equipment
(May 16, 2013)

Part Supplier Responsibilities

1. The PS is responsible to supply the GTS all production mold press specifications, press type, press tonnage, part cycle times, platen sizes, platen restrictions, plant locations, tool standards, and any special circumstances and requirements prior to each individual tool kick-off. The exact form of this document is at the discretion of the PS. The information contained in this document is complete and any changes required to the tool for manufacturing purposes is the responsibility of the PS. If the PS does not provide the above-mentioned specifications, JCI will instruct the GTS to build the tools to JCI standards.
2. The PS will provide the GTS with the exact production material and manufacturer prior to the tool kick off that allows the PS to meet all JCI dimensional and aesthetic requirements. If the PS does not comply with this requirement, JCI will assign the exact material and manufacturer.
3. The PS is responsible to accept the tool transfer when the tool package has been provided by the GTS, with the functional support of Ontrax. This package will contain the final tool designs including all surface data, dimensional steel certifications, a copy of the molding process from the final molding trial, a copy of the completed tool score sheet showing 100% compliance as signed off by Ontrax, and a copy of the pre-grain and post-grain customer approvals. The transfer will be final at the PS's PPAP to JCI, at which time the PS will provide a tool sign-off.
4. The PS is responsible for all tooling preventative maintenance and service to meet all JCI manufacturing, delivery and quality requirements. JCI reserves the right to review the PS's preventative and spare part plans if the situation requires it, in JCI's discretion. Preventative maintenance plans and records must be documented and kept on file by the PS. Damage to tooling that is due to negligence or lack of preventative maintenance will be the responsibility of the PS.
5. The PS is responsible to maintain the tool throughout its service life (10 years after production ends).
6. The PS is responsible for managing and advising JCI on potential obsolescence during engineering changes, model year changes and production balance out.
7. The PS is responsible to insure and protect said property against loss or damage.
8. Expenses incurred by JCI to support processing and manufacturing of parts above and beyond what would normally be expected will be invoiced directly to the PS. PS will validate costs and direction prior to implementation.
9. The PS is responsible for process sign-off and part submissions (PPAP) and all associated activities that are required to achieve process sign-off and PPAP approval. An onsite process sign-off will be conducted prior to PS PPAP. PS PPAP requirements are identified in the JCI Supplier Standards Manual available at https://portal.covisint.com/portal/public/_l:en/tp/jci
10. The PS is responsible for the quality of parts produced by these tools after PPAP approval.

Johnson Controls Automotive Experience
Global Supplier Standards Manual
Chapter 2
Tooling & Equipment
(May 16, 2013)

Johnson Controls Business Unit / Program Team (JCI) Responsibilities

1. The JCI Business Unit / Program Team (JCI) is responsible to provide the JCI TP, GTS, Ontrax, and the PS with the tool lineup for the program, which includes a list of each tool and its cavities and the quoted cycle times and press sizes.
2. JCI is responsible to provide a part print to the GTS, which embodies the part measurement criteria and provides an accurate depiction of the critical features of the part.
3. JCI is responsible to provide the GTS with grain callouts including any OEM directed grain sources. These callouts must include the exact customer grain specifications with draft requirements.
4. JCI is responsible to provide the GTS and the PS with the material type or specification to be used in production. The PS will provide the GTS with the exact production material and manufacturer prior to the tool kick off that allows the PS to meet all JCI dimensional and aesthetic requirements. If the PS does not comply with this requirement, JCI will assign the exact material and manufacturer to the GTS.
5. JCI PAME (JCI Plastics Tool Engineering) is responsible to approve aspects of the tool designs to assure that the gate locations, parting lines, witness lines (lifters, slides, and inserts), and ejection marks will not adversely affect part visual and functional criteria. JCI approval of tool designs does not alleviate the GTS of any responsibilities identified in this document.
6. JCI is responsible to seek and gain customer pre-grain and post-grain approvals and provide signed copies of these documents to Ontrax and the GTS.
7. JCI is responsible to provide and ship material to the GTS home facility for all tool tryouts, prove-out runs, and part orders prior to tool transfer to PS including materials needed in LCC.
 - a. JCI will ship the required bulk quantity of material to the GTS by the GTS specified date to avoid premium freight charges.
 - b. JCI will pay for material freight charges for LCC tools by supplying GTS with authorization to use JCI freight accounts and carriers (such as CEVA or Fed Ex)
8. JCI is entitled to sample parts in one color from the functional tool trials as specified in the GTS section of this document. Part orders beyond these will be purchased by JCI or the PS from the GTS. JCI purchasing will establish these costs with the GTS. JCI will supply material to the GTS for part orders.