

Johnson Controls, Inc. (hereinafter referred to as "JCI")
Special Tooling Definitions and Cost Guidelines

"This document is non-severable and shall be viewed in its entirety at all times"

Special Tooling vs. Facilities, and Capital/Supplier Owned Equipment Overview

1. JCI owned special tools are used in conjunction with Supplier facilities and equipment to produce parts exclusively for JCI. Examples of facilities are, but are not limited to, buildings, offices, and loading bays. Examples of capital equipment are, but are not limited to, stamping presses, molding machines, special purpose machines, and automated material handling equipment. It is expected that the Supplier will own or purchase facilities and capital/supplier-owned equipment items and capitalize these fixed cost investments for recovery in the piece price to JCI.
2. Special tooling will be authorized on a JCI Tooling Purchase Order.

Clarification of Issues Concerning Special Tooling

3. JCI will determine whether a request is for special tooling or capital equipment.
4. Supplier quotes, tool orders and amendments must include a sufficient detailed tool description (a detailed line entry for each tooling item) to enable the JCI-owned or OEM special tooling to be clearly identifiable on all documentation and during a physical review.

Purchasing Capital/Supplier Owned Equipment

5. JCI expects the Supplier to have or to purchase the facilities and capital equipment required (in conjunction with special tooling) to produce the JCI part. In very exceptional circumstances, JCI may pay for capital equipment for use by the Supplier. An agreement for JCI to pay for this equipment must be made in writing before acquisition and should be supported with a separate JCI Purchase Order. There are no circumstances where JCI will purchase facilities or capital equipment on a Tooling Purchase Order.
6. When capital equipment and special tooling items are purchased together, the allocation of the special tooling portion will be determined by JCI.

Special Tooling Guidelines and Definitions

7. It is the responsibility of each Supplier to ensure its sub-suppliers adhere to these guidelines and definitions.
8. "Special Tooling" is tooling, as referenced in this document, specifically designed for the production of, and is used unique to, a JCI part. Its intended life (without substantial modification or alteration) is limited to the production of the part for which it was designed. Special Tooling may be relocated to another supplier for use on its equipment and facilities. If it is designed specifically for the Supplier's owned equipment and facilities, it should be modifiable to suit another supplier with similar equipment and facilities.
9. Generic tooling general purpose items and equipment are excluded from "Special Tooling", even if these items are dedicated to the JCI part. Examples are off the shelf items and include but are not limited to expendable tools, drill motors, impact guns, wrenches, etc.
10. Parts with a tooling base that are subject to a high rate of wear, that in total will not provide twelve months requirements of the part, should be considered as consumable tooling with their cost recovered in the piece price. Specific instances, which deviate from the recover-in-piece-price rule, will be determined by JCI.
11. JCI will pay only the actual cost of making the tool. Any percentage mark-up applied to a sub-supplier's tooling invoice will not be allowed.

12. It is not allowable for a JCI manufacturing Supplier to make a profit on special tooling manufactured by a sub-supplier. Incremental costs associated with the procurement, engineering, management, etc. are considered to be a part of the Supplier's overhead cost and should be recovered in the production piece price.
13. Where a Supplier designs, develops, or manufactures special tooling internally or by a Related Entity (a tool build source where the Supplier has an equity or other "significant" influence on such entity in JCI's determination), and the internal engineering center, tool shop and/or related entity are accounted for as separate profit centers, then a reasonable profit margin on the cost of design and manufacture of special tooling is allowable as determined by JCI. All overhead cost and profit associated with the design and manufacturing of special tooling should be included in fully accounted tooling labor rates. These costs must be included in the tooling quote and also included and identified on the JCI Purchase Order.
14. Funding for prototype Special Tooling, which will not be used to produce parts, will be provided through the JCI Product Development budget. Prototype Special Tooling, which will be used to produce production parts (e.g. black tooling) will be treated as normal production Special Tooling, and be funded using a JCI Tooling Purchase Order. It is mandatory that only production capable prototype special tooling, which will be used to produce production parts, be funded in this manner.
15. In the event that only a portion of the prototype Special Tooling will be used to produce production parts, the amount representing this portion should be clearly identified as a separate cost item on the prototype JCI Purchase Order (e.g. binder development, for later transfer to the production JCI Tooling Order). When this cost is not clearly identifiable, then the cost of the special tooling portion will be determined by JCI.
16. JCI retains the right to determine the allowable Special Tooling cost.
17. When Special Tools are maintained and/or utilized at the Supplier's and its sub-suppliers' manufacturing plants, the Supplier and its sub-suppliers are responsible for maintaining special tool location records that can be provided immediately upon request to JCI. The information that should be readily available includes but is not limited to:
 - a. JCI Special Tool identification number which needs to be permanently affixed to the Special Tool (this number is documented on the JCI Tooling Purchase Order),
 - b. Special Tool description,
 - c. JCI Tooling Purchase Order number authorizing the acquisition/construction of the Special Tool,
 - d. City and state where the Special Tool is located; and
 - e. Evidence of Supplier's compliance with the tool tagging requirements of JCI's customer.

Supplier Record Retention and Expectation

18. Tooling Cost Documentation - A reasonable accounting system must be maintained by the Supplier to segregate, accumulate, and document expenditures incurred for tooling. The Supplier's accounting system must ensure that all eligible tooling costs are documented adequately and at a minimum include the following:
 - a. In-House Costs - Where all or major portions of the tooling are fabricated "in-house" by the Supplier, and the tool shop is identified and budgeted as a separate profit center, Suppliers may request a reasonable profit margin on the cost of tooling constructed. Detailed job transaction reports generated from the profit center must be included as documentation supporting tooling costs incurred. JCI retains the right to determine the allowable reasonable profit margin and to perform compliance and substantive testing of the accounting systems.
 - b. Materials - Material costs should be supported by material requisitions that indicate quantities and unit cost by JCI Tooling Purchase Order. Materials will be reimbursed at actual costs, based on material invoices and proof of payment (i.e. cancelled checks). An accepted method of determining actual unit cost is to develop an average purchase price based on the past three purchases. Material cost should be reduced for any material recovered from tooling

authorized for disposal and for material used for prototype parts that were purchased under a separate JCI Purchase Order.

- c. Labor Rate - Labor costs are developed by applying a fully accounted labor rate to the direct hours worked to design and build the tooling. The fully accounted rate should include direct labor, indirect labor, fringe benefits, payroll taxes, and overhead. JCI retains the right to determine the allowable rate.
- d. Subcontracted Work - All work sub-contracted to tooling sub-suppliers must be supported by at least three quotes, purchase order, invoice, and proof of payment. A part Supplier which normally subcontracts tooling construction may charge for incremental direct labor and associated costs (fringe benefits and payroll taxes) where it is mutually beneficial for the Supplier to incorporate minor changes in the tooling in its facility. JCI retains the right to determine the allowable costs.

19. Other - The tooling Supplier must adhere to the following:

- a. The Supplier will not receive a rebate, volume discount, long-term relationship payment and/or credit, or any other form of payment and/or credit from their tool build sources.
- b. The Supplier will competitively quote all tooling from a minimum of three reputable sources.
- c. The Supplier will not incur or pay tooling costs to a Related Entity in excess of fair market value as determined by JCI.
- d. The Supplier will make timely payments to the tool build source in the same manner payments are received from JCI.

Tooling Audit Requirements

20. All JCI Tooling Purchase Orders are subject to audit by JCI and the Supplier is expected to have the following documents readily available upon an audit request:

- a. A completed Tooling Audit Worksheet for each JCI Tooling Purchase Order and copies of all documents supporting amounts on the Tooling Audit Worksheet (see item 22),
- b. Any documentation received or submitted to JCI that supports special tooling costs prior to the Tooling Purchase Order date,
- c. Copies of at least three quotes for subcontracted special tooling,
- d. Special Tool location record (see item 17),
- e. An adequate picture and/or tool design drawing of the Special Tool,
- f. Documentation supporting separate verifiable costs centers for in-house tool manufacturing centers, and
- g. Documentation detailing in-house labor rates used for in-house Special Tool construction.

21. JCI will have the right at any time to send its authorized representatives to examine all pertinent documents and materials in the possession or under the control of the Supplier and/or sub-suppliers relating to any of the Supplier's obligations under a JCI Tooling Purchase Order or any payments requested by Supplier pursuant to a JCI Tooling Purchase Order. Supplier and/or sub-suppliers shall maintain and make available all pertinent books and records relating to a JCI Tooling Purchase Order and these Guidelines for a period of three (3) years after final payment is made by JCI on the JCI Tooling Purchase Order.

22. JCI's contractual obligation is to reimburse actual tooling costs incurred up to the amount authorized by the JCI Tooling Purchase Order. JCI does not reimburse Suppliers for tooling costs in excess of the amount authorized or for tooling that was not specified and authorized by the JCI Tooling Purchase Order. If the actual cost incurred is less than the JCI Tooling Purchase Order amount, the Supplier is expected to notify the JCI Buyer so that the JCI Tooling Purchase Order can be adjusted to the actual costs. It is the responsibility of the Supplier to monitor the content of all sub-suppliers tooling (e.g. out-sourced components), to ensure conformity with the JCI Tooling Purchase Order and these Guidelines.

23. The Supplier will complete a Tooling Audit Worksheet ("TAW") for each JCI PO selected for audit. In anticipation of a tooling audit, the Supplier should begin completion of the TAW upon receipt of a JCI Tooling Purchase Order. The Supplier should continue to complete the TAW as the special tools are

ordered, invoiced and payments made to the special tool build source. It is mandatory that each Special Tool has a separate line on the TAW regardless of the level of detail on the JCI Tooling Purchase Order (Le. if 20 special tools were purchased by the Supplier, then there should be 20 line items on the TAW). The Supplier must use the excel workbook template named JCI Tooling Audit Worksheet (see appendix TAW. 1).

24. Upon Supplier's failure to comply with these Guidelines, JCI shall have the right to exercise all remedies permitted under JCI's Global Terms and Conditions of Purchase, including without limitation, Sections 13 and 26.

The following pages list examples to be used as a reference in determining what are allowable and not allowable special tooling cost.



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GENERAL	Special Tooling and Related Cost Items	
	Allowable	Not Allowable
1. Freight - Limited to initial normal expenses required to obtain the tooling being constructed. The freight cost of trips to certify, tryout, or adjust tooling is not reimbursed. Must not include freight cost for new or refurbished capital equipment, even though JCI tooling may be mounted to such equipment prior to shipment.	X	
2. Interest Carrying Costs.		X
3. Launch Costs: Should be included in a supplier's overhead. The cost of a manufacturing learning curve is not considered a tooling expense. Examples are: Run-at-Rate costs, PPAP costs, etc.		X
4. Installation Costs, Set-Up Costs, and Adaptation Costs of Special Tooling		X
5. Tryout Costs for Subcontracted Special Tooling - Limited to the cost of tryout and adjustment time incurred by the special tool build source and a reasonable allocation of production material used by the tool builder for this event. JCI retains the right to determine the allowable allocation of production material.	X	
6. Tryout Costs for In-House or Related Entity Special Tooling - Where a Supplier designs, develops, or manufactures special tooling internally or by a related entity (a tool build source where the Supplier has an equity or other "significant" influence on such entity as determined by JCI), tryout cost will be limited to the lesser of the actual cost incurred or one percent (1%) of the allowable cost of the special tool.	X	



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DIES	Special Tooling and Related Cost Items	
	Allowable	Not Allowable
1. Air Cylinders: Unless an integral part of the die as determined by JCI and then only the first complement		X
2. Automation: Unless an integral part of the die as determined by JCI		X
3. Binder Development: Binder development used in developing the prototype tooling should not be paid for on a Production Tooling Order		X
4. Bolster Plates		X
5. Designs Directly Related to Dies and Die Details	X	
6. Die Models		X
7. Die Risers: Unless an integral part of the die as determined by JCI		X
8. Dies: a. Coining, b. Cold Forming, c. Compacting (for powder metal parts before sintering), d. Extrusion, e. Forging, f. Progressive , g. Stamping, h. Sizing (for powder metal parts before sintering), i. Straightening , and j. Transfer	X	
9. Painting of Dies: When done at the tool build source and in accordance with JCI, OEM and/or JCI Customer Standards as determined by JCI	X	
10. Safety Items and Guarding: This includes die sensors , light curtains, etc.		X



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ELECTRICAL WIRE HARNESS: Components, Assembly, and Testing	Special Tooling and Related Cost Items	
	Allowable	Not Allowable
1. Dies and Details required for components unique to JCI as determined by JCI	X	
2. Verification, Push Test, Grease, Continuity Fixture Blocks: Only when required and unique to a JCI component as determined by JCI	X	
3. Gages: Only when design and drawings are JCI approved	X	
4. Grease Application Equipment		X
5. Injection Molds: Required for components unique to JCI as determined by JCI	X	
6. "Nesting" Fixtures: Have to hold components during automated/manual assembly operations and material handling tooling unique to JCI as determined by JCI	X	
7. Test Equipment: Continuity analyzers, TSK boards, indicators/meters, verification type equipment, etc.		X
8. Hardware <ul style="list-style-type: none"> a. Instruments (shelf bought) b. Computers (including Monitor & Keyboard) c. Cabinets d. Cables e. Automatic stampers f. Shelf bought g. Custom mounting hardware 	X	X X X X X X
9. Software <ul style="list-style-type: none"> a. Operating System b. Application Software c. Test Code (specific to model under test) 	X	X X
10. Test Chambers <ul style="list-style-type: none"> a. Burn-In b. Refrigeration c. Environmental d. Racks e. Rack fixtures geometrically unique to a JCI part as determined by JCI 	X	X X X X
11. Wire Harness Assembly Boards/Checker Test Boards		X
12. Wire Twist Units - Mastic Pad units, shrink tubing units, conveyors , ovens, etc.		X



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GAGES/GAUGES: Specific gage tooling items are generally allowable when special and unique to a specific JCI part, model, or product as determined by JCI and not allowable when a standard shelf type item. Must not include computer terminals, keyboards, printers, "Smart" Columns, or electronic readouts.	Special Tooling and Related Cost Items	
	Allowable	Not Allowable
1. Air Cylinders: Unless an integral part of the gage as determined by JCI and then only the first complement		X
2. Bases: Holding tables, control panels, structural members, safety items, and guarding.		X
3. Certification: Allowable costs when required and incurred by a third party to confirm the accuracy of gages prior to use by the production supplier.	X	
4. Checking Fixtures	X	
5. Final Inspection Gages	X	
6. In-Process Gages: Unless specified by JCI.		X
7. Master: Used to set/check dial, air, electrical/electronic adjustable gages.	X	
8. Templates	X	
9. Test Fixtures: Allowable when built to achieve compliance with Engineering Specification (ES) performance requirements, unique to a specific JCI part, model, or product as determined by JCI and then only when in compliance with item 2 above	X	



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MACHINING: Specific machining tooling items are generally allowable when special and unique to a specific JCI part, model, or product as determined by JCI and not allowable when a standard shelf type item. Must not include computer terminals, keyboards, printers, "smart" columns, and electronic readouts.	Special Tooling and Related Cost Items	
	Allowable	Not Allowable
1. Air Cylinders: Unless an integral part of the machining fixture as determined by JCI and then only the first complement		X
2. Arbors , Special Part Holding	X	
3. Bases - Holding tables, control panels, structural members, safety items, and guarding.		X
4. Broach Cutters: Only first complement as determined by JCI	X	
5. Broach Holders a. Main b. Sub	X	X
6. Bushing Plates	X	
7. Cams: Unique to a JCI part as determined by JCI	X	
8. Chucks: Except for special applications as determined by JCI and then for special clamping portion only (e.g. jaws, collets, etc.)		X
9. Cutter Bodies: Special design is required by part configuration as determined by JCI		X
10. Design: Fixture design only as determined by JCI. Excludes facility engineering design due to integration of fixtures into specific line operations at Supplier location.	X	
11. Fixtures: All special types as determined by JCI	X	
12. Forming Tools: Only first complement as determined by JCI	X	
13. Gangmasters: Camshaft contour as determined by JCI	X	
14. Grinding Wheel: Unless JCI part configuration requires special design as determined by JCI		X
15. Heat Treatment Shielding	X	
16. Hydraulic and Pneumatic Items: Unless integral part of the Special Tooling as determined by JCI and then only the first complement		X
17. Jigs: Only when unique to JCI part as determined by JCI	X	
18. Machine Details: Unique bases, feeds, etc.		X
19. Motors		X
20. Patterns	X	
21. Rack: Plating, unless unique design for JCI product as determined by JCI, and then only nest/tooling portion		X
22. Spindle Heads (excludes motors and drive mechanisms): a. Single fixed b. Multiple fixed (only when unique design as determined by JCI)	X	X
23. Tooling Blocks: Special design as determined by JCI	X	



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MOLDS AND PATTERNS	Special Tooling and Related Cost Items	
	Allowable	Not Allowable
1. Designs Directly Related to Molds and Patterns	X	
2. Development Plasters	X	
3. Patterns Castings	X	
4. Molds: a. For Rubber, b. Plastics, c. Nonferrous Metals, and d. Nickel-Shell	X	



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WELDING FIXTURES, ASSEMBLY FIXTURES, AND SPECIAL PURPOSE MACHINES	Special Tooling and Related Cost Items	
	Allowable	Not Allowable
1. Air Cylinders: Unless integral part of fixture or machine as determined by JCI and then only the first complement		X
2. Automated, "Turn Key" Welding and Assembly Equipment: Some of the typical items in a welding, assembly, and tube/wire bending system that are considered Supplier owned equipment and not special tooling are: railings, walkways, rails, control panels, bowl feeders, and structural members. JCI retains the right to determine what is Supplier owned equipment and special tooling		X
3. Automation a. Within fixtures as determined by JCI b. Other than within fixtures (e.g. overhead transfer lines, walking beams, material handling equipment, material transfer equipment as determined by JCI)	X	X
4. "C" Frames, Pedestal Welders and Press Welders		X
5. Holding Fixtures	X	
6. Hydraulic and Pneumatic Items: Unless an integral part of the fixture as determined by JCI and then only the first complement		X
7. Machine Bases, Machine Feeds, Safety Items, and Guarding		X
8. Masking Devices: Only first complement as determined by JCI	X	
9. Mechanical Knees		X
10. Motors		X
11. Patterns: Only allowable when castings fixture components are required as an integral component of the fixture as determined by JCI	X	
12. Portable Welding Guns		X
13. Transformers, Transformer Guns and Transformer Cables		X
14. Weld Test Equipment		X
15. Weld Timers		X
16. Welding and Assembly Fixtures	X	
17. Plastic Welding a. Sonic Bonding b. Nest	X	X
18. RF Bonder a. Press b. Nest and Generator	X	X
19. Vibration a. Press b. Nest	X	X
20. Spin Welding a. Press b. Nest	X	X
21. Hot Air Bonder a. Press b. Nest	X	X



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OTHER	Special Tooling and Related Cost Items	
	Allowable	Not Allowable
1. Balconies, Control Panels, Railings, Stairways, Surge Tanks, and Overhead Lifts		X
2. Computer Equipment		X
3. Control Devices <ul style="list-style-type: none"> a. That regulates machine functions, line functions, and/or automated handling mechanism functions as determined by JCI b. That regulates fixture only functions as determined by JCI 	X	X
4. Embossing Rolls (Unique patterns/masks including unique engraving as determined by JCI)	X	
5. General and Special Purpose Automation Equipment		X
6. Load and Unload Fixtures, Transfer Fixtures, or Turnover Fixtures: Only when unique to a specific JCI part, model, or product as determined by JCI and required to perform another necessary operation (e.g., inspect, locate, position, etc.) as determined by JCI	X	
7. Masks for Custom Integrated Circuits: Only when unique to a specific JCI part, model, or product as determined by JCI, and cannot be used for other Customer's requirements	X	
8. Material Handling Equipment: Load and unload equipment, transfer equipment, or turnover equipment (e.g. conveyors, hi-lows, AGV's, etc.)		X
9. Microprocessors: Integrated circuits, chips, modules, etc.		X
10. Microprocessor Controls: Commercially available programmable devices (e.g. PLC's, weld controllers, etc.)		X
11. Microprocessor Costs related to production of: <ul style="list-style-type: none"> a. Computer Equipment b. Printer c. Recording Devices (Audio and or Video) d. Vision and Laser Equipment 		X
12. Painting Shields: Only first complement as determined by JCI	X	
13. Robots: All types including "Pick and Place" and re-programmable robots		X
14. Robot Arm End Effectors: Only when geometry makes them unique to a specific JCI part, model or product as determined by JCI	X	
15. Safety Related Equipment (e.g., shielding, fencing, guards, etc.)		X
16. Software Development - Has to be unique to a JCI part as determined by JCI. It must be identified on a separate line item on the Tooling Purchase Order.	X	
17. Statistical Process Control (SPC) Equipment		X
18. Test Equipment (for "Test Fixtures" refer to "Gages" Section): <ul style="list-style-type: none"> a. Computer Test Equipment b. Environmental Chambers c. Printer d. Recording Devices (Audio and/or Video) e. Vision and Laser and X-Ray Equipment 		X
19. Vision Systems (cameras, arms, etc.)		X