

Control Drawings CD

Control Drawings (CD) include "performance" specification type drawings such as envelope, specification control, and source control or "co-function" drawings (installation control and interface control).

1. **PURPOSE OF CONTROL DRAWINGS** . Control drawings allow procurement of items on a“form, fit, function, and performance” basis. It permits the documented creation of “performance based” part numbers, called “control numbers”, that allow the competitive procurement of interchangeable supplier part numbers. This is comparable to procuring aspirin, and those suppliers which provide aspirin provide the item under their brand name. Control drawings are normally thought of in terms of Specification Control and Source Control Drawings SCD.
2. A CD is a drawing disclosing engineering form, fit, and function performance specifications for the purchase of interchangeable supplier or commercial items of existing designs, and of items specially developed by suppliers to the control drawing requirements. CDs permit the purchase of supplier developed items (Commercial Off The Shelf - COTS) from specialized segments of industry without disclosing details of designs or divulging proprietary supplier data."
3. The primary purpose of the CD is to have enough design data that any new source can be developed when the product is no longer available from the listed source. Example: Electrical high voltage items, precision bearings, microcircuits, shut off valves, door latches, electrical motors are typical items designed and manufactured to control drawings. These parts are general in nature and are widely used in various industries.

Note: A consequence of many CDs are replacement parts may not comply with necessary but undefined processing requirements resulting and PMA approval is not possible without such detail.

4. A CD is not used for parts specifically designed and used by or for one manufacture. These parts require drawings, instructions, and specifications that completely define the required dimensions, processes, materials and finishes with sufficient detail to allow repeatability of manufacturing.
5. Proper functioning of the item in the application may be critically dependent on indefinable peculiarities of the source controlled part, such as certain defects, electrical impedance, timing, chemical makeup, harmonic vibration characteristics, physical characteristic inherent from a specific manufacturing process, or other features that are unpredictable and not detectable without testing in the specific application where used.

For example, an “improved” supplier design may cause the application to cease functioning, as the design of the application may be critically dependent upon inherent design defects or unique characteristic of performance of a given part number. As a result, any substitution, redesign, or “improvement” of a supplier part demands re-qualification by testing in the application.

6. A CD may use a combination of bulk and specific size control numbers to satisfy both bulk and specific needs. For example, an assembly drawing may need to cite an “as required” quantity of adhesive by specifying a part number established for an indefinite (bulk) quantity. That same CD may establish a

control number for a ½ ounce squeeze tube as finite quantity part number for buying a stock numbered item. A control number that is “bulk based” is as acceptable as a “finite quantity” control part number.

7. The following questions must be addressed when developing a CD or SCD.
 - a. Does the CD provide detailed information about fit, form, function, interface dimensional characteristics, inspection and acceptance tests, functional requirements, performance criteria, Etc?
 - b. Does the CD have all of the performance and envelope data needed for a source to develop a part or assembly?
 - c. Does the CD establish and document identifying part numbers, and does it provide a means of configuration management and control of the design of each part?
 - d. Does the CD establish one or more control numbers for the parts in an assembly? The control numbers established by the control drawing is used to control and generically identify all parts meeting the criteria.
 - e. Does the CD require each qualified COTS part to be re-identified to the source control part number? The re-identification is necessary to ensure unapproved type designs are not inadvertently used.
 - f. Does the CD require a re-qualification and re-identification to design changes made by the supplier?
 - g. Does the CD include design data control, interface control, and identification cross reference?
 - h. Is Quality Assurance inspection and testing performed to source CD requirements for each buy and does the CD drawing require this?
 - i. Can the part be inspected to the CD?
 - j. Does the SCD limit the purchase to a supplier?
 - k. Are source controlled parts procured by source control part number that is included in the type design?
 - l. Are supplier part numbers not interchangeable with SCD part numbers? *Note: Once a supplier part number becomes a source controlled item, it ceases to exist as a supplier part number, and must be identified by the source control part number in all actions, including procurement.*