

The following Quality Clauses are in addition to those General Purchasing Terms and Conditions as identified within the “Letter of Agreement” sent to all subcontractors, which are applicable to all Orders. Outside of the General Quality Requirements listed within this document, the Quality Clauses are to specify unique requirements applicable to individual orders that are derived from our Customer P.O.’s.

VI Mfg.’s Quality Clauses are identified with a prefix and a number, that when identified on the Purchase order, become part of the Purchasing Terms and Conditions of the Order and subject to verification by VI Mfg. Inspection Department. Failure to meet said imposed clauses shall be subject to rejection of the order.

For the purposes of this document, a subcontractor is defined as an approved source VI Mfg contracts to perform / supply any one or more of the following product lines/operations, either in its entirety or in part:

Raw Material	Machining	EDM
Hardware	Laser Cutting / Welding	Heat Treating
Painting	Sheetmetal Fabrication	Grinding
Plating	Welding	Die/Fixture Building

It is important that you understand the clauses at the time of quotation ensuring you maintain the ability to comply. The VI Mfg. Purchasing Agent as determined by the Engineer and/or Quality Manager shall code the identification of specific Quality Clauses.

Where specific quality clauses are invoked that are beyond your capability, VI Mfg. Engineering must be contacted immediately. Unless contacted, VI Mfg. shall consider that the subcontractor has agreed to the clauses and maintains the ability and intentions to comply. If for any questions or quality clause interpretation, contact Jim Beikirch 585-872-5650 (f) 585-872-2839 or [jim.b@vimfg.com](mailto:jim.b@vimfg.com).

## **1.0 GENERAL QUALITY REQUIREMENTS (G) – Applicable to all VI Mfg. Orders:**

- G-1:** Subcontractor shall maintain a Quality Program, sufficient in detail that demonstrates control measures in place to satisfactorily implement:
- Order Review:** Methods(s) employed of transposing flow-down requirements to your internal processing documents, including conformance to this document.
  - Calibration:** Instruments used to determine “Accept/Reject” and used as a basis for documenting dimensional results. The instruments used to perform the inspection function shall be based on part geometry and tolerance and instruments shall be traceable through NIST.
  - Deviation:** A system that identifies, and alerts VI Mfg. of any discrepancies against supplied purchasing requirements. At no time may the subcontractor authorize deviation from these purchasing requirements. If a Deviation Request is needed, e-mail or contact via phone/fax the purchasing agent mentioned above to obtain written disposition.
  - Prints** shall be received with the order. Where the prints have numbered characteristics, this same convention shall be used on the inspection reports. Where no numbered prints are received, then the subcontractor may identify the characteristic by drawing location. If the print

exhibits no drawing location, then the dimension plus tolerance shall be used. If no print is received with the order, contact the Purchasing Agent.

- e. **Materials:** If materials are supplied by VI Mfg. no material certification requirements are imposed. If the subcontractor procures the materials, conformance to the quality clauses is imperative, especially where any of the following are specified:

- Preference for domestic material
- Qualified source country under DFARS 225.872-1
- Compliance with Dodd-Frank Act of 2010

No substitutions are allowed unless specifically authorized in writing by VI Mfg. Engineering.

- f. **Workmanship:** All parts shall be free from burrs, remnant chips and filings as well as sharp edges. Exterior surfaces shall be void of excessive dings, gouges, scratches and scores.
- g. **Plating/Painting thickness allowance:** If plating and painting is the responsibility of the subcontractor, consideration shall be given to ensure any dimensional tolerance that is .002” or less (primarily in holes and slots), shall be evaluated to run the dimension slightly oversized to account for the subsequent finishing build-up. When in doubt, discuss this situation with VI Mfg. Engineering. There shall also be no paint in threaded or blind holes.
- h. **Order/Material Identification:**
- Orders shipped to VI Mfg, from the subcontractor shall be identified by P.O. # (Job #)
  - Part Number
  - Quantity
  - Date
- i. **Identification of Requirements.** The order of precedence for conflicting or ambiguous information shall be print/specifications then VI Mfg. Purchase Order. However, where clarifications are required, VI mfg. should be contacted prior to commencement of work.
- j. **Inspection Recording:** Where the noted dimensions on the print are identified as variables, variable results **MUST** be recorded. Check marks or the word “OK” cannot be substituted for variable data. In addition, All Inspection Reports must be signed by the person performing the inspection, including the NAME of the subcontractor performing the operations.
- k. **Threads:** Interior and Exterior threaded holes must be checked with the proper gauge and identified as “ok” on the inspection report. Notify VI Mfg. if a gage needs to be borrowed.

## 2.0 PRESERVATION AND PACKAGING (PP):

**PP-1:** Parts may be bulk packed with no preservation required (Not more than 50 lbs) *per container*

**PP-2:** Parts shall be bulked packed and a dry-film oil applied (Not more than 50 lbs.) *per container*

**PP-3:** Parts shall be layered separated with a cardboard buffer

**PP-4:** Parts shall be layered, separated with a cardboard buffer and individually wrapped in paper

**PP-5:** Parts shall be layered, separated with a cardboard buffer and each wrapped in foam

**PP-6:** Parts shall be individually inserted into plastic bags

**PP-7:** Parts shall be individually inserted into plastic bags with a desiccant bag/pouch

**PP-8:** Parts must be inserted, wrapped or staged with supplied packaging

**PP-9:** Anti-Static materials must be used

**PP-10:** Flat parts/sheets on a pallet shall not extend beyond edges of the pallet and must be shrink wrapped to the pallet to prevent movement in-transit.

**PP-11:** All protruding threaded studs shall be protected in a manner to prevent studs from compromising material surfaces of adjacent parts within the container or protruding through the container. This requires protection, e.g. rubber booties.

**PP-12:** For Aluminum parts with machined surfaces, no cardboard between layers of parts are allowed. A foam barrier is to be used with no metal banding for transport.

**PP13:** Special Packaging is required. Contact VI Mfg. for instructions

### **3.0 DROP SHIPMENTS (DS):**

**DS-1:** Where you are requested to send a shipment to another source or direct shipment to a VI Mfg. Customer, you remain responsible for the Quality Clauses invoked by our Purchase Order, including the specified ship date. Prior to shipment to the required destination, call VI Mfg. to obtain a VI Mfg. Packing Slip and identify quantity. Upon shipment to the destination, return a copy of the signed VI Mfg. packing slip and copies of the "Bill of Lading."

### **4.0 PART IDENTIFICATION (PI):**

**PI-1:** Parts shall be marked with indelible ink. Nomenclature for marking will be provided

**PI-2:** Parts shall be bagged and tagged (bulk) labeled with part number on outside of bag

**PI-3:** Parts shall be sequentially marked on a paper tag beginning with 001 and then sequentially for the total order quantity. The sequential numbers shall correspond to the sample numbers identified on the inspection report. The paper tag shall also identify: part number & VI Mfg. Job #

**PI-4:** One (1) sample required with inspection, mark as "Inspection Sample." This sample shall correspond to the inspection results on the inspection report.

**PI-5:** Two (2) samples required for Inspection, mark 001 and 002 respectively as "Inspection Samples." Numbered samples shall correspond to the numbered samples on the inspection report.

**PI-6:** Same as PI-5 except three (3) samples required

**PI-7:** Same as PI-5 except five (5) samples required

Note: Inspection samples shall be segregated from remaining order quantity within the same container. Samples shall be clearly marked "Inspection Samples."

**PI-8:** Special Packaging required and Part Identification req'd. Contact Purchasing Agent for details.

### **5.0 MATERIAL REQUIREMENTS (MR):**

**MR-1:** Material must meet print requirements. No Material Certification Required.

**MR-2:** The subcontractor shall ensure all procured material chemicals and physicals meet the material properties of the governing material standard as specified on the print. The subcontractor shall provide VI Mfg. a copy of the Certified Mill Test Report showing the chemical and physical properties.

**MR-3:** Domestic material requirements apply. Melt source origin (specific country that melted the metal to form the heat code). Only countries that qualify under specialty materials under Federal Acquisition Regulation FAR 225.872. C of A **MUST** identify melt source origin

- MR-4:** Where no chemistry can be obtained due to the material type e.g., brass, the subcontractor shall provide a packing slip to VI Mfg. from the material supplier identifying the material type that was supplied.
- MR-5:** All material must be RoHS compliant and C of A must state conformance or obtain a C of C from the Manufacturer stating conformance to RoHS.
- MR-6:** Material will be supplied by VI Mfg. Material certification not required. Accountability of excess material is required. No material substitutions are allowed unless authorized in writing by VI Mfg. Engineering

## **6.0 STATISTICAL PROCESS CONTROL (SPC):**

- SPC-1: Machine Capability Study:** 1<sup>st</sup> 30 pieces will be measured for all dimensions listed on the print as designated as “CTF”, “M”, or where it states the dimension as critical or dimensions with tolerances less than .002.” Capability indices shall be 1.5 CpK minimum. Where the CpK falls below 1.5, the process shall be tweaked and an additional capability study is to be conducted until a 1.5 CpK is achieved. Evidence of this study in the form of a histogram shall be retained for potential verification by VI Mfg. Consult with VI Engr for questions on specific dimensions
- SPC-2: Process Capability:** Upon achieving the 1.5 Cpk identifying the process is stable and SPC can begin, select 5 sequential parts every 100 pieces and measure/record. Plot on SPC charts to determine trends and maintain a 1.5 minimum CpK. This shall be performed on the same dimension(s) as identified in SPC-1. Operator SPC Charts or computer generated statistical results shall be retained for potential verification by VI Mfg.

## **7.0 NON-DESTRUCTIVE AND DESTRUCTIVE TEST REQUIREMENTS (TR):**

- TR-1:** For Non-Destructive Testing, the subcontractor must have access to a level III Examiner along with the level I or II whom performed the Test. Only a level II and/or III may approve the results. NDE personnel shall be qualified by a Level III NDE personnel and shall be qualified to SNT-TC-1A or an equivalent Military Qualification Specification.
- TR-2:** For non-destructive testing, NDE reports must reflect the Governing specification the NDE was performed to. The report shall identify accept status by quantity, date test conducted, any comments applicable to the test, and signed by a qualified operator Reports must be submitted with the parts. No other specification may be substituted from the governing specification as identified on the print.
- TR-3:** For destructive tests, the report shall identify the test conducted, the specification or print requirements invoked, the test parameters and the test results with acceptability or rejection data. The report shall also be signed by a cognizant company authority.

## **8.0 WELDING (WD):**

- WD-1:** No professional society nor government regulatory welding specification regarding the availability of Welding Specifications, Procedure Qualifications or Welder Qualifications are required.

**WD-2:** Requires WPS IAW Governing Welding Standard as specified on the print. If standard requires a PQR one must be available along with welders qualified to said standard. Evidence to these qualifications and welder maintenance as well as the ordering of the applicable weld wire/rod may be verified by VI Mfg. prior to any welding being performed.

## **9.0 SOURCE INSPECTION (SI):**

**SI-1:** Must contact VI Mfg, at least one (1) day prior to the order being available for VI Mfg. Inspection. The subcontractor shall have all documentation, personnel, facilities and equipment available to conduct the inspection. VI Mfg. reserves the right to bring our Customer or Government Representatives to assist or witness the source inspection. The VI Mfg. representative shall sign the subcontractors packing slip as evidence that the source inspection was satisfactorily conducted.

## **10.0 INSPECTION (IR):**

**Note: 100% Inspection means 100% characteristic check**

**IR-101:** 100% Insp. On 1<sup>st</sup> & Last Part, document on VI Inspection forms

**IR-102:** 100% Insp. On 1<sup>st</sup>, Middle & Last Part, document on VI Inspection forms

**IR-103:** 100% Insp. On 1<sup>st</sup> Part, documented on AS-9102 forms (forms 1-3)

**IR-104:** 100% Insp. On 1<sup>st</sup> Part, documented on VI Mfg. forms

**IR-105:** Is for Internal VI Mfg. use only.

**IR-106:** 100% Insp. on ALL Parts, documented on VI Insp. forms

**IR-107:** C=0, AQL of 4.0%. Engr. to specify the dimensions to check

**IR-108:** C=0, AQL of 2.5%. Engr. to specify the dimensions to check

**IR-109:** C=0, AQL of 1%. Engr. to specify the dimensions to check

**IR-110:** C=0, AQL of 1% on all dimensions. Document on VI Insp. forms

**IR-111:** C=0, AQL of .65%. Engr. to specify dimensions to check

**IR-112:** Engr. to specify dimensions to check. Documented on VI Insp. forms, frequency per lot size in Table 1.

**IR-113:** 1<sup>st</sup>-Piece Check, Engr. to select dimensions to check. Document on VI Insp. forms

**IR-114:** 1<sup>st</sup>/Last part check. Engr. to select dims. To check. Document on VI Insp. forms

**IR-115:** 1<sup>st</sup>/Middle/Last part check, Engr. to select dimensions. Document on VI Insp. forms

**IR-116:** No documented inspection required. ***Note: This means that there will be no numbered print or Inspection report needed.. However, it does not relieve the subcontractor the responsibility for ensuring that the part meets print requirements.***

## **11.0 DOCUMENTATION REQUIREMENTS (DR) – to be submitted with the parts:**

**DR-1:** Certificate of Compliance. Must identify VI Mfg.P.O. number, part number(s), quantity to be shipped and signed by a cognizant company representative.

**DR-2:** Certificate of Analysis including RoHS compliance where required

**DR-3:** Inspection Reports

**DR-4:** Certifications from all finishing sources (plating, painting, heat treating, etc.)

- DR-5:** SPC data/charts
- DR-6:** Heat Treat Strip Charts
- DR-7:** Polished Micro Hardness samples and results
- DR-8:** Non-Destructive Test Results
- DR-9:** Destructive Test Results

**TABLE 1: VI Mfg. Frequencies**

Lot Size	Frequency
1 - 20	1st & Last
21 - 80	1st/Last & 1 per 20
81 - 40	1st/Last & 1 per 30
241+	1st/Last & 1 per 50

**TABLE 2: C = 0**

Lot Size	4 % AQL	2.5 % AQL	1% AQL	.65 % AQL
2 - 8	3	5	All Parts	All Parts
9 - 15	3	5	13	All Parts
16 - 25	3	5	13	20
26 - 50	5	5	13	20
51 - 90	6	7	13	20
91 - 150	7	11	13	20
151 - 280	10	13	20	47
281 - 500	11	16	29	47
501 - 1200	15	19	34	53

**1,200 parts + : contact VI Mfg. for instructions**