JOY MINING MACHINERY

World's Leading Manufacturer of Underground Mining Equipment

Global Supplier Specification
Quality Assurance Standard No.1

JOY MINING MACHINERY
A Joy Global Inc. Company

To: Our valued Supply Base

As the World's Leading Manufacturer of Underground Mining Equipment, we at Joy are proud of our external supply base. We consider that we conduct business with only the best of the best and believe we do that in an environment that provides a mutual benefit to us both.

From a Supply Chain and Quality perspective, we are pleased to make this publication available to our suppliers as part of a comprehensive package of standards and specifications. These important documents provide information regarding the components and processes that are critical to Joy's success. We consider it a joint responsibility to understand and follow the published standards. We believe that adhering to the requirements and expectations provided in QAS 1 will provide you with the best opportunity for success at the current level of business you enjoy with Joy and also provide an opportunity to continue to grow with us in the Mining Equipment marketplace as we expand our business.

David Whitman
Director Global Supply Chain

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Director Global Quality Assurance

Preface

It is the intent of Joy Mining Machinery to develop a common base of suppliers who, regardless of location, are capable of supplying material and services produced to a consistent set of standards, at a competitive price and delivered on time to any Joy unit.

The purpose of this Supplier Specification is to outline the responsibilities of both Joy and its supply base and to convey the expectations of Joy with reference to supplier adherence to standards and Engineering specifications.

Joy is a global provider of original equipment, repair and replacement parts and rebuild services to the underground mining market. Joy's goal is to be a world-class company serving the mining industry. As a global supplier, Joy must be able to provide components that meet a variety of regulatory requirements and exacting engineering standards. These components must be shipped long distances and under less than ideal conditions. We expect that the suppliers of our purchased components will be capable of meeting the challenges presented by this market and will provide quality levels that will satisfy customer requirements.

The relationship that Joy has with its suppliers is an important one. Joy has been, and will remain open to the suggestions of any supplier. Any action that can enhance the relationship to the benefit of our customer, our supplier and Joy will be readily undertaken.

This specification is not intended to replace the engineering drawing or the terms and conditions of the purchase agreement, but rather to clarify the expectations that Joy has for its suppliers.

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1 Joy's Supplier Quality Program

Joy Mining Machinery intends to do business with those suppliers who can provide components and services that can meet all applicable engineering specifications and regulatory requirements. In addition, our expectation is that the selected supplier will be capable of supplying those components at a competitive price and on time on a consistent basis. In order to do this, the supplier must have in place the means to adequately control it's processes to ensure and continuously improve the quality of parts produced.

To assist the supplier in achieving this goal, it is important that the supplier understands Joy's overall supplier program for Quality Assurance and the related procedures and practices. This specification sets forth those expectations in a clear and concise manner.

Quality at Joy is defined as the achievement of customer satisfaction through close liaison and cooperation in order to ensure that products and services are developed and delivered to requirements. This definition includes a requirement to properly identify all components, preserve and package them in such a manner that no damage will be incurred in transit or storage and deliver them in the agreed to lead-time. Conformance to the engineering drawing, applicable regulatory requirements and customer order specifications is essential to the success of both the supplier and Joy. Ultimately, our success will lead to the success of our customer.

1.1 Supplier/Sub-contractor Selection

After a potential source of supply has been identified, representatives of Joy Purchasing, Engineering and Quality will be called upon to evaluate the supplier from the perspective of all relevant disciplines. The purpose of this evaluation is to provide guidance to procurement in proceeding with the supplier. It should be noted that Joy prefers to work with suppliers that are registered to an International Quality Standard such as ISO 9001. In addition to the traditional evaluation of plant, equipment, and systems, the evaluation may include an assessment of the financial strength, responsiveness and human resource aspects of the supplier's business. A standard rating form will be used to evaluate suppliers objectively. See associated document, any undesirable situations will be identified and discussed with the supplier. It is the responsibility of the supplier to take the required corrective actions and notify Joy when they are in place. A decision will be made at this time whether or not to schedule a revisit.

It is the sincere desire of Joy to have suppliers that are successful. To this end, Joy is committed to providing the necessary assistance to resolve issues that occur. Joy may conduct periodic follow-up assessments to assure that the procedures in place are being followed and that systems are adequately maintained. This assessment will consist of either a site visit or a self-assessment of changes completed by the supplier and submitted to the buyer.

Globally Certified products, for which Joy holds the approvals, will require supplier audit and approval by Joy Quality prior to production release and on at least an annual basis.

1.2 IP Requirements

Joy may undertake an Intellectual Property Audit of any potential or existing suppliers to determine the risk to Joy of valuable IP information falling into competitor's hands. This audit will determine if the supplier has been found capable of following Joy's instructions relating to tools, moulds, fixtures, dies, drawings, plans, data, manufacturing aids, work instructions, testing or other equipment or materials, secrets, proprietary information of know-how that Joy has furnished to the supplier.

1.3 Communication of Quality Requirements

When a source of supply has been issued a request for quotation for the first time, the buyer may arrange for a meeting with representatives of Quality Assurance and Product Engineering so that difficult or unusual requirements can be fully communicated to the supplier. At this time, the supplier may ask any questions to clarify the requirements. Any requirements that are not clearly defined will be documented.
It is understood that attempts to communicate the requirements to the supplier do not eliminate their responsibility to question any requirements that they do not understand or to meet all of the engineering specifications when producing the component.

Joy's Purchase Order will reference important requirements such as Drawings, Standards, Specifications, Quality Plans and revision levels. Compliance with these requirements is mandatory. It is the responsibility of the supplier to question and resolve any conflicting or ambiguous requirements prior to order fulfillment.

1.4 First Article Approval

When first article approval is required, it will be specified in the procurement documents. Situations requiring sampling may include first production of a new part, for engineering changes affecting component function, or process change. It is essential that the supplier submit samples for review by Joy. This is a critical part of the supplier control process. The first article must be manufactured using production tooling and must be submitted and approved prior to full production commencing. Purchasing will block the vendor in SAP so that no new production will be permitted without sampling unless prior written concession has been granted by purchasing, quality and engineering. The approval is based upon the first article and detailed information provided by the supplier. Joy's approval of first articles does not relieve the supplier of their obligation for compliance with the specifications. If subsequent nonconformances are detected during production at Joy, the approval may be rescinded until the supplier implements appropriate corrective actions. Review of the first article can be by detailed dimensional inspection at the Joy facility in the country of origin, by inspection at the supplier facility or by verification of compliance through a submitted first article report and certificate of compliance. Under certain conditions, Joy may utilize the services of a third party to perform this operation. In this case, the third party would be under the direction and control of Joy.

Joy reserves the right to waive the production first article on the basis of past history with other components, or when immediate production requirements will not allow time for the sampling process. In the case where production requirements dictate, first articles still are to be submitted with the shipment. They must be segregated from the bulk of the shipment and

clearly marked as first articles. Supplier inspection documentation is to be supplied as per paragraph 4.1. If the first article is rejected, a new first article must be submitted and approved.

Specific first article requirements are documented in: GSOP0012 for Custom Electronics, QAS10 for Gears, QAS20 for Castings and QAS25 for Forgings. The supplier may request these documents through procurement.

1.5 Receiving Inspection

Any material shipped by a supplier may be subject to incoming inspection, including visual, dimensional, metallurgical, and functional tests. Inspection plans will vary depending on the component and the nature of the characteristics being evaluated. Statistical lot sampling inspection plans may be utilized, but do not imply that Joy will knowingly accept non-conforming material. Inspection by Joy does not relieve the supplier of their responsibility to produce components that fully conform to the specifications. All components requiring a certificate of conformance as specified in the procurement documents, must include the certification documents inside the shipping container with the unit. All quality documents must be clearly marked “Attention Receiving Inspection”. Refer to section 2.7

1.6 Non-Conforming Material

Components found to be non-conforming, will be dispositioned in accordance with the local non-conforming material procedure. The decision on how to process the non-conformance of the component will be based upon Joy’s needs and after consultations between Procurement, Quality Assurance, and Product Engineering. Feedback to the supplier will be made through procurement and corrective action by the supplier may be expected to prevent a recurrence of the defect on future orders. Formal written corrective action should follow the requirements defined in section 4.4.

The appropriate cost of repairing or reworking defective purchased material by Joy may be charged back to the supplier.

1.7 Quality Performance

Joy will monitor each supplier’s Quality performance relative to rejections and other evidence of non-conformance such as cosmetics, burrs, etc. Based on a supplier’s history, by part number, the amount of incoming inspection may be increased or decreased. Those suppliers that have a continued history of non-conformance will be identified and appropriate actions taken. Actions may include blocking of orders on a part number basis or in extreme cases where the supplier has been unable to improve his performance, removal from the approved supplier list.

The measure of quality performance will be the vendor’s total quality score. This score is calculated using the results of goods inwards inspection, any product audit inspections at the supplier, and pull stock inspection. Product deviations submitted by the supplier may also affect the quality score. The quality score and on time delivery score are calculated monthly and may be provided to the supplier in the form of a report card. Monthly report cards are sent to key suppliers. Other suppliers can get their quality and delivery performance by requesting their buyer or supplier quality engineer.

Where request has been made for the supplier to take a corrective action or where the supplier has himself initiated a corrective or preventive action, the records of the actions taken and the results of the evaluation of effectiveness of the action must be maintained and available for Joy review.

2 Supplier Quality Responsibilities

The activities listed below are those that relate to the minimum expected systems in place at the supplier facility and those for which the supplier has full responsibility.

2.1 Quality Assurance System

The supplier is fully responsible for the quality of the components or services purchased by Joy. The supplier must develop a systematic approach to assuring the quality of their processes and finished goods. Such a system will assure outgoing quality, control the on-going processes, detect and separate defective material, and provide for definitive and positive corrective and preventive action. It is expected that the supplier will produce products with a goal of zero defects being delivered to Joy. Suppliers are strongly encouraged to obtain certification to an international quality standard such as ISO9001.

2.2 Document Control Requirements

The supplier has the responsibility to assure that all concerned people within their organization are fully aware of the requirements put forth in the various engineering, procurement and quality documents provided by Joy. The supplier also has the responsibility to assure that only current issue of drawings and specifications are available for use at the shop level. The supplier also has the responsibility to convey these requirements to any sub-contractors that may be performing work on Joy products. It is the responsibility of the supplier to question and resolve any conflicting or ambiguous requirements prior to order fulfillment.

For Joy custom designs maintained by the supplier, the supplier must provide Joy with copies of all relevant drawings, procedures, test documentation etc.

Suppliers and their sub contract vendors are responsible to protect all Joy intellectual properties from unauthorized use. Including but not limited to drawings, standards, specifications, processes, etc.

2.3 Design & Process Changes

Before proceeding with any change that may affect the dimensional, functional, or metallurgical characteristics of a Joy component, the supplier must request, and obtain in writing, approval from Joy. This approval will follow the local revision management procedures. A first article may be required. Temporary changes may be submitted for review by following the deviation or concession process. Such approval does not mean that Joy will accept responsibility for the quality or any lack of conformance to specification should the process change not produce the desired results.

2.4 Gauges and Test Equipment

The supplier must maintain adequate gauging and test facilities to assure that the components produced meet applicable specifications. Measurement instrument accuracy must be one decimal place more than the measured value. It is expected that a calibration system will be in place with traceability to national standards. The calibration system must include an established frequency and the related documentation must be on file for review by Joy

personnel. For certain applications Joy may require the supplier to provide a copy of Gauge R&R reports. Joy can assist in this process if required.

2.5 Control of Subcontractors and Suppliers

The supplier is fully responsible for the components supplied to Joy whether produced in their own plant or by a subcontract facility. The supplier must formally assess and regularly review their suppliers and subcontractors. The supplier is responsible for driving corrective actions back through to their suppliers and subcontractors. For components manufactured to Joy designs, the supplier must use a Joy approved supplier or contact Joy for approval before subcontracting to any other supplier. Joy may request to take part in the evaluation of any sub contract sources. The supplier must submit a plan for protection of Joy intellectual property.

2.6 Final Inspection and Test

The supplier is responsible for assuring that all components being shipped to a Joy location meet the applicable requirements. Records of inspection and test must be maintained and be available for review by Joy. The supplier may be asked to submit inspection and or test documentation for all shipments. This documentation may be in the form of a formal detailed inspection and or test document or a certificate of compliance. The requirement for this documentation will be spelled out in the procurement documentation at the time of order placement.

Components found non-conforming at the supplier facility must not be submitted to Joy without authorization through the deviation or concession process. Refer to section 4.5.

2.7 Conformance to Regulatory Requirements

There are certain regulatory requirements that are applicable for components used in explosive atmospheres, including 100% inspection and or test. These requirements are delineated on the part drawing and must be adhered to in full. For supplier proprietary components, the supplier is responsible for adhering to all regulatory requirements. In some cases, there will be local requirements for the supplier to submit a certification of compliance with the shipment. The Joy facility placing the order will provide the supplier with the needed certification format. The requirement for certification will be defined in the procurement documentation at the time of order placement. Any certification requirement is in addition to and does not replace the normal inspection documentation requirement.
Certified products found non-conforming at the supplier facility must not be submitted to Joy.

2.8 Packaging Requirements

The supplier has the responsibility to package all material shipped to Joy in such a manner as to protect it from damage in handling and/or rust and corrosion. The supplier is obligated to assure the cleanliness of those components that have specific cleanliness requirements such as gear cases. Any special packaging requirements will be specified in the procurement documentation.

2.9 Quality System Records

All documentation relating to Joy components such as inspection and test data, gauge calibration records, process control documents, final inspection records, corrective and preventive action records and other controlled items, must be maintained by the supplier and be available for review on request by Joy personnel. These records must be maintained for a minimum of three years unless otherwise specified in the procurement documentation.

2.10 Part Identification

All components supplied to Joy must be clearly identified with the following information unless specifically covered by another Joy standard or as noted below:

Supplier code
Purchase Order number
Joy Part number & Engineering revision
Joy in block letters or the Joy logo as required

This information is to be applied by and appropriate permanent marking method, with the following exceptions.

Where the Engineering drawing calls out “do not permanently identify this part”, ink stamping or hang tags will be acceptable.

Where the physical size of the part precludes individual marking, the components may be bagged with each bag clearly identified.

Where sealing or mounting surfaces are the only areas exposed, acid etching will be acceptable providing a suitable neutralizing agent is applied to prevent rust and corrosion.

2.11 Traceability

The supplier must establish and maintain procedures for product identification during all stages of production, testing final inspection and shipping.

The supplier must identify the product status with respect to monitoring and measurement requirements.

When specified, the supplier must control and record the unique identification of the product, such as a serial number, in the event that a product recall is necessary.

When specified, traceability is required with respect to the final product and it’s significant parts and critical raw materials.

In event of quality recall from Joy, the supplier must have the ability to trace various records of product, process, and raw material.

3 Quality System Requirements

It is the policy of Joy to use suppliers who have the highest degree of control over their processes. We recognize the importance of the use of an independent standard as a benchmark for improvement. Compliance to a recognized national or international quality standard such as ISO 9001 and registration is highly encouraged.

3.1 Control of Raw Material

It is expected that the supplier will have control over the source of the raw materials used in the manufacture of all Joy components. This control will include the following areas:

1. Verification of purchased product
2. Material certifications if required
3. Identification of material types
4. Proper segregation of material in storage
5. Proper storage of shelf life sensitive material

3.2 In-Process Control

The supplier's manufacturing system must be able to produce parts that are consistently within the specifications. There are certain features of the manufacturing system which contribute to the quality of the component and should be included as part of the overall program.

1. Work orders that authorize the operations to be performed
2. An orderly sequence of operations and work centers
3. Properly maintained equipment capable of the precision required for the component being produced
4. Current engineering drawings available for use
5. Control of the consumables used in the production process
6. Properly documented procedures available
7. Ability to control and assure the quality of special processes that may be required to produce our components
8. In-process inspection and test
9. Proper component identification

3.3 Quality Organization

It is recognized that a small supplier may not have a separate Quality organization but it is expected that all suppliers will have a designated person of the proper authority and responsibility to assure the integrity of the components supplied to Joy. This authority must include the ability to make objective decisions affecting the final disposition of components including rejection of production lots.

3.4 Corrective and Preventive Action

In the case of non-conforming material discovered at Joy or when the supplier discovers a deficiency during a production process, it is expected that corrective action will take place. The records of the investigation and subsequent resolution are to be a part of the suppliers record system. In addition, it is expected that discovery of the need for corrective action will

lead to preventive actions to look elsewhere for similar systemic deficiencies. Records of preventive actions are also to be a part of the documentation on file.

An internal audit process is considered to be critical to the proper functioning of a corrective and preventive action system. Internal audit records must be available for review by Joy personnel as a part of their survey process.

3.5 Continuous Improvement Activities

The requirements listed in this specification are the basic requirements. This base should be considered the beginning point for a continuous improvement philosophy. Annual improvement goals should be established to assure that the supplier remains competitive in a rapidly changing global environment.

4 Reporting Requirements

4.1 First Article Inspection

When first articles are required, they are to be clearly identified as first articles and sent to the attention of Quality Assurance. The supplier must submit his own inspection and/or test reports detailing his findings. Refer to section 4.2 for inspection report requirements. Joy personnel will verify these findings with their own inspection. A report will be issued to the supplier through the buyer notifying them of the Joy findings.

4.2 Supplier Inspection Report

Supplier inspection reports may be required for all components produced by a supplier. Each Joy location will determine when such documentation is required and the requirement will be specified in the procurement documents. The supplier may be asked to record their inspection data using Joy's online inspection form. The supplier quality engineer will provide details of this process.

4.3 Certification of Compliance

Certain global components require that a certificate of compliance be produced and submitted with the components. This certification is in addition to the normal inspection documentation required. Each Joy location will provide a sample certification form and the requirement will be clearly described in the procurement documents. Refer GSOP

4.4 Corrective and Preventive Action

When non-conforming components are found at Joy, the supplier may receive, through the buyer, a corrective action notification. This notification will detail the discrepancy and will require a response from the supplier. This response must include the cause of the non-conformance and the action taken to prevent a recurrence. All responses are to be returned to the responsible buyer. Joy's corrective action form is posted at supplier communication at www,joy.com .

4.5 Request for Deviation/Concession Approval

An option open to Joy when non-conforming material is discovered is to accept the components with an engineering deviation. This acceptance does not relieve the supplier of his responsibility to produce all parts to the drawing on future orders. The supplier will use the online deviation /concession request form for Joy's review of the non-conformity or material substitution, e.g. material equivalents, electronic components equivalents etc. The buyer will provide details of the deviation process.