



Eskom

Standard

Technology

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Class 1 Distribution Power
Transformer**

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Executive Summary

The technical tender evaluation is a critical gate in the enquiry process, ensuring that bidders fully understand the customer's requirements and demonstrate the capability to design, manufacture, factory test, prepare for shipment, transport, erect on site, commission the equipment and provide the required after sales technical support. This technical tender evaluation criterion has been developed to assess all tenders for transformers and reactors, excluding Class 0 units, which are addressed separately under document 240-77155912.

Compliance with this document ensures that all suppliers bidding to supply transformers and reactors to Eskom are evaluated in a fair, consistent, and transparent manner. The evaluation framework minimizes the influence of individual discretion during the assessment process by applying standardized technical criteria. Each supplier's assessment is based on the technical information submitted at the tender stage, as well as the outcomes of the factory assessment.

It is therefore essential that bidders clearly present, reference, and index all required information in Technical Schedules AB and the associated annexures of this document to facilitate an effective and objective evaluation.

1. Introduction

This scoring criterion shall be used in conjunction with the power transformer and reactor specification documents referenced in 2.2.1 below, to ensure that all the suppliers are scored on the same basis and in a transparent manner. This document details the method of evaluating based on

- The tender returnable are – **completely filled Schedule AB**. It is acceptable to submit a record of an already approved design if the intention is to bid with the same design.

The document shall be used for all transformers of class 1 and above as indicated in figure 1 below, and on all the oil immersed shunt reactors.

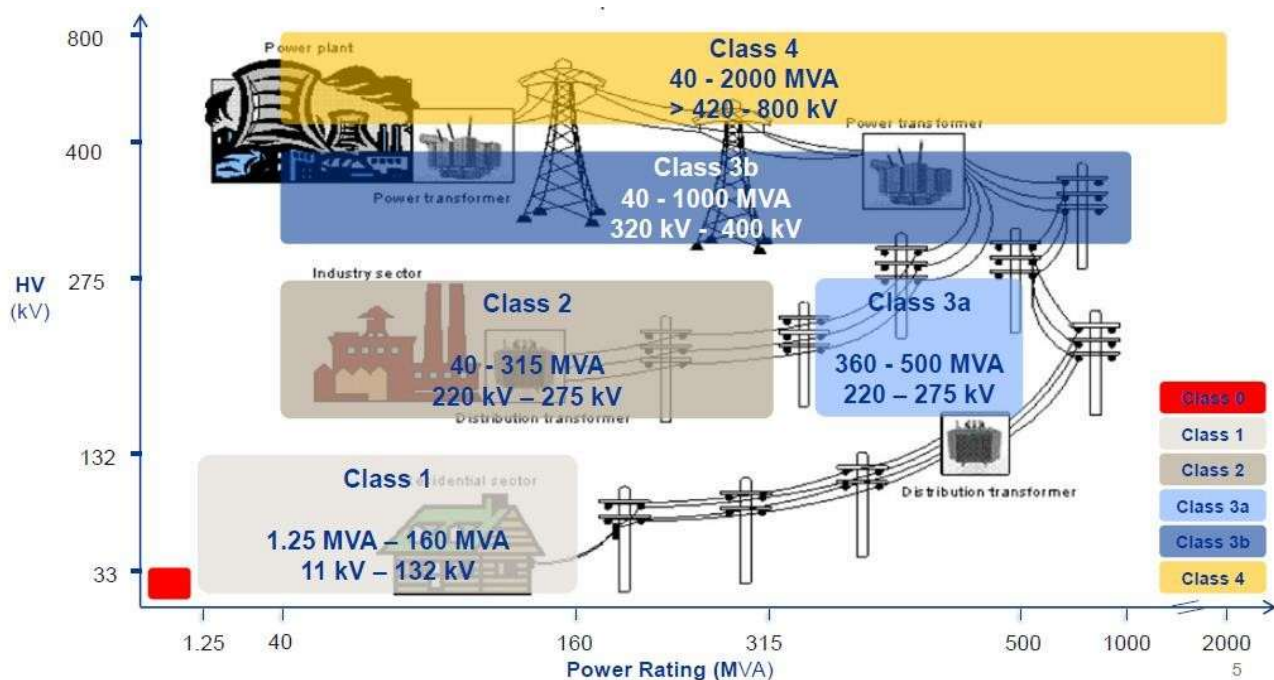


Figure 1: Classes of transformers in Eskom

2. Supporting clauses

2.1 Scope

This document covers only the evaluation criteria of the transformer and reactors tender returns. It does not specify the requirements of the mentioned equipment.

2.1.1 Purpose

This document was produced in order to record the standardized scoring method.

2.1.2 Applicability

This document shall apply throughout Eskom Holdings Limited Divisions. It is applicable only to the interim tenders meant to supplement CORP4565 needs.

2.2 Normative/informative references

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

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2.2.1 Normative

- [1] 240-60725684 Specification for oil immersed HV and EHV Power Reactors
- [2] 240-68973110 Specification for power transformers rated above 1.25MVA and with highest voltage of 2.2kV or above
- [3] 240-56062799 Capacitor Bushings for Application in Power Transformers and Shunt Reactors in All Eskom Divisions Standard
- [4] 240-105658000 (QM58) Supplier Quality Management: Specification

2.2.2 Informative

- [5] ISO 9001 Quality management systems
- [6] 32-1034 Eskom procurement and supply management procedure
- [7] 240-53207174 Practice note and guide on the implementation of the Preferential Procurement Policy Framework Act (PPPFA)

2.3 Definitions

2.3.1 General

Definition	Description
Contractor	Refers to the supplier or bidder
Equipment	Refers to a transformer or a reactor
Mark(s)	Means a point in the scoring system
Point(s)	Means a mark on the scoring system
Tender returns	A document(s), populated or compiled by the bidder, returned as a response to a tender and were part of the requirements at the time of issuing the enquiry.
DIL Stress	Refers to the maximum electric field intensity a pure insulator sustains before experiencing ionization or avalanche breakdown, resulting in electrical conductivity and insulation failure.
Impedance	It is a measure of the transformer's internal resistance to current flow.
Flux density	It is a measure of the concentration of magnetic field lines passing through the core.

2.3.2 Disclosure classification

Controlled disclosure: controlled disclosure to external parties (either enforced by law, or discretionary).

2.4 Abbreviations

Abbreviation	Description
EHV	Extra High Voltage
HV	High Voltage
MVA (r)	Mega Volt-Amperes (reactive)
SCOT	Steering Committee of Technology
DIL Stress	Dielectric Stress

2.5 Roles and responsibilities

All the Eskom employees and/or appointed bodies involved in the tender technical evaluation shall use this criterion.

2.6 Process for monitoring

This document and its relevance will be periodically evaluated by the relevant SCOT Care Group.

2.7 Related/supporting documents

The schedule A and B of the relevant AB schedules shall form part of the evaluations.

3. Evaluation Method and Requirements

3.1 Methodology

The technical tender evaluation is one of the critical gates in the enquiry chain to ensure that the bidders understand the customer's requirements and they are capable of designing, manufacturing, testing at works, prepare for shipment, transport, erect on site, commission the equipment, and can offer the required after sales technical support services. This evaluation criterion will be used to measure the suppliers or bidders in these parameters. This will be achieved by doing both the desktop exercise using tender returns and by evaluating each factory that is intended for supply of the equipment to Eskom.

Bidder must meet all the mandatory requirements and then score a minimum of 80 points out of the discretionary requirements as per Annex C.

The scoring details can be summarized as follows:

Item	Remarks
Tender returns: Mandatory	If any one of the mandatory requirements is not met, the bidder will be disqualified.
Tender returns: Discretionary or scored criteria	Each bidder must score 80 or more points otherwise will be disqualified.
Factory capability assessment	Factory capability assessments are a pre-contract requirement and are mandatory for each factory that is intended to produce units for Eskom. Factories with a valid accreditation, as per the Eskom list or are in possession of the accreditation letter that is not older than twelve months, will be exempted from the Factory capability assessment requirement. NTCSA accreditation not older than 24 months may be considered. Scoring is detailed in section 3.4 of this document.

3.2 Mandatory Requirements

The mandatory requirements are non-negotiable, and, in this document, they are divided into two. First it is about the completeness of the documents, irrespective of the correctness or compliance of the information. The second portion is the evaluation of the submitted information against the requirements of the specifications and the international standards. These are important for operational and interchangeability reasons.

3.2.1 Completeness of documents

The bidder is required to submit all the information required and each document must be correctly completed. The gaps (blanks), TBA, and similar remarks will render the document incomplete. In cases where the required information is provided as an attachment or accompanying page, it must be so indicated and made easy to reference. If any of the required information is not available, this will result in a disqualification for missing information. All the technical information must be clearly indexed in the submission package.

3.2.2 Technical Requirements

These are the important parameters that the tenderers must comply with. If the proposal by the bidder does not meet the minimum requirements, the bidder will be disqualified, and such proposals must be clearly listed in the deviation schedule. Items in the deviation schedule are not accepted until discussed and concluded during the design review.

The list of all mandatory items is provided in Annex A and B of this document

3.3 Discretionary Requirements

Each of the other items will be assessed as indicated in the score list of Annex C.

3.4 Factory Assessment

This is a pre-contract award requirement for each factory as stipulated in section 3.1 above. This is a pre-contract award requirement for each factory as stipulated in section 3.1 above. Factory Capability Assessments shall be undertaken in accordance with the principles contained in Supplier Quality Management Specification (QM58) and the supplier evaluation requirements of ISO 9001 Clause 8.4 relating to the control and evaluation of external providers. The assessment shall verify the manufacturer's design capability, manufacturing capacity, quality management systems, testing facilities, engineering competence, and ability to consistently manufacture transformers compliant with IEC/SANS 60076 requirements.

Suppliers will be evaluated against a predetermined Factory Assessment Checklist. Each assessment criterion will be graded as follows:

- **3** = Fully Compliant
- **2** = Partially Compliant / Inconsistent Compliance
- **1** = Not Compliant

Where a supplier receives a grade of 2 or 1 for any assessment criterion, Eskom shall provide written feedback detailing the identified gaps and required corrective actions. The supplier shall submit a corrective action plan within 60 calendar days from the date of notification and shall fully implement the agreed corrective actions within a period agreed by Eskom, not exceeding 180 calendar days, unless otherwise approved by Eskom based on the nature and complexity of the corrective actions. Evidence of implementation shall be submitted for verification by Eskom. Where necessary, Eskom reserves the right to conduct a follow up assessment to verify the effectiveness of the corrective actions. Failure to submit a corrective action plan within the specified timeframe, failure to implement the agreed corrective actions within the approved period or failure to demonstrate satisfactory closure of identified non-conformances shall result in disqualification from the tender process.

The Factory Assessment requirement may be waived for manufacturing facilities that possess a valid factory accreditation or assessment report recognized by the Employer and issued within the preceding twenty four (24) months, provided that the accreditation covers the scope of supply under this tender. Manufacturing facilities that have not previously been assessed by the Employer shall be subjected to a

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full Factory Assessment in accordance with the minimum requirements contained in Annexure D. Where a supplier is represented by a distributor, agent, or local representative, the actual manufacturing facility responsible for the production of the transformers shall be assessed in accordance with the above process.

The Factory Assessment is a risk management and supplier qualification process aimed at protecting public safety, ensuring network reliability, and safeguarding Eskom Distribution's investment in strategic infrastructure assets. Accreditation is granted based on the demonstrated capability of the manufacturing facility and not on the commercial structure through which the products are offered. Accordingly, it ensures that all suppliers are evaluated against the same objective criteria and that the factory producing the equipment is capable of consistently delivering compliant transformers.

Annexure D sets out minimum points of discussion during Factory Capability Assessment. Transformer manufacturing is a complex engineering activity with many complex subprocesses, it is impossible to give an accurate list of questions. In addition to that, manufacturers use different design and manufacturing philosophies. They also manufacture different sizes of transformers with different voltage levels. Eskom distribution will award factory accreditation to a fully compliant factory, meaning all facets of manufacturing must be graded at 3 because transformers with defects pose a serious safety risk to personnel who operate the network and anyone in the vicinity of an energized transformer.

Note 1: The Employer reserves the right to conduct additional assessments visits where deemed necessary for non-conformances observed during factory acceptance tests.

4. Annexures

The annexures are applicable to the classes of transformers, mandatory tender returns, and form part of this evaluation information.

5. Authorisation

This document has been seen and accepted by

Name and surname	Designation
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6. Revisions

Date	Rev	Compiler	Remarks
May 2026	1	S. Makhathini	Incorporated changes from tender clarifications.

7. Development team

This document was developed by

- Sibusile Makhathini
- Sifiso Zuma

8. Acknowledgements

The development team of **240-170000567**.

Annex A – Mandatory Requirements – Completeness of documents

No	Item details	Score		Remarks
1	Are the schedules AB completely filled and all the information provided?	Y	N	

Note: A “No” in any of these items will result in disqualification. Do not leave any blanks in the schedule B, where the schedule A has “xxxxxxx”, it means Eskom has no specific requirements, but the bidder must fill in a value or a meaningful response.

Annex B – Mandatory Requirements – Technical Requirements

No	Item details	Status		Remarks
1	Are the ratings (MVA and all voltages) offered correct as per schedule A?	Y	N	
2	Is the vector group correct?	Y	N	
3	Is the winding arrangement as per the schedule	Y	N	
4	Is the tap changer positioning complying with schedules A?	Y	N	
5	Are the impedances indicated as required in schedule A?	Y	N	

Note: “No” in any of these items will result in disqualification. In case the bidder supposed that Eskom made a typo, it must be clarified in time.

Annex C – Discretionary Requirements – Class 1 Transformers

No.	Items details	Points Awarded		
		20	10	0
1	Design evaluation with critical parameters being (dielectric ¹ , forces ² , thermal ³ , and magnetic ⁴)	All parameters are within standards and best practices, plus they demonstrate reasonable safety margins	One or two parameters do not meet but can be easily addressed during design review	More than 2 parameters do not meet the requirements.
2	Transport / shipping dimensions	All are within the specified limits	Deviations of 100mm or below from stated limits	Deviation in one or more dimensions is 100mm or above the stated limits
3	Transport /shipping weight	Within the limits	Exceed with below 0.5tons	Exceeds with 0.5 tons or more
4*	Are the bushings offered of correct technology (dry or paperless), with composite insulator and in line with the bushing's specification 240-56062799	Meeting all the requirements		Dimensions and/or technology are not in line with the specifications
5	Is the correct type of tap changer offered? (On-Load Tap Changers or De-energized Tap Switches)	Yes		No

* Provide clear drawings of the items selected. No full catalogues are accepted, only extracts clearly indicating the selected component.

Item No 1 Design evaluation with critical parameters being (dielectric, forces, thermal, and magnetic), There are four parameters dielectric, forces, thermal, and magnetic: -

1. Dielectric parameter will be evaluated as per **240-68973110** Section 3.6.4 Insulation with the maximum DIL stress of 7kV/mm, for the purpose of the desktop evaluation.
2. Forces parameter will be evaluated as per the **240-68973110** section 3.4.8 ability to withstanding short circuit.
3. Thermal parameters will be evaluated using the AB Schedules provided values in the Technical Schedule: Temperature rises at altitude of 1 800 m.
4. Magnetic parameter will be evaluated using the AB Schedules provided values: primary / secondary impedance at 75 °C at rated MVA, design flux density at Un, and core design as per **240-68973110** section 3.5.1 core design.

Item No 4 Are the bushings offered of correct technology (dry or paperless), with composite insulator and in line with the bushing's specification **240-56062799**.

- Dimensions and the technology offered will be evaluated as per the bushings specification **240-56062799** and the AB Schedules provided values under Main terminals & Bushing of the Technical Schedules.

Annex D – Factory Capability Assessment Questionnaire

Area assessed	Details of the assessment area	Response	Evidence	Grade
Checklist item 1	Question			
Factory profile	Which range of transformers do you manufacture and for how long is your experience for each transformer type?			
Design criteria basis and guidelines	Please describe your design criteria basis and guidelines – Electrical, Mechanical			
	What is the design team's composition/structure, numbers, experience levels?			
	Has OD cooling design been implemented successfully?			
	Do you have proof of any of your designs passing short-circuit testing independent facility?			
	What design safety factors/margins are implemented as part of your design standards? (i.e., di-electric, thermal, forces, conductor yield strengths, infinite bus)			
Checklist item 2	Question			
Design process flow	Please provide design process flow chart/systems for similar products			
	How do you ensure internal design verification/ validation as part of your design process?			
	What is the process to deal with design change requests (concession), internal or external?			
	Describe the approval process from the customer's point of view			
	Following final design approval, how is the final design linked to the manufacturing process?			

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Checklist item 3	Question	Response	Evidence	Grade
Design tools and competence	What engineering tools are used for the relevant designs? What is the staff's level of experience with these tools?			
	How do you ensure continuous development of staff with respect to design systems and philosophy? (i.e., software and manually)			
	How does the system flag excursions outside internal design rules?			
Checklist item 4	Question			
Design Technology Backup	Who are your technology partners?			
	How do you support/co-ordinate the use of academic/research institutions for technology support?			
	How do you support/co-ordinate external partners for component manufacturers?			
Checklist item 5	Question			
Design review/process	Please produce design review, type, approval and records for your largest capacity and highest custom voltage?			
Checklist item 6	Question			
Research and Development capabilities	Do you own your R&D? If not, who are R&D partners?			
	How is R&D triggered in your organisation?			
	What initiatives are you pursuing to reduce transformer losses (i.e., no-load versus load losses, cooling, short-circuit)?			
	Do you outsource your designs? How much of your designs are outsourced? What controls are in place			

	Primary Activities Supplier Management			
		Response	Evidence	Grade
	Technical-Infrastructure			
Checklist item 7	Question			
<i>Equipment</i>	What manufacturing equipment/tools does the supplier have, who manufactures this equipment, what is the capacity of this equipment? (i.e., winding machines, core cutting machines, vapour phase treatment, oil plant, cranes)			
	How are supervisors and workers trained on handling equipment?			
Checklist item 8	Question			
<i>Maintenance</i>	What is the maintenance operating model for the production line?			
Checklist item 9	Question			
<i>Tool control, application and calibration</i>	How are joints made (e.g., brazing or crimping methods)? Are they performed properly?			

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	Primary Activities Supplier Management			
		Response	Evidence	Grade
	Technical – Production capacity			
Checklist item 10	Question			
Plant Capacity	MVA Lower Rating Limit (MVA)			
	MVA Upper Rating Limit (MVA)			
	Nominal Voltage HV side Limits			
	Lightning Impulse Limit (BIL)			
	Factory level above sea level			
Checklist item 11	Question			
Capacity increase	What is the supplier's estimate of current capacity limit?			
	Are there any bottlenecks in the manufacturing process? (e.g., test bay, vapour phase)			
	Does the supplier intend to make use of a substitute factory if capacity increase is required? If so, has it been evaluated for this project?			
	How has the supplier expedited orders if required?			

	Primary Activities Supplier Management			
		Response	Evidence	Grade
	Operations - Core manufacturing methods			
Checklist item 12	Question			
Cutting	Which Core cutting machines are used?			
Checklist item 13	Question			
Burr	What are the burr limits?			
	How are burr quality control achieved?			
Checklist item 14	Question			
Stacking	How do you demonstrate stacking methods?			
	What is the height limit for 3 limb designs?			
Checklist item 15	Question			
Assembly	What kind of technology do you use for core clamping arrangement, OD sealing system and core insulation systems? What processes are followed?			
Checklist item 16	Question			
Winding of coil	What types of windings are executed (e.g., layer, disc, helical)? How is winding of coil executed (e.g., CTC, flat, interleaved or intershield, disc winding)?			
Checklist item 17	Question			
Pressing	What is type of pressing methodology is used?			

	Primary Activities Supplier Management			
		Response	Evidence	Grade
	Operations - Tank manufacturing methods			
Checklist item 18	Question			
<i>Metalwork / Welding</i>	What methodology is used for metalwork/welding?			
Checklist item 19	Question			
<i>Tank</i>	What type of tank do you use (i.e, bell-type, welded lid or bolted lid, skidding or flat base,			
	What inspection covers are used? (i.e., sufficient – one on either side of the tank, one on each bushing)			
Checklist item 20	Question			
<i>Spraying / Corrosion Protection</i>	What corrosion protection is used?			
Checklist item 21	Question			
<i>Shielding</i>	What kind of shielding is applied and what is your standard application method?			

	Primary Activities Supplier Management			
		Response	Evidence	Grade
	Operations - Active part and assembly methods			
Checklist item 22	Question			
Lead supports / Taping	Are leads supported through harness structure?			
	How are joints connected (i.e. brazing or crimping)?			
	What is the connection of the leads to the winding exits and what material is used?			
Checklist item 23	Question			
Drying plant methods and controls	What control is exercised over the heat and vacuum system and maximum temperature allowed?			
	What is the duration of dry out?			
	How is DP and moisture assessed at the end of the process?			
	What is final trigger to remove unit from drying phase?			
	Please provide documentation of the control and assurance of this process (i.e., constant pressure, no pressure)			
Checklist item 24	Question			
Auxiliary Wiring	Do you have an auxiliary wiring process and procedures?			

	Primary Activities Supplier Management			
		Response	Evidence	Grade
	Operations - Testing facility and practices			
Checklist item 25	Question			
<i>Calibration of testing equipment</i>	Please provide proof of calibration of all test equipment			
Checklist item 26	Question			
<i>Test capabilities</i>	Can test facilities cater for temperature rise capabilities including overload capability for all transformer types? (i.e., highest kv/MVA transformer)			
	What is their testing capabilities for BIL?			
	Can test bay perform three-phase induced tests including PD?			
	Are testing procedures aligned with IEC standards?			
Checklist item 27	Question			
<i>HV test bay</i>	Is the test bay area closed off?			
	What is the quality and availability of test reports?			
	What are factory failure rates for the last 5 years?			

	Technical Quality Primary Activities			
		Response	Evidence	Grade
Certification	Is the Quality Management System (QMS) certified to ISO 9001? Provide a valid ISO 9001 certificate.			
	Does the certified scope cover the client-required activities (e.g., design, manufacturing, supply, testing, refurbishment, and repair of transformers)?			
	Is the certification issued for a single site or multiple sites? For multi-site certifications, is the audited/visited factory included in the certification schedule or annexure attached to the certificate?			
Fabrication	Is the Welding Procedure Specification (WPS) approved, current, and displayed at the point of use?			
	Are welders formally qualified and certified? Provide evidence of valid welding certificates and competency records.			
	How is coating and paint quality verified and controlled?			
	What methods are used to prevent, identify, and detect leaks?			
Quality Plans	Are Quality Control Plans (QCPs) approved, implemented, and signed off?			
Special Processes (QM58)	Is a documented register/list of special processes available?			
	Are all identified special processes controlled and monitored?			
	What controls are implemented to ensure special processes are performed consistently and effectively?			

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	Technical Quality Primary Activities	Response	Evidence	Grade
<i>Supplier and Material Management</i>	Does the supplier have a list/database of pre-approved suppliers.			
	Who are your suppliers for the procurement of raw materials? - focus is more on materials required in transformer manufacturing eg. Conductor/ Silicon Steel etc			
	Is incoming material inspection performed and documented?			
	Are material certificates reviewed, verified, and retained?			
	Is material traceability maintained from receipt through manufacturing, assembly, testing, and final delivery?			
	How are non-conforming materials managed?			
<i>Process Control</i>	How are non-conformances identified, recorded, investigated, and tracked to closure?			
	Is there a documented Corrective and Preventive Action (CAPA) process?			
	Are manufacturing deviations, concessions, and departures formally reviewed, approved, and documented before implementation?			

	Technical Quality Primary Activities	Response	Evidence	Grade
Calibration and Testing	Is test equipment calibrated and traceable to national or international standards?			
Testing Bay	Are all HV testing facilities accredited against ISO/IEC 17025? - validity and scope of accreditation will be checked (i.e., assessor to note specified highest kv/MVA transformer accreditation scope and the type of tests that the lab is accredited for) - If not accredited, is there a 3rd party verification by an accredited facility? Request records to support this.			
Manufacturing Control	Are approved manufacturing procedures and work instructions available at workstations?			
	How is process compliance monitored during production?			
Risk Management	Are quality risks identified, assessed, and mitigated throughout the manufacturing process?			
	Is there a process for managing supplier quality risks and critical materials?			