Enhancing Procurement Efficiency Through IOGP JIP33 Electrical Standardization

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Abstract - The IOGP (International Association of Oil & Gas Producer) Joint Industry Programme 33 (JIP33) introduces a structured and scalable approach to standardizing procurement specifications for electrical equipment in the oil and gas industry. This paper examines the interrelationship among the four core JIP33 documents, i.e. the Technical Requirements Specification (TRS), Procurement Data Sheet (PDS), Quality Requirements Specification (QRS), and Information Requirements Specification (IRS), and demonstrates how their integrated application ensures consistency, traceability, and efficiency throughout the procurement lifecycle. By aligning technical requirements, risk-based quality assurance, and information deliverables, JIP33 reduces ambiguity, accelerates procurement activities, and improves supplier engagement. Drawing on practical implementation experience by the Operating Companies, the paper highlights measurable benefits, including reduced lead times, improved quality assurance outcomes, and streamlined documentation workflows.

Index Terms — IOGP, JIP33, essential content, industry standard, parent standards, Technical Requirements Specification, Information Requirements Specification, Quality Requirements Specification, Procurement Data Sheet, CAS Level.

I. INTRODUCTION

Procurement of electrical equipment for oil and gas facilities has traditionally relied on project-specific specifications developed independently by each Operator or Engineering Procurement and Construction (EPC) contractors. While this approach offers flexibility, it has frequently resulted in inconsistent technical requirements, extended bid clarification cycles driven by large volumes of deviations and clarifications, and increased engineering and commercial effort for both purchasers and suppliers. In many cases, even within the same operating company, specifications have differed significantly from project to project, leading to inefficiencies across the supply chain.

The IOGP Joint Industry Programme 33 (JIP33) was established, supported by the World Economic Forum Capital Project Complexity initiative, to address these challenges by introducing a standardized, industry-driven approach to procurement specifications. Central to JIP33 is the principle that procurement efficiency, quality, and schedule performance can only be improved when Operators, EPC contractors, and suppliers work jointly to define clear, consistent, and fit-for-purpose requirements. Rather than relying on extensive, bespoke specifications often extending to hundreds of pages, JIP33 seeks to reduce requirements to the essential minimum necessary to ensure technical integrity, safety, and regulatory compliance, while preserving flexibility for project-specific needs. To accomplish this, the operator Subject Matter Experts (SMEs) reviewed each other's specifications to identify similarities and differences for reconciliation. This approach was important because each criterion was reviewed in detail and to ensure the authors' were not compiling all of the "gold plated" requirements into a "super specification" but rather entailed the removal of many requirements that were outdated or application specific.

II. SUPPLIER ENGAGEMENT

Supplier engagement is a foundational element of the JIP33 development process. JIP33 Suppliers are treated as critical stakeholders and are actively involved throughout the lifecycle of specification creation and maintenance. This engagement recognizes that suppliers possess detailed knowledge of compliance with parent standards, equipment capabilities, design constraints, manufacturing practices, and available options within the marketplace. By leveraging this expertise, JIP33 specifications are aligned with proven industry practice and realistic manufacturing capabilities, improving both technical clarity and commercial efficiency.

The development of a JIP33 procurement specification follows a structured workflow that explicitly includes supplier participation at defined stages. During the pre-framing phase, suppliers are invited to contribute through dedicated questionnaires aimed at building a comprehensive profile of the equipment category under consideration. These questionnaires capture information on functional characteristics, design features, testing practices, and available options, enabling the specification authors to understand market norms and constraints before drafting requirements. This early involvement helps avoid over-specification, reduces the likelihood of systematic deviations during tendering, and ensures that requirements are technically achievable across a competitive supplier base.

Once framed, specifications are developed and maintained through a governed workflow in which suppliers continue to participate in key review points. This collaborative model improves transparency, aligns expectations between purchasers and suppliers, and supports the creation of specifications that can be reused across multiple projects and operators. By standardizing procurement specifications and embedding supplier input into their development, JIP33 enables a leaner, faster and more cost-effective procurement process while maintaining a high level of technical rigor for electrical equipment.

The experience in application of JIP33 specification till now demonstrated that applying this process the number of deviation requests or clarifications from suppliers is very limited in comparison to previous procurement process.

Within this context, the JIP33 procurement framework defines a coordinated set of documents that together

establish technical requirements, project-specific selections, quality assurance activities, and information deliverables. The following sections describe how these documents interact to form an integrated, traceable procurement system for electrical equipment in oil and gas projects. Appendix A shows how the JIP33 procurement specification can be applied to a supply chain process.

III. JIP 33 FRAMEWORK

Within the JIP33 framework, procurement of each equipment type and for each associated region specific parent standard for the equipment is governed by a coordinated set of documents that together define technical requirements, project-specific selections, quality assurance activities, and information deliverables. The Technical Requirements Specification (TRS) establishes the baseline technical requirements applicable across projects. The Procurement Data Sheet (PDS) captures application-specific selections. The Quality Requirements Specification (QRS) defines risk-based assurance activities, while the Information Requirements Specification (IRS) specifies the documentation and data required.

IV. TECHNICAL REQUIREMENTS SPECIFICATION (TRS)

The Technical Requirements Specification (TRS) defines the essential technical requirements necessary to procure electrical equipment that meets operational, safety, and reliability expectations across Oil and Gas facilities. Within the JIP33 framework, the TRS establishes a stable and reusable technical baseline that supplements (ref to Appendix B) applicable international standards such as IEC, IEEE, NEMA and UL (called parent standards) without duplicating their content but rather defining a set of essential minimum requirements specific for the O&G industry application.

For electrical equipment the TRS focuses on defining functional performance, design constraints, material requirements, testing obligations, and preservation criteria that are considered critical for industry-wide applicability. The intent is not to prescribe project-specific solutions, but rather to define a consistent minimum technical envelope that reflects consensus among operators, EPC contractors, and equipment manufacturers.

A key principle underpinning the TRS is its **immutability at project level**. Modifying or supplementing TRS requirements through specific overlays undermines standardization and reintroduces inefficiencies that JIP33 seeks to eliminate. This discipline ensures that deviations are treated as true exceptions rather than routine practice, improving bid competitiveness and reducing technical ambiguity during vendor evaluation.

Addendum containing only editorial changes, such as Company definition, but not technical requirements, are not considered overlays.

V. QUALITY REQUIREMENTS SPECIFICATION (QRS)

The Quality Requirements Specification (QRS) defines the framework for risk-based quality assurance applicable to the procurement of electrical equipment. Rather than prescribing exhaustive inspection or documentation requirements, the QRS establishes **conformity assessment activities** proportionate to equipment criticality, supplier capability, and project risk. (ref to Appendix C that shows the purchaser requirements for Low-voltage Three-phase Cage Induction Motors (IEC))

For electrical equipment, this approach is particularly relevant given the wide range of criticality; from off-the-shelf components though long-lead rotating machines with high operational impact to Engineered equipment, i.e. HV circuit breakers and Power transformers. The QRS leverages a graded Conformity Assessment System (CAS), enabling purchasers to select an appropriate assurance level without embedding prescriptive quality clauses into the technical specification.

The QRS is **activity-focused rather than document-focused**. It identifies points where purchaser involvement is required such as design reviews, testing, or inspections while leaving the detailed execution to the supplier's quality management system. This separation allows the project engineers to focus on technical integrity while avoiding unnecessary administrative burden that does not add risk reduction value (appendix C shows an example of quality requirements according to the CAS level).

Each Purchaser can select the suitable CAS level in the Procurement data sheet according to its specific risk assessment procedure.

CAS	DESCRIPTION
A	Equipment applications that require high reliability, with a high-risk profile (with high potential and severe consequences), and/or high risk/criticality to project delivery. CAS A enables a higher degree of purchaser intervention levels (i.e. hold points versus surveillance)
B	applied to medium service risk equipment and where supply chain risk is medium or high
C	Applied to lower service risk and where the supply chain risk is considered to be low
D	represents essential minimum intervention to verify conformance to be applied for lower criticality equipment delivered by qualified suppliers with proven performance. CAS D provides the potential for off-the-shelf solutions and commodity purchase.

CAS level D is considered the default selection and it is intended to be used for industrial proven solutions or manufacturer previously qualified by the purchaser unless a higher level is required following a Risk assessment.

The selection of the CAS level triggers not only the type of activity to be performed by the Purchaser but also the type of documentation that is required in the Information Requirements Specification.

VI. INFORMATION REQUIREMENTS SPECIFICATION (IRS)

The Information Requirements Specification (IRS) defines the structured set of information deliverables required to demonstrate compliance with the TRS and QRS. For electrical equipment, these deliverables typically include drawings, calculations, inspection records, test reports, certificates, and operating documentation necessary to support engineering review, regulatory compliance, lifecycle management and asset operation.

Within the JIP33 framework, the IRS provides

a **predefined and standardized information baseline**, ensuring that suppliers clearly understand what information is required, in what format, and for what purpose (a snapshot form the Low-voltage Three-phase Cage Induction Motors (IEC) IRS is shown in Appendix D). This clarity significantly reduces the iterative clarification cycles commonly associated with the document requirement lists.

The IRS supports traceability between design intent, verification activities, and final delivered documentation.

By decoupling information requirements from quality intervention activities, the IRS can enable digital document workflows and aligns with modern document management and data handover systems.

VII. PROCUREMENT DATA SHEET (PDS)

The Procurement Data Sheet (PDS) acts as the primary interface between standardized JIP33 specifications and project-specific requirements. It captures the selections, ratings, options, and boundary conditions that tailor the TRS, QRS, and IRS to a specific electrical application without modifying the underlying standardized documents.

The PDS typically defines parameters such as voltage levels, power ratings, environmental conditions, duty cycles, hazardous area classifications, and the applicable Conformity Assessment Levels.

By centralizing these inputs, the PDS ensures that project-specific decisions are explicitly documented, technically consistent, and traceable across the procurement package.

This separation of concerns is particularly valuable in complex electrical procurements, where technical requirements, quality assurance, and information deliverables must remain aligned throughout the bid, award, and execution phases. The disciplined use of the PDS minimizes the risk of conflicting requirements and supports efficient change management.

VIII. INTERRELATIONSHIP OF TRS, PDS, QRS, AND IRS ACROSS THE PROCUREMENT LIFECYCLE

The effectiveness of the JIP33 framework lies in the defined interrelationship between the TRS, PDS, QRS, and IRS, which together form a coherent and closed procurement system. Each document serves a distinct function, yet none operates in isolation.

The TRS establishes the technical baseline, while the PDS captures project-specific selections within defined limits. The QRS translates risk considerations into proportionate assurance activities, and the IRS defines the information required to demonstrate compliance. Changes introduced through the PDS propagate consistently across quality and information requirements without altering the standardized technical foundation.

This integrated structure enhances procurement lifecycle efficiency by reducing ambiguity during tendering, improving bid comparability, and supporting predictable execution. The clarity of document roles enables suppliers to respond more efficiently and allows purchasers to focus on genuine technical and commercial differentiation rather than reconciling inconsistent specifications.

Finally, the use of common technical data sheet, QRS and IRS forms for all companies adhering to IOGP JIP33 introduces further simplification in the technical alignment phase.

Appendix A shows how JIP33 specification can be used during a typical Detail design project

IX. OPERATING COMPANY ADOPTION AND OVERLAY RESOLUTION

As the JIP33 program has matured, operating companies have increasingly focused on institutionalizing standardized procurement specifications through structured overlay resolution. Company-specific overlays have been systematically reviewed with JIP33 Working Groups to assess technical justification, alignment with standard intent, and suitability for retention or removal.

A representative adoption model, referred to as “Operating Company A” (OpCo A), illustrates a transition away from legacy Company Practices toward a set of certified governance documents. These Corporate documents explicitly reference IOGP JIP33 specifications and rely on the Procurement Data Sheet to implement project-specific selections, avoiding duplication or modification of standardized requirements.

OpCo B decided from the beginning to adopt IOGP standardization without any significant changes to verify the robustness of the documents produced in the original version.

OpCo C adopts IOGP standardized JIP33 specifications and only allows for deviation due to application, operability or environmental limitations on a case-by-case basis which requires management approval

OpCo D aligns its internal technical practices and specification framework with IOGP standardized specifications, leveraging its participation in JIP33 to actively shape and advance industry standardization. Any overlays applied to the adopted specifications are subject to a structured and rigorously governed review process requiring approval from the highest technical authority to maximize alignment with the standardized intent. Likewise, any deviations from the adopted specifications follow a formal deviation procedure supported by clear technical justification. This reinforces commitment to minimized specification variance while helping maintain common industry procurement standards

Taken collectively, these governance models establish a coherent and harmonized standardization framework across the Operating Companies, thereby strengthening

technical discipline, reducing lifecycle document stewardship demands, and enhancing cross-project uniformity and reproducibility.

X. LESSONS LEARNED AND BEST PRACTICES

Experience from early adopters of JIP33 electrical specifications indicates reductions in lead times, improved clarity during vendor engagement, and more effective quality assurance planning. Best practices include disciplined use of the PDS, early agreement on CAS levels, and minimizing company-specific overlays.

The JIP33 program encompasses several engineering disciplines equipment types. Workgroup experience has found the electrical discipline equipment / package types and structure, along with the maturity of parent specifications, which are commonly not industry specific, have resulted in strong SME alignment and exceptional delivery successful, resulting in 22 specifications at the time of writing this paper.

OpCo A

Initially, OPCo A adopted the JIP33 specifications, modifying (through overlays and underlays) certain technical requirements to align as closely as possible with the existing standardization. However, this approach did not deliver the expected benefits in terms of lead time or cost savings compared to the specifications under existing Company Frame Agreements, which are primarily based on industry standards.

Following the **overlay reconciliation process**, which defined the **essential minimum requirements**, the JIP33 specifications have proven capable of achieving reductions in lead time and cost comparable to those of the Frame Agreements, approximately **10% cost savings** and **10 – 15% lead time reduction** compared to the traditional approach of specifying electrical equipment (assuming CAS D as the default).

OpCo B ,

After an initial running-in period during which some misinterpretations by both the Company and Suppliers slowed progress, OpCo B can now confirm that IOGP standards are widely applied across all new oil & gas projects.

Based on our experience, the primary benefits have been in schedule reduction, with time savings of approximately 20–30%, while CAPEX reductions have been in the range of 5–10%.

A key lesson learned over the past 5–6 years is that it is preferable to limit the application of IOGP standards to the oil & gas sector, both upstream and downstream, and exclude them from other type of project (i.e. renewable power project). For these projects, the technical requirements have been progressively lowered down after an initial adoption since they are considered less critical and strategic and also with reduced safety demands compared to oil & gas facilities.

OpCo C

Adoption and utilization of IOGP JIP33 Specifications were slow at first and thus in early stages, various scopes were targeted to help demonstrate value generation. In some of those cases, only the Datasheet and TRS were utilized and in others for example, both legacy company specifications and JIP33 specifications were used on same project to help facilitate comparisons.

The initial results were mixed regarding lead times and price paid, however the quality and suitability of the kit specified with JIP33 were consistently good if not better than previously specified. Over time, the supply chain intermediaries (e.g. EPC, packaging, distributor) became more familiar with the JIP33 specifications and equipment costs and lead times both improved.

Key lessons learned that implementing change of specifications through an operator's value chain can take time for value capturing. Change can often be met with resistance, especially when intermediaries are not familiar with JIP33 nor the "essential minimum" philosophy. Similarly, while utilizing a select few of the documents can be beneficial, utilizing all the published JIP33 documents together creates the best opportunities for the "Procurement Specification" to improve costs and lead-times.

OpCo D

OpCo D's rigorous approval processes for overlays and deviations have helped reduce specification variance across a portfolio of global projects, improved clarity for suppliers, and strengthened consistency in execution. This does not always result in a direct equipment cost saving, however, it greatly improves the process, offering an overall cost benefit and schedule improvement. Engagement in JIP33 working groups has also enabled OpCo D to influence specification content directly, supporting smoother adoption, fewer late-stage design changes, and more predictable procurement outcomes. Overall, use of JIP 33 specification along with industry-level leadership has delivered measurable improvements in standardization efficiency and procurement performance.

XI. ACNOWLEDMENTS

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XII. CONCLUSIONS

IOGP JIP33 electrical standardization provides a robust and practical framework for enhancing procurement efficiency. Clearly defining the interrelationship between the TRS, PDS, QRS, and IRS, JIP33 enables consistent, traceable, and efficient procurement of electrical equipment across oil and gas projects.

The two major success factors are 1) supplier involvement 2) not changing standard documents. In this way Companies achieve maximum positive impact during procurement phases without sacrificing product quality and reliability.

Consistent formats across operators, projects and supply chains enables familiarity for faster data retrieval, common spares for distributors to manage for MRO - maintenance, repair and operation support.

XIII. ACRONYMNS

IOGP: International Association of Oil and Gas Producers
JIP 33: Joint Industry Programme n.33
CAS: Conformity Assessment System

XIV. REFERENCES

[1] https://www.iogp.org/
[2] https://www.iogp.org/bookstore/product-category/jip33/electrical/
[3] https://jip33.iogp.org/

XV. VITAE

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Appendix A

Example of how JIP33 specifications are applied throughout the supply chain

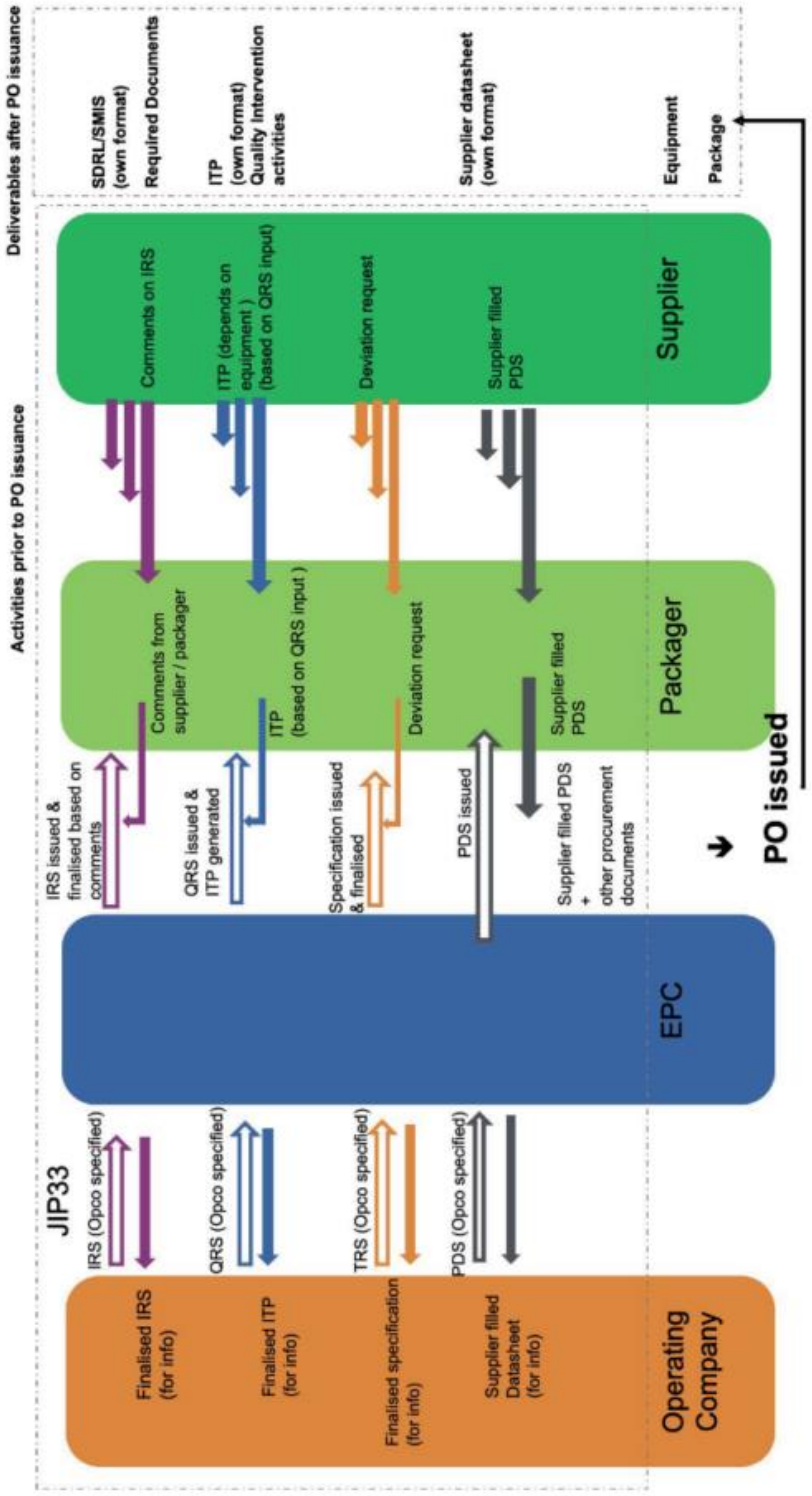

Figure A1

[from IOGP report 796 JIP33 standardized procurement specifications implementation guide]

Appendix B

Example of a requirement from IOGP S-703J “Supplementary Specification to IEC 60034-1 for Low-voltage Three-phase Cage Induction Motors” with Justifications

6 Site conditions

Add new subclause

6.8 Degree of ingress protection

The minimum degree of ingress protection for the machine shall be as specified in Table 23 and in accordance with IEC 60034-5.

Justification

The degree of ingress protection for motors is governed by the location of installation and the environmental conditions to which the motors are exposed, such as "indoor", "outdoor – onshore" and "outdoor – offshore (fixed/floating)". IEC 60034-5 adequately covers the protections taken against respective environmental conditions.

Add new Table 23

Table 23 – Minimum degree of ingress protection based on the location of the installation

Installation environment	Minimum degree of ingress protection	
	Motor	Terminal box
Indoor	IP55	IP55
Outdoor – onshore	IP55	IP55
Outdoor – coastal / offshore / open deck	IP56	IP56

Justification

Table 23 lists the minimum degree of protection used in the industry based on the location of installation of the motor. The individual parts on the motor such as terminal box and bearing housing can have a higher degree of protection as required.

Figure.B1

Each Supplementary Specification shall be read in conjunction with relevant parent standard (in this case the IEC 60034-1 “Rotating electrical machines – Part 1: Rating and performance”)

Appendix C

Annex A of IOGP S-703Q “Quality Requirements for Low-voltage Three-phase Cage Induction Motors (IEC)”

Annex A
(normative)
Purchaser conformity assessment requirements

Table A.1 defines four CAS levels or levels of purchaser assessment.

Table A.1 — Purchaser conformity assessment requirements

Purchaser assessment activities		CAS			
		A	B	C	D
1	**Operational planning and control activities**				
1.1	Attend pre-inspection/pre-production (kick-off) meeting	H	R	-	-
2	**Design and development activities**				
2.1	Attend design review meeting for finalizing design and release for production	H	S	-	-
3	**Control of external supply**				
3.1	Verify external supply scope, if applicable. May include sub-suppliers of materials/components such as fixing hardware, bearings, terminal/bushings.	S	S	-	-
4	**Production and service provision**				
4.1	Final tests, including factory acceptance test (FAT)				
4.1.1	Routine test of motor including test for thermal performance, vibration and noise (IOGP S-703, 8.6.2.3.2, 9.1, 9.2, 10.4.6, 10.3, 11.1, 11.3.1.1, 11.3.1.3, 11.4.2.1, 11.4.2.2.2, 11.4.2.2.3, 1.4.2.3, 11.4.4.2, 11.4.4.3, 11.4.4.4, 11.4.5.1, 11.4.5.2, 11.4.5.5, 11.4.6.1, 11.4.7.11, 11.4.8, 1.4.10.1.2, 11.4.11.7, Table 16, Table 22, Table 25)	H	W	S	-
5	**Final inspection**				
5.1	Conformance to purchase order				
5.1.1	Verify handling, packaging, preservation and storage of motors before release (IOGP S-703, 6.6, 11.4.2.3.2, 11.4.5.4)	S	S	-	-
5.1.2	Release equipment for shipment	H	H	H	H

Key
- \- No intervention performed
- H Hold point
- W Witness point
- R Review
- S Surveillance

Figure C.1

Appendix D

Snapshot from IOGP S-703L “Information Requirements for Low-voltage Three-phase Cage Induction Motors (IEC)”

IOGP S-703L (2.0) Information Requirements for Low-voltage Three-phase Cage Induction Motors (IEC)

Requirements

Column	Heading — Details and requirements
A	Code — Contains IOGP JIP33 unique record identification code specific to the individual information requirement for the particular equipment.
B	Requirement — Contains data, documents or models to be provided by suppliers, based on the industry standard or IOGP JIP33 specification.
C	Condition Invoking Requirement — Describes condition(s) under which the information requirement is required (e.g. service offshore and weight greater than one tonne means information is required). Note: if blank, always required.
D	Typical Deliverable — Purchaser to advise the short description of the information deliverable that would typically include this information requirement.
E	Submit At Proposal — 'Yes' or 'No', where 'Yes' means the information requirement is required to be submitted with the supplier's proposal or 'No' is not required.
F, G & H	First Issue Post Purchase Order — Issue purpose ('For Information' or 'For Acceptance'), time in weeks for issue of the information requirement and period defined after the purchase order placement. See the 'Instructions' sheet, Table 1 for full description of codes use in column H 'Period'.
I	Required As Built — Any information incorporating all changes that have been made to the procured equipment original information prior to the completion of the purchase order.
J	Fulfilled by Document Number(s) — Identifies which information requirement(s) listed in the supplier master information schedule (SMIS) addresses the purchaser's requirements. Note: It should be noted that one information deliverable can fulfil more than one information requirement.
K	Translation Required — 'Yes' or 'No', specifies if the information requirement shall be translated into another language additional to the main language specified in the purchase order.
L	Remarks — Additional information needed to clarify the information requirement.

Col A	Col B	Col C	Col D	Col E	Col F	Col G	Col H	Col I	Col J	Col K	Col L
Code	Requirement	Condition Invoking Requirement	Typical Deliverable	Submit At Proposal	First Issue Post Purchase Order			Required As Built	Fulfilled by Document Number(s)	Translation Required	Remarks
				(Yes/No)	Purpose	(Weeks)	(Period)	(Yes/No)			
Contract Management Information Deliverables											
S703-IR-1	Supplier master information schedule		Information deliverables list	No	For Acceptance		-	-		-	
S703-IR-45	Delivery schedule		Delivery/production schedule	Yes	For Information		-	-		-	
S703-IR-46	Progress report		Progress report	No	For Information		-	-		-	
S703-IR-4	Quality plan	Required for CAS A, CAS B	Quality plan	-	-		-	-		-	
S703-IR-6	Inspection and test plan		Inspection and test plan (ITP)	No	For Acceptance		-	-		-	
S703-IR-7	Handling, shipping, storage and preservation procedure		Handling, shipping and storage procedure	No	For Information		-	-		-	
S703-IR-8	Non-conformance records		Non-conformance records	No	For Acceptance		-	-		-	
S703-IR-9	Concession requests		Concession request	No	For Acceptance		-	-		-	
Technical Information Deliverables											
S703-IR-44	Equipment data sheet		Manufacturer data sheet	No	For Acceptance		-	-		-	
S703-IR-19	General arrangement drawing		General arrangement diagram	Yes	For Acceptance		-	-		-	Preliminary information with proposal

Figure D.1

Appendix E

Snapshot from IOGP S-703D "Procurement Data Sheet for Low-voltage Three-phase Cage Induction Motors (IEC)
For Single-speed Motor"

Row		IOGP S-703D (2.0) Procurement Data Sheet for Low-voltage Three-phase Cage Induction Motors (IEC) Single-speed Motor						Issue
2	Ref. Clause	Description	Purchaser requirement	Purchaser requirement UOM	Supplier offered value	Supplier offered UOM	Additional notes	
3		**Identifier**						
4		Tag number :	input data		input data			
5		Tag description :	input data		input data			
6		**General information**						
7		Conformity assessment system (CAS) level :	D		D			
8		Project country :	select A B C D		input data			
9		Project region :			input data			
10		Plant environmental location :			select			
11		Order status :			select			
12		Manufacturer :			input data			
13		Model number :			input data			
14		Number of poles :	select		select			
15	11.4.2.3.1	Frame size/designation :	input data		input data			
16		**Site conditions**						
17	6.1	Location environment :	select		select			
18	6.1,6.2	Altitude :	1 000 or below	m	1 000 or below	m		
19	6.1,6.3	Maximum ambient air temperature :	40	°C	40	°C		
20	6.1,6.4	Minimum ambient air temperature :	0	°C	0	°C		
21	6.1	Chemicals or corrosives :	input data		input data			
22	6.1	Unusual service conditions :	no		no			
23		**Motors rated for use in hazardous areas**						
24	11.4.10.1.1,11.4.10.1.2	Hazardous area zone classification :	select		select			
25	11.4.10.1.1,11.4.10.1.2	Hazardous area equipment certification :	select		select			
26	11.4.10.1.1,11.4.10.1.2	Temperature class :	select		select			
27	11.4.10.1.1,11.4.10.1.2	Gas/dust group :	select		select			
28	11.4.10.1.1,11.4.10.1.2	Equipment protection level (EPL) :	select		select			
29	11.4.10.1.1,11.4.10.1.2	Type of protection :	select		select			
30		Protection level of terminal box for Ex db motor :	Ex eb		Ex eb			
31		**Driven equipment interface**						
32	4.1,4.2.1,4.2.10,4.2.2,4.2.3,4.2.4,4.2.5,4.2.6,4.2.7,4.2.8,4.2.9,5.3	Duty type :	S1		S1			

Figure E.1