INTERNATIONAL STANDARD

ISO 3977-7

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Gas turbines — Procurement —

Part 7: Technical information

Turbines à gaz — Spécifications pour l'acquisition —

Partie 7: Informations techniques

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 3977 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 3977-7 was prepared by Technical Committee ISO/TC 192, *Gas turbines*.

ISO 3977 consists of the following parts, under the general title *Gas turbines — Procurement*:

— *Part 1: General introduction and definitions*

— *Part 2: Standard reference conditions and ratings*

— *Part 3: Design requirements*

— *Part 4: Fuels and environment*

— *Part 5: Applications for petroleum and natural gas industries*

— *Part 7: Technical information*

— *Part 8: Inspection, testing, installation and commissioning*

— *Part 9: Reliability, availability, maintainability and safety*

Annex A of this part of ISO 3977 is for information only.

Gas turbines — Procurement —

Part 7:
Technical information

1 Scope

This part of ISO 3977 specifies the information that needs to be submitted during the proposal and contract stages of a project for the entire scope of supply for which the packager will assume technical and contractual responsibility.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 3977. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 3977 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 3977-1:1997, *Gas turbines — Procurement — Part 1: General and definitions*

ISO 3977-3:2002, *Gas turbines — Procurement — Part 3: Design requirements*

ISO 3977-4:2002, *Gas turbines — Procurement — Part 4: Fuels and environment*

ISO 11086:1996, *Gas turbines — Vocabulary*

3 Terms and definitions

For the purposes of this part of ISO 3977, the terms and definitions given in ISO 3977-1, ISO 3977-3, ISO 3977-4 and ISO 11086 apply.

4 Packagers' data

4.1 General

Prior to issuing the enquiry specification, the purchaser shall complete data sheets (see examples in ISO 3977-3:2002, annex A) and Packager Documentation Requirements (see an example in annex A of this part of ISO 3977).

While the data sheets in ISO 3977-3 are intended to convey the scope during the procurement stage, the data sheets within the Packager Documentation Requirements may be used to increase the level of information needed by the purchaser.

The Packager Documentation Requirements complement the data sheets in ISO 3977-3 and define what other documentation the purchaser may require during the execution of the contract. They confirm whether the requested documents, drawings or data are for review or information.

The packager shall provide the purchaser with the required specified number of copies of the proposal to the address stated in the enquiry document.

NOTE 1 The exchange of documentation by EDI (Electronic Data Interchange) may be considered as an effective alternative means of transmitting data between contracting parties.

NOTE 2 Within annex A there is a 'Document Management Specification' which clearly states the purpose and type of information that the generic headings and document codes are attempting to define.

4.2 Site-specific conditions

4.2.1 General

The proposal shall contain, as a minimum, all the data identified as category 2 and located within the proposal column in the project specific Packager Documentation Requirements derived from annex A for the project. It shall also be in compliance with the enquiry specification.

The packager shall provide sufficient detail for the purchaser to evaluate the proposal. All deviations and exceptions to the specification shall be specifically identified.

4.2.2 Coordination

Coordination data exchanged between the packager and purchaser will typically include category 2 documents identified in the Packager Documentation Requirements.

4.2.3 Performance data

The purchaser shall specify to the packager the performance data needed for the specific application to be provided by identifying the document type and category code within the Packager Documentation Requirements example in annex A.

4.2.4 Technical requirements

The packager shall furnish the purchaser with all technical data in accordance with the project-specific Packager Documentation Requirements derived from the example in annex A.

4.3 Contract documentation

4.3.1 General

Documentation required to be submitted during the contract shall similarly be identified on the Packager Documentation Requirements example in annex A and developed and agreed by the packager and purchaser prior to contract award. Each drawing, document or data sheet shall at least have, in the lower right-hand corner, a title block, with date of certification/issue, revision number, date and title. In addition, the document code, sequence number and sheet number consistent with the Packager Documentation Requirements shall be included for cross reference to the Packagers' Data Schedule (see document code A001).

Document code A001 is a dynamic document which shall be updated at regular intervals during the contract and shall be provided for information. It shall be a comprehensive list of all documents to be submitted during the contract by the packager. This list shall contain fields of data containing titles, drawing numbers and a schedule for transmission of all the documents. The Packager Documentation Requirements shall indicate which document codes are for information or review.

4.3.2 Drawings

The drawing(s) furnished shall contain sufficient information so that, when combined with the manuals covered by document code H002 (and corresponding description of content in the Document Management Specification), the purchaser may properly install, operate and maintain the ordered equipment. Details identified on the Packager Documentation Requirements example in annex A shall be provided as a minimum.

4.3.3 Technical data

Data required to be contained within the manuals supplied by the packager shall be identified by the purchaser in the column marked 'O' on the Packager Documentation Requirements example in annex A. The purchaser shall assemble and compile the manuals accordingly.

4.3.4 Recommended spares

The packager shall, if specified, submit a supplementary list of spare parts other than those originally included on the Packager Documentation Requirements or the packager's original proposal.

4.3.5 Manuals

All manuals in category H002, and corresponding to the descriptions of content in the Document Management Specification, shall be provided with adequate written instructions and cross-referenced list of drawings to enable the purchaser correctly to install, operate and maintain all of the equipment ordered. This shall be compiled in a manual (or manuals) with index sheets containing section titles and cross-referenced drawings with at least titles and numbers. The manual shall be specific for the installation.

Annex A
(informative)

Typical Packager Documentation Requirements

A.1 Documentation requirements

Table A.1 is intended to form the basis from which the packager and purchaser agree acceptable Packager Documentation Requirements to satisfy the requirements for the project under consideration. The table has been broadly categorized to indicate generic types of documentation. The list is typical and is neither intended to be prescriptive in detail nor in content. It recognizes that particular needs may warrant additional categories of documentation within the specific generic headings and allows the purchaser to add these as required.

It should also be recognized that the documentation content, scope and format will vary depending on several important factors, such as

— the scope of the supply,

— contract specific engineering, and

— contractual relationships, etc.

Furthermore, it should be recognized that not all packagers will reproduce documentation with the same titles as those on the Packager Documentation Requirements. The Packager Documentation Requirements lists the INFORMATION to be supplied and the TYPICAL documentation that will convey this information.

The Packager Documentation Requirements also provide the purchaser with a generic method of identifying documentation that is critical to his plant. By eliminating the requirement for non-critical (non-value-added) documentation to be submitted, the packager and purchaser benefit by reducing incurred costs.

This annex does not attempt to address the procedural issues related to the submission of agreed documentation. It is assumed that this will be covered in the commercial documentation supporting the enquiry.

Table A.1 — Typical Packager Documentation Requirements

JOB No. _____ ITEM No. _____
P.O. No. _____ DATE _____
REQUISITION No. _____ DATE _____
INQUIRY No. _____ DATE _____
REVISION _____
UNIT _____
NOT REQUIRED _____

Documents required for:
P: Proposal
C: Contract
O: Operation

Document Types
Category 1 Documentation required to be recorded by the packager
Category 2 Documentation submitted to the purchaser for information
Category 3 Documentation submitted to the purchaser for review
Category 4 Documentation to be included in the manual (as build)
Category 5 Documentation to be used for certification

Doc. code	Required for			Description	Document types				
	P	C	O		1	2	3	4	5
A	**Procurement documents**								
A001				Packagers documentation schedule					
A002				Exceptions to contract documents					
A003				Schedule of subcontracters					
A004				Quality & Inspection plan					
A005				Contract execution schedule					
A006				Packagers requirements (e.g. fuel, water, air, etc.)					
A007				Catalogues and brochures					
B	**General arrangement (GA) and layout drawings**								
B001				Equipment general arrangement drawings					
B002				Panel and instrument layouts					
B003				Termination drawings (cable, wiring, nozzles, ducting, etc.)					
B004				Flange connection loads					
B005				Sub-assembly and cross-sectional drawings					
B006				Foundation details, loadings, support					
B007				Process & Instrument Diagrams (P&IDs) & Bill of Materials					
B008									
C	**Performance data & calculations**								
C001				Performance data (i.e. turbine, generator, compressor, pump, etc.)					
C002				Foundation support calculations					
C003				Critical speed (lateral & torsional) calculations					
C004				Auxiliary characteristics					
C005									
D	**Electrical & instrument diagrams**								
D001				Electrical connection diagrams					
D002				Electrical single line diagram					
D003				Electrical termination details					
D004				Cablelling and/or wiring schedule					
D005				Cause & effect charts					
D006				Instrument termination & hook-up details, (if applicable)					
D007				Functional and design specification					
D008				Logic diagrams (if applicable)					
D009									

Table A.1 *(continued)*

Doc. code	Required for			Description	Document types				
	P	C	O		1	2	3	4	5
E	**Certification data & test results**								
E001				Hydrostatic/Pneumatic test results					
E002				Weighing certificates					
E003				Statutory certification (pressure vessels, lifting equipment, etc.)					
E004				Nameplate markings (primary equipment, pressure vessels, etc.)					
E005				Vibration analysis data					
E006				Performance test reports/results					
E007				Inspection release certificate					
E008									
F	**Data sheets**								
F001				Gas turbine data sheets					
F002				Heat emissions					
F003				Utilities (electrical, air, fuel, cooling water, cleaning fluids, heating, ventilation, air conditioning, etc.)					
F004				Instrument data					
F005				Noise data					
F006				Weight data					
F007				Emissions (to atmosphere) data					
F008				Hazardous area equipment schedule					
F009				Equipment data sheets					
F010									
G	**Packaging, shipping, storage & preservation data**								
G001				Packing & shipping details					
G002				Storage & preservation details					
G003									
H	**Manuals**								
H001				Concessions granted post-purchase order					
H002				Technical manuals					
H003				Quality-related manual					
J	**Recommended spares lists**								
J001				Commissioning & start-up					
J002				Operating					
J003				Maintenance					
J004				Consumables					
J005				Special tools					
J006				Recommended 2 years operational spares					
J007									

A.2 Documentation philosophy

A.2.1 General

Generally only those documents that 'add value' should be submitted or provided to the purchaser. However, drawings, information and data are generated or collected by the packager for a variety of reasons which generally fall into five categories as follows.

A.2.2 Category 1: Documentation required to be recorded by the packager

This documentation is that which the packager collects during the contract to support the quality of the equipment produced, together with documents required for mandatory statutory or regulatory reasons.

The Packagers Quality Manual describes the management system and that documentation initiated by it. This compliance documentation is of little value to the purchaser after delivery and is therefore considered non-critical. However, the information should be retained by the packager for a duration of 10 years.

A.2.3 Category 2: Documentation submitted to the purchaser for information

Documentation in this category is intended to cover that which the purchaser requires for information and reference purposes only.

A.2.4 Category 3: Documentation submitted to the purchaser for review

Documentation in this category is defined as that minimum critical information that the purchaser needs to engineer, install, operate and maintain the plant.

It includes the essential interface information required by the operator, or his appointed nominee, to assist in the design process. The scope and extent of this documentation should be agreed between the packager and purchaser.

A.2.5 Category 4: Documentation to be included in the manual

Documentation in this category is intended to be included already in the manual.

A.2.6 Category 5: Documentation to be used for certification

Documentation in this category is already contained within category 1. In most circumstances a 'Certificate of Compliance' from the packager will suffice. However, it is also recognized that most packagers furnish a Quality Manual and/or Certification Data Dossier containing this information.

The packager and purchaser should jointly review the documentation requirements and submission schedule prior to contract using as a basis the afore-mentioned philosophy. The packager should confirm, by means of the Quality Plan (or similar) the total documentation generated for the contract.

A.3 Packager Documentation Requirements Specification

Table A.2 identifies what information may be required to be supplied for the generic information supplied under the specified document code. The final list should be agreed between the packager and purchaser.