

Supplementary Specification to ISO 15664 Noise Emitting Equipment

Revision history

VERSION	DATE	PURPOSE
1.0	June 2020	Issued for Use

Acknowledgements

This IOGP Specification was prepared by a Joint Industry Programme 33 Standardization of Equipment Specifications for Procurement organized by IOGP with support by the World Economic Forum (WEF).

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Foreword

This specification was prepared under Joint Industry Programme 33 (JIP33) "Standardization of Equipment Specifications for Procurement" organized by the International Oil & Gas Producers Association (IOGP) with the support from the World Economic Forum (WEF). Companies from the IOGP membership participated in developing this specification to leverage and improve industry level standardization globally in the oil and gas sector. The work has developed a minimized set of supplementary requirements for procurement, with life cycle cost in mind, resulting in a common and jointly agreed specification, building on recognized industry and international standards.

Recent trends in oil and gas projects have demonstrated substantial budget and schedule overruns. The Oil and Gas Community within the World Economic Forum (WEF) has implemented a Capital Project Complexity (CPC) initiative which seeks to drive a structural reduction in upstream project costs with a focus on industry-wide, non-competitive collaboration and standardization. The CPC vision is to standardize specifications for global procurement for equipment and packages. JIP33 provides the oil and gas sector with the opportunity to move from internally to externally focused standardization initiatives and provide step change benefits in the sector's capital projects performance.

This specification has been developed in consultation with a broad user and supplier base to realize benefits from standardization and achieve significant project and schedule cost reductions.

The JIP33 work groups performed their activities in accordance with IOGP's Competition Law Guidelines (November 2014).

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Introduction

The purpose of this specification is to define a minimum common set of requirements for noise emitting equipment in accordance with ISO 15664 First Edition, 2001 Acoustics — Noise control design procedures for open plant for application in the petroleum and natural gas industries.

This specification follows a common document structure comprising the four documents as shown below, which together with the purchase order define the overall technical specification for procurement.



JIP33 Specification for Procurement Documents Supplementary Technical Specification

This specification is to be applied in conjunction with the supporting data sheet, quality requirements specification (QRS) and information requirements specification (IRS) as follows.

IOGP S-717: Supplementary Specification to ISO 15664 Noise Emitting Equipment

This specification defines the technical requirements for the supply of the equipment and is written as an overlay to ISO 15664, following the ISO 15664 clause structure. Clauses from ISO 15664 not amended by this specification apply as written to the extent applicable to the scope of supply.

Modifications to ISO 15664 defined in this specification are identified as Add (add to clause or add new clause), Replace (part of or entire clause) or Delete.

IOGP S-717D: Data Sheet for Noise Emitting Equipment

The data sheet defines application specific requirements, attributes and options specified by the purchaser for the supply of equipment to the technical specification. The data sheet may also include fields for supplier provided information attributes subject to purchaser's technical evaluation. Additional purchaser supplied documents may also be incorporated or referenced in the data sheet to define scope and technical requirements for enquiry and purchase of the equipment.

IOGP S-717Q: Quality Requirements for Noise Emitting Equipment

The QRS defines quality management system requirements and the proposed extent of purchaser conformity assessment activities for the scope of supply. Purchaser conformity assessment activities are defined through the selection of one of four generic conformity assessment system (CAS) levels on the basis of evaluation of the associated service and supply chain risks. The applicable CAS level is specified by the purchaser in the package or equipment data sheet.

IOGP S-717L: Information Requirements for Noise Emitting Equipment

The IRS defines the information requirements, including contents, format, timing and purpose to be provided by the supplier. It may also define specific conditions which invoke information requirements.

The terminology used within this specification and the supporting data sheet, QRS and IRS follows that of ISO 15664 and is in accordance with ISO/IEC Directives, Part 2 as appropriate.

The data sheet and IRS are published as editable documents for the purchaser to specify application specific requirements. The supplementary specification and QRS are fixed documents.

The order of precedence (highest authority listed first) of the documents shall be:

- a) regulatory requirements;
- b) contract documentation (e.g. purchase order);
- c) purchaser defined requirements (data sheet, QRS, IRS);
- d) this specification;
- e) ISO 15664.

1 Scope

Add to section

Requirements for suppliers of noise emitting equipment, including testing and reporting of noise, are presented in Annex J.

2 Normative references

Add to section

ANSI S12.12, *Method for the Determination of Sound Power Levels of Noise Sources Using Sound Intensity*

ISO 3741, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Precision methods for reverberation test rooms*

ISO 3743 (all parts), *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure - Engineering methods for small, movable sources in reverberant fields*

ISO 3744, *Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Engineering methods for an essentially free field over a reflecting plane*

ISO 3745, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Precision methods for anechoic rooms and hemi-anechoic rooms*

ISO 3747, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Engineering/survey methods for use in situ in a reverberant environment*

ISO 7849-2, *Acoustics — Determination of airborne sound power levels emitted by machinery using vibration measurement — Part 2: Engineering method including determination of the adequate radiation factor*

ISO 9614 series, *Acoustics — Determination of sound power levels of noise sources using sound intensity*

ISO 11200 series, *Acoustics - Noise emitted by machinery and equipment - Guidelines for the use of basic standards for the determination of emission sound pressure levels at a work station and at other specified positions*

3 Terms and definitions

3.2 Terms specific to noise

Add new term

3.2.9

L_p

sound pressure level, reference 20 μ Pa, in dB

Add new term

3.2.10

L_w

sound power level, reference 1 pW, in dB

Add new term

3.2.11

L_{pC,peak}

peak C-weighted sound pressure level, reference 20 μ Pa, in dB

Add new annex

Annex J (normative) **Requirements on equipment suppliers for reporting and testing on noise**

J.1 Lower noise threshold

J.1.1

If the equipment sound pressure level exceeds the threshold stated in the data sheet, the requirements in this annex shall apply.

J.1.2

Non-compliance with the specified equipment sound pressure level shall be declared on the data sheet.

J.2 Noise limits

J.2.1

The equipment noise emission shall be inclusive of all noise sources included in the scope of supply.

J.2.2

The equipment noise emission shall be less than or equal to the noise limits.

J.2.3

If tonal noise penalty is specified, then a 5 dB penalty shall be applied to the equipment noise emission level.

J.3 Supplier noise data

J.3.1

The maximum noise emissions without noise control measures shall be stated in the proposal.

J.3.2

The maximum noise emissions with noise control measures shall be stated in the proposal.

J.3.3

Details of noise control measures shall be included in the proposal.

J.3.4

The method used to determine the equipment noise emissions shall be stated in the proposal.

J.3.5

Noise calculations or noise test reports used to predict the equipment noise emissions shall be included in the proposal.

J.4 Noise acceptance test

J.4.1

If specified, a noise acceptance test shall be performed.

J.4.2

Noise acceptance tests shall comply with ISO 3741, ISO 3743 (all parts), ISO 3744, ISO 3745, ISO 3747, ISO 7849-2, ISO 9614 series or ANSI S12.12.

J.4.3

The noise test standard shall be suitable for the acoustic environment of the test facility.

J.4.4

The measured noise level for specified noise limits shall be recorded in the noise acceptance test report.

J.4.5

Noise acceptance test reports shall state octave band noise data for measured and calculated noise emissions.

J.4.6

The noise acceptance test shall be conducted at the supplier's facilities.

J.4.7

If tonal noise penalty is specified, then the noise acceptance test shall assess tonal noise.

J.4.8

Using the constant level differences specified in Table J.1, tonal noise shall be assessed in accordance with ISO 1996-2 Annex K or ANSI 12.9 Part 4 Annex C.

Add new table

Table J.1 - Constant level difference

One-third-octave bands (Hz)	Constant level difference (dB)
25 to 125	15
160 to 400	8
500 to 10 000	5

J.4.9 Noise test procedure

J.4.9.1

The noise test procedure shall define the noise test standard.

J.4.9.2

The noise test procedure shall describe the test facility.

J.4.9.3

The noise test procedure shall detail the party conducting the noise acceptance test.

J.4.9.4

The noise test procedure shall detail the test operating conditions.

J.5 Noise control

Proposed noise control measures shall include inherently low noise design.

NOTE The control of noise emissions by means of interrupting the airborne noise path, e.g. noise enclosures, barriers and acoustic pipe insulation, is not considered inherently low noise design.

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