



Supplementary Specification to ISO 15664

Acoustics — Noise control design procedures for open plant

Public Review Draft



Revision history

VERSION	DATE	AMENDMENTS
0.1	September 2019	Issued for public review

Acknowledgements

This IOGP Specification was prepared by a Joint Industry Project 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 a 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 for projects 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 approved specification, building on recognized industry and/or 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, facilitating improved standardization of major projects across the globe. JIP33 provides the oil and gas sector with the opportunity to move from internally to externally focused standardisation 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 specification 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 JIP33 standardized procurement 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

It is required to use all of these documents in conjunction with each other when applying this specification, as follows:

S-717: Specification for Noise emitting equipment

This specification is written as an overlay to ISO 15664, following the clause structure of the parent standard, to assist in cross-referencing the requirements. Where clauses from the parent standard (ISO 15664) are not covered in this specification, there are no supplementary requirements or modifications to the respective clause. The terminology used within this specification follows that of the parent standard and otherwise is in accordance with ISO/IEC Directives, Part 2.

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

S-717D: Data Sheet for Noise emitting equipment

This document provides project specific requirements where this specification requires the purchaser to define an application specific requirement. It also includes information required by the purchaser for technical evaluation. Additional purchaser supplied documents are also listed in the datasheet, to define scope and technical requirements for enquiry and purchase of the equipment.

S-717L: Information requirements for Noise emitting equipment

This document defines the information requirements, including format, timing and purpose, for information to be provided by the vendor. It also defines the specific conditions which must be met for conditional information requirements to become mandatory. The information requirements listed in the IRS have references to the source of the requirement.

S-717Q: Quality requirements for Noise emitting equipment

This document includes a conformity assessment system (CAS) which specifies standardized user interventions against quality management activities at four different levels. The applicable CAS level is specified by the purchaser in the datasheet.

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

Unless defined otherwise in the purchase order, 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 (datasheet, IRS, QRS);
- d) this specification;
- e) the parent standard.

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 series	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 <i>in situ</i> 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 definition

3.2.9 L_p

Sound pressure level, ref. 20 μ Pa, in dB

Add new definition

3.2.10 L_w

Sound power level, ref. 1 pW, in dB

Add new definition

3.2.11 L_{pC,peak}

Peak C-weighted sound pressure level, ref. 20 μ Pa, in dB

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Annex J (normative)

Requirements on equipment suppliers for reporting and testing on noise

J.1 Lower noise threshold

J.1.1

If the equipment noise emission exceeds the lower threshold stated in the datasheet, the requirements in this annex shall apply.

J.1.2

Supplier shall indicate in the datasheet if the equipment noise emission exceeds the lower threshold.

J.2 Noise limits

J.2.1

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

J.2.2

The equipment noise emission shall be less than or equal to the maximum noise limits specified in the data sheet.

J.2.3

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

J.3 Supplier noise data

J.3.1

The supplier shall state in their proposal the maximum noise emissions without noise control measures.

J.3.2

The supplier shall state in their proposal the maximum noise emissions with noise control measures.

J.3.3

The supplier shall include in their proposal details of any noise control measures

J.3.4

Supplier shall state the method for determining the equipment noise emission in the proposal.

J.3.5

Noise calculations and noise tests used to determine the equipment noise emission shall be submitted with the supplier's proposal.

J.4 Noise acceptance test

J.4.1

If specified in the data sheet, a noise acceptance test shall be performed.

J.4.2

Equipment or package noise acceptance tests to determine conformance to the equipment noise emission limits 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

Noise test method shall be suitable for the environmental conditions in which the noise acceptance test will be performed.

J.4.4

Equipment or package noise acceptance tests to determine conformance to the operator, air intake and exhaust or outlet limits shall comply with ISO 3741, ISO 3743 (all parts), ISO 3744, ISO 3745, ISO 3747, ISO 7849, ISO 9614 series, ISO 11200 series or ANSI S12.12.

J.4.5

The noise acceptance test report shall include octave band noise data for measured and calculated sound pressure and sound power levels.

J.4.6

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

J.4.7

If the tonal noise penalty applies, the noise acceptance test shall include a tonal noise assessment as defined by ISO1996-2 Annex K.

J.5 Noise control

J.5.1

Noise emissions shall be controlled by selection of inherently low noise equipment.

NOTE Control of noise emissions by means of interrupting the airborne noise path, e.g. noise enclosures, is not considered inherently low noise design.

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