International Association of Oil & Gas Producers

SPECIFICATION

IOGP S-719

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Version 2.0

Supplementary Specification to NFPA 750 for Water Mist Fire Protection Systems

JIP33 JOINT INDUSTRY PROGRAMME

Revision history

VERSION	DATE	PURPOSE
2.0	January 2025	Second Edition
1.0	May 2020	First Edition

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).

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 2020).

This second edition cancels and replaces the first edition published in May 2020. Due to technical writing requirements leading to extensive changes, this second edition should be treated as a new document.

Table of contents

Introduction

The purpose of the IOGP S-719 specification documents is to define a minimum common set of requirements for the procurement of water mist fire protection systems in accordance with NFPA 750, 2023 Edition (effective date of 9th April 2022), Standard on Water Mist Fire Protection Systems, for application in the petroleum and natural gas industries.

The IOGP S-719 specification documents follow a common structure (as shown below) comprising a specification, also known as a technical requirements specification (TRS), a procurement data sheet (PDS), an information requirements specification (IRS) and a quality requirements specification (QRS). These four specification documents, together with the purchase order, define the overall technical specification for procurement.

JIP33 Specification for Procurement Documents
Supplementary Technical Requirements Specification (TRS)

This specification is to be applied in conjunction with the supporting PDS, IRS and QRS as follows.

IOGP S-719: Supplementary Specification to NFPA 750 for Water Mist Fire Protection Systems

This specification defines technical requirements for the supply of the equipment and is written as an overlay to NFPA 750, following the NFPA 750 clause structure. Clauses from NFPA 750 not amended by this specification apply as written. Modifications to NFPA 750 defined in this specification are introduced by a description that includes the type of modification (i.e. *Add*, *Replace* or *Delete*) and the position of the modification within the clause.

NOTE Lists, notes, tables, figures, equations, examples and warnings are not counted as paragraphs.

IOGP S-719D: Procurement Data Sheet for Water Mist Fire Protection Systems (NFPA)

The PDS defines application-specific requirements. The PDS is applied during the procurement cycle only and does not replace the equipment data sheet. The PDS may also include fields for supplier-provided information required as part of the purchaser's technical evaluation. Additional purchaser-supplied documents may also be incorporated or referenced in the PDS to define scope and technical requirements for enquiry and purchase of the equipment.

IOGP S-719L: Information Requirements for Water Mist Fire Protection Systems (NFPA)

The IRS defines information requirements for the scope of supply. The IRS includes information content, format, timing and purpose to be provided by the supplier, and may also define specific conditions that invoke the information requirements.

IOGP S-719Q: Quality Requirements for Water Mist Fire Protection Systems (NFPA)

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 PDS or in the purchase order.

The specification documents follow the editorial format of NFPA 750 and, where appropriate, the drafting principles and rules of ISO/IEC Directives Part 2.

The PDS and IRS are published as editable documents for the purchaser to specify application-specific requirements. The TRS and QRS are fixed documents.

The order of precedence of documents applicable to the supply of the equipment, with the highest authority listed first, shall be as follows:

a) regulatory requirements;

b) contract documentation (e.g. purchase order);

c) purchaser-defined requirements (e.g. PDS, IRS and QRS);

d) this specification;

e) NFPA 750.

Chapter 2 Referenced Publications

2.1 General.

Add to section

The following publications are referred to in this specification, the PDS (IOGP S-719D) or the IRS (IOGP S-719L) in such a way that some or all of their content constitutes requirements of these specification documents.

2.3 Other Publications.

2.3.5 ISO Publications.

Add to section

ISO 9809 (all parts), *Gas cylinders — Design, construction and testing of refillable seamless steel gas cylinders and tubes*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

2.3.9 Other Publications.

Add to section

EN 14972-1:2020, *Fixed firefighting systems - Water mist systems - Part 1: Design, installation, inspection and maintenance*

IEC 60079 (all parts), *Explosive atmospheres*

IOGP S-703, *Supplementary Specification to IEC 60034-1 Low Voltage Three Phase Cage Induction Motors*

IOGP S-705, *Supplementary Specification to API Recommended Practice 582 Welding Guidelines for Welding of Pressure Containing Equipment and Piping*

IOGP S-715, *Supplementary Specification to NORSOK M-501 Coating and Painting for Offshore, Marine, Coastal and Subsea Environments*

IOGP S-716, *Specification for Small Bore Tubing and Fittings*

IOGP S-718, *Specification for Basic Process Measurement Instruments*

IOGP S-733D, *Procurement Data Sheet for Low Voltage Motors (IEEE Std 841)*

Chapter 3 Definitions

3.3 General Definitions.

3.3.27 Water Mist System.

3.3.27.4
Local-Application Water Mist System.

Add new note 1 to entry

Note 1 to entry: For marine applications, local application systems as defined by MSC.1/Circ. 1387 are first response systems to provide time for the main system (total volume protection) discharge.

Add new term 3.3.29

3.3.29
Fire scenario-engineered solution.
A water mist system that can be used where international fire test protocols and listings do not exist.

Note 1 to entry: When accepted by the AHJ, water mist systems are developed in accordance with Annex C and have an accompanying DIOM manual. Fire scenario-engineered water mist systems can only be considered in the absence of international fire test protocols and listings. It is not intended that fire scenario-engineered water mist systems are offered as a workaround when the supplier does not have a listed product for an application. C.1 provides informative guidance on this subject which is unambiguous and universally accepted by the industry.

Chapter 5 Classification of Occupancies

5.2 Classification of Specific Applications for Water Mist Systems.

5.2.2

Add new list item (9)

(9) Oil and gas applications (see Chapter 17)

Chapter 6 System Components and Hardware

6.1 General.

Add new section

6.1.4 Water Mist Packages.

Water mist packages shall have a structural steel base frame with lifting lugs.

Chapter 9 Design Objectives and Fire Test Protocols

9.1 General.

Add new section

9.1.5 Fire Scenario-Engineered Solutions.

For systems that do not have a listing in accordance with 9.1.1, a fire scenario-engineered solution shall be developed in accordance with Chapter 18.

9.2 Listing Evaluations.

9.2.6 Design and Installation Manual.

Add new section

9.2.6.3

For fire scenario-engineered water mist systems, the DIOM manual shall identify the working limits and parameters of the system, the fire hazards and the range of compartment variables.

Chapter 12 Water Supplies and Atomizing Media

12.5 Water Supplies.

12.5.1 Water Quality.

12.5.1.2

Add to section

Where international requirements differ from 12.5.1.2 in areas where the U.S. Environmental Protection Agency does not have authority, local and international requirements shall be permitted subject to acceptance by the AHJ.

Add new chapter

Chapter 17 Water Mist Systems for the Oil and Gas Sector

17.1 General.

17.1.1

This chapter outlines the modifications and additions that are required for onshore, offshore and marine applications for use within the oil and gas and renewable energy industries; all other requirements of NFPA 750 apply except as modified by this chapter.

17.1.2

The water mist fire protection system shall meet the design intent to mitigate the fire risk.

17.1.3 DIOM Manual or Technical File.

The DIOM manual or technical file shall include the following:

(1) Details of engineered components that are not listed, such as nozzles

(2) Details of engineered components that are derived from a family or a series of components and that are listed

17.2 System Components and Hardware.

17.2.1 Efficacy and Reliability.

The efficacy and reliability of the water mist fire protection system shall be as follows:

(1) For offshore systems utilizing listed systems, compliant with 16.1.2.1 and 16.1.2.2

(2) For fire scenario-engineered solutions for marine/offshore and onshore applications, compliant with Chapter 18

Note: 17.2.1 provides evidence of traceability back to the identified listed components to give confidence in component quality and reliability.

17.2.2 Pump Redundancy.

17.2.2.1

For offshore applications, pump redundancy shall be in accordance with 16.1.6.

Note: For pumping system redundancy, the capacity is to be sufficient to compensate for the loss of any single supply pump.

17.2.2.2

Pump redundancy shall not be required for local application water mist systems that are not the primary means of fire protection.

17.2.3 Controls and Alarms.

17.2.3.1

For offshore applications, annunciation shall be in accordance with 16.1.7.2.

17.2.3.2

For offshore applications, the flow condition alarm shall be in accordance with 16.1.7.3.

17.2.3.3

For offshore applications, pressure monitoring shall be in accordance with 16.1.7.4.

17.3 Installation.

17.3.1 Protected Compartments Integrity.

17.3.1.1

For protected compartments and rooms, permitted openings shall be defined in the manufacturer's DIOM manual and water mist system approval report.

17.3.1.2

For protected compartments and rooms, the ventilation parameters shall be defined in the manufacturer's DIOM manual and water mist system approval report.

17.3.1.3

For protected spaces and objects, the water mist shall be supplied via sectional control valves.

17.3.2 Location of Water Mist Supply Components.

17.3.2.1

For offshore applications, the water mist supply components shall be located in accordance with 16.2.13.

Note: The location for water mist supply components is also known as the water mist pump room or water mist fire-fighting skid enclosure.

17.3.2.2

The location of water mist supply components shall be dry and free of condensate.

17.3.2.3

Enclosed fire-fighting skids shall have artificial and emergency lighting.

17.4 Flammable Liquids and Gases.

For offshore applications, total volume protection systems shall be in accordance with 16.3.

Note: Total volume protection is also known as total flooding or compartment protection.

17.5 Human Factors.

Human factors for water mist fire protection systems shall be in accordance with 16.4.

Add new chapter

Chapter 18 Fire Scenario-Engineered Solutions

18.1 General.

18.1.1

This chapter outlines the requirements for fire scenario-engineered water mist systems that can be used where international fire test protocols and listings do not exist; all other requirements of NFPA 750 and this standard apply except as modified by this chapter.

18.1.2

The fire scenario-engineered solution shall be approved by the AHJ for the defined application.

18.2 Purpose.

18.2.1

The fire scenario-engineered solution shall be collaboratively developed and agreed on a case-by-case basis.

18.2.2

The fire scenario-engineered solution shall use existing test results and knowledge to develop a solution to provide fire protection.

18.2.3

Unless the requirements of 18.2.2 are met, the fire scenario-engineered solution shall use fire testing conducted by an internationally recognized and accredited fire-testing laboratory.

18.2.4

To achieve the requirements of 18.2.3, fire testing for a fire scenario-engineered solution shall be based on the fire protection engineering evaluation of the fire hazard.

18.3 Fire Scenario-Engineered Solution Systems.

For fire scenario-engineered systems, evidence of the following shall be provided:

(1) Fire scenario-engineered solution (see this chapter)

(2) Fire test protocols (see 18.5)

(3) Component evaluation (see 18.4)

(4) Fire scenario-engineered test report (see 18.6)

18.4 Fire Scenario-Engineered Solution Components.

18.4.1

Components that are not listed in accordance with 6.1.1 shall be tested as part of the fire scenario-engineered solution.

18.4.2

For fire scenario-engineered systems, the following primary components shall be performance tested during the manufacturing process of the water mist fire protection system prior to factory acceptance testing (FAT):

(1) Nozzles

(2) Flexible hoses

(3) Gas and water containers

(4) Manifolds

(5) Pump systems

(6) Valves

18.4.3

Component testing for fire scenario-engineered solutions shall be in accordance with the pass/fail criteria of a recognized international procedure (e.g. FM Approvals Approval Standard for Water Mist Systems Class Number 5560 and MSC/Circ. 1165).

Note: MSC/Circ.1165 applies to nozzles only.

18.4.4

Fire scenario-engineered testing protocols shall be designed for the defined performance objectives of the application.

18.5 Fire Scenario-Engineered Solution Fire Test Protocols.

18.5.1

Fire scenario-engineered fire test protocols shall have a predefined pass/fail criteria.

18.5.2

For fire scenario-engineered solutions, fire test protocols shall be developed in accordance with Annex C.

18.5.3

Fire scenario-engineered solution fire testing shall be conducted by an ISO/IEC 17025 accredited laboratory in the presence of the third-party authorities.

18.6 Fire Scenario-Engineered Solution Test Report.

18.6.1

For fire scenario-engineered solutions, the fire test report shall contain the items listed in EN 14972-1:2020, A.8, a) to h).

18.6.2

The fire scenario-engineered test report shall be within or accompanying the DIOM manual.

Annex A Explanatory Material

A.4.1

Add new list item (10)

(10) Onshore, offshore and marine oil and gas applications such as turbine enclosures, reciprocating internal combustion engines, compressors, generators, pumps, transformers, machinery spaces, accommodation spaces, stores, galley ducts, deep fat fryers, cable rooms, switch gear rooms, control and server rooms, UPS/battery rooms, hydraulic power packs and process areas

Annex E Informational References

Add new section

E.4 Additional Informational References

The following documents are informatively cited in the text of this specification, NFPA 750, the PDS (IOGP S-719D) or the IRS (IOGP S-719L).

API Specification Q1, *Specification for Quality Management System Requirements for Manufacturing Organizations for the Petroleum and Natural Gas Industry*

API Specification Q2, *Specification for Quality Management System Requirements for Service Supply Organizations for the Petroleum and Natural Gas Industries*

IEC 61355 (all parts), *Classification and designation of documents for plants, systems and equipment*

EN 10204, *Metallic products - Types of inspection documents*

ISO 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country code*

ISO 9001, *Quality management systems — Requirements*

ISO 10005, *Quality management — Guidelines for quality plans*

ISO 10474, *Steel and steel products — Inspection documents*

ISO 11014, *Safety data sheet for chemical products — Content and order of sections*

IEC 60034-5, *Rotating electrical machines — Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP code) – Classification*

ISO/IEC 17000, *Conformity assessment — Vocabulary and general principles*

ISO/IEC Directives, Part 2, *Principles and rules for the structure and drafting of ISO and IEC documents*

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