International Association of Oil & Gas Producers

SPECIFICATION
S-707Q

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Quality requirements for Actuators for On-Off Valves

JIP33
JOINT INDUSTRY PROGRAMME

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).

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 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 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 quality requirements specification (QRS) is to define quality management requirements for the supply of actuators for on-off valves in accordance with ISO 12490 First Edition, 2011, Petroleum and natural gas industries - Mechanical integrity and sizing of actuators and mounting kits for pipeline valves for application in the petroleum and natural gas industries.

The QRS includes definition of a conformity assessment system (CAS) which specifies standardized customer interventions against quality management activities at four different levels. The applicable CAS level is specified by the customer in the equipment datasheet or purchase order.

This QRS shall be used in conjunction with the supplementary requirements specification IOGP S-707, the information requirements specification IOGP S-707L and the equipment datasheet IOGP S-707D which together comprise the full set of specification documents. The introduction section in the supplementary requirements specification provides further information on the purpose of each of these documents and the order of precedence for their use.

JIP33 Specification for Procurement Documents

Quality Requirements Specification

1 Scope

To specify quality management requirements for the supply of actuators for on-off valves to IOGP S-707, Supplementary Specification to ISO 12490 Actuators for On-off Valves including:

a) manufacturer quality management system requirements;

b) customer conformity assessment (surveillance and inspection) activities;

c) traceability requirements;

d) evidence of conformance;

e) factory acceptance.

2 Normative References

ISO 9001:2015	Quality management systems - Requirements
ISO 29001	Petroleum, petrochemical and natural gas industries - Sector-specific quality management systems - Requirements for product and service supply organizations
API Specification Q1	Specification for Quality Management System Requirements for Manufacturing Organizations for the Petroleum and Natural Gas Industry
ISO 12490:2011	Petroleum and natural gas industries - Mechanical integrity and sizing of actuators and mounting kits for pipeline valves
IOGP S-707	Supplementary Specification to ISO 12490 Actuators for On-Off Valves

3 Terms and Definitions

3.1 Conformity assessment

Demonstration that requirements relating to a product, process, system, person or body are fulfilled.

NOTE 1 Conformity assessment (or assessment) includes but is not limited to review, inspection, verification and validation activities.

NOTE 2 Assessment activities may be undertaken at a supplier/sub-supplier's premises, virtually by video link, desktop sharing, etc. or by review of information formally submitted for acceptance or for information.

3.2 Conformity assessment system (CAS)

System providing different levels of assessment of the supplier's control activities by the customer (second party) or independent body (third party) based on evaluation of the supplier's capability to conform to the product or service specification and obligatory requirements.

NOTE CAS A reflects the highest risk and associated extent of verification. CAS D is the lowest.

3.3 Conformity assessment - hold point

The point in the chain of activities beyond which an activity shall not proceed without the approval of the purchaser or purchaser's representative.

3.4 Conformity assessment - witness point

The point in the chain of activities that the supplier shall notify the purchaser or purchaser's representative before proceeding. The operation or process may proceed without witness if the purchaser does not attend after the agreed notice period.

3.5 Conformity assessment - surveillance

Observation, monitoring or review by the purchaser or purchaser's representative of an activity, operation, process, product or associated information.

3.6 Conformity assessment - review

Review of the supplier's information to verify conformance to requirements.

NOTE Information review requirements are managed on a surveillance basis and as such do not impose schedule constraints, unless specified as hold points in Annex A or as conditions specified in the associated IRS.

3.7 Critical

That deemed by the organization, product specification, or purchaser as mandatory, indispensable or essential, needed for a stated purpose or task, and requiring specific action.

4 Symbols and abbreviations

CAS Conformity assessment system

IRS Information requirements specification

QRS Quality requirements specification (this document)

5 Quality requirements

5.1 Quality management system

The supplier shall demonstrate that the quality management arrangements established for the supply of products and services conform to ISO 9001, ISO 29001, API Specification Q1 or an equivalent quality management system standard agreed with the purchaser.

5.2 Conformance assessment

5.2.1

Quality and inspection plans and test plans developed as outputs to operational planning and control for the products and services shall define the specific controls to be implemented by the supplier and when applicable, their sub-suppliers, to ensure conformance with the specified requirements.

5.2.2

Controls shall address both internally and externally sourced processes products and services.

5.2.3

Quality plans and inspection plans and test plans shall include provision for the customer conformity assessment system (CAS) as specified in the data sheet IOGP S-707D; see Annex A.

5.2.4

Supplier performance in meeting the requirements will be routinely assessed during execution of the scope and where appropriate, corrective action requested and conformity assessment activities increased or decreased consistent with criticality and risk.

NOTE 1 For industrial well proven solutions CAS level D is specified unless risk assessment indicates that a more stringent CAS level is required.

NOTE 2 Irrespective of conformity assessment requirements defined by the customer, either, by reference to standard or specification requirements or in the scope, the supplier remains responsible for operational planning and control and demonstration of the conformity of products and services with the requirements (see ISO 9001:2015, 8.1 and 8.2).

6 Traceability

Material certification and traceability shall be maintained in accordance with Annex B.

7 Control of nonconforming products and services

Nonconformance with specified requirements identified by or to supplier prior to or during the delivery of the products and services shall be corrected such that the specified requirements are satisfied or the purchaser's acceptance of the nonconformance agreed in accordance with purchase order conditions. See ISO 9001:2015, 8.2.3, 8.2.4, 8.5.6 and 8.7.

8 Evidence (records)

Plans, procedures, methods and resultant records shall be provided in accordance with the associated IRS.

Annex A
(normative)
Customer conformity assessment requirements

This annex defines four conformity assessment systems (CAS) or levels of customer assessment.

The supplier shall provide for the specified CAS when developing quality plans and inspection and test plans in accordance with Clause 5.

	PURCHASER ASSESSMENT ACTIVITIES	CAS			
		A	B	C	D
1	**Planning and control activities**				
1.1	Quality planning (ISO9001, API Q1, ISO 29001, 8.1 and ISO10005)	R	R		
1.2	Inspection and test planning (ISO 9001, API Q1, ISO 29001, 8.1 and ISO 10005)	H	H	R	R
1.3	Pre-Inspection/Pre-production planning	H	H	W	W
1.4	Review of deviations against PO and non-conformity process review	H	H	H	H
1.5	Calibration control and validity check for measuring instruments and equipment	R	R	R	
2	**Design and development activities**				
2.1	**Design and development**				
2.1.1	Orientation, accessibility and maintainability	H	H	R	R
2.1.2	Cross section drawings with bill of material	H	H	H	R
2.1.3	Calculations (Torque, blast, accumulator and SIL calculations)	H	H	H	R
2.1.4	Schematic review for pneumatic, hydraulic and electro-hydraulic actuators	H	H	H	R
2.2	**Type test validation / verification**				
2.2.1	Actuator & motor type test certificates	H	R	R	
2.2.2	Hazardous area classification test certificate for electric actuator, accessories such as solenoid valve, positioner, junction box, limit switches	R	R	R	R
2.2.3	Solenoid valve coil insulation type test certificate	H	R	R	
2.2.4	Spring qualification test and sample test on each production batch	R	R	R	
2.2.5	IP certificate for actuator and accessories	R	R	R	R
2.2.6	Fire proofing type test certificate	R	R	R	R
2.3	**Welding procedure qualification**	R	R	R	R
2.3.1	Procedure qualification for welding, including repair welding, of pressure-containing parts and attachment welding to pressure-containing parts to ISO 15607, ISO 15609 (all parts), ISO 15614-1 or ASME BPVC Section IX and 11.3, 11.4 of ISO 12490)	R	R		
2.3.2	Procedure qualification for welding, including repair welding, of structural welds, including mounting kit to ANSI/AWS D1.1 /D1.1M or equivalent (ISO 12490, 11.2)	R	R		
2.3.3	Non-destructive testing process and personnel qualification to ISO 9712, EN 473 or ASNT SNT-TC-1A Level II (ISO 12490, 12.3.1)	R	R		
2.3.4	Welder performance qualification (WPQ) (ISO 12490, 11.1, 11.2)	R	R		
3	**Control of external supply**				
3.1	External supply scope, risk assessment and controls (ISO 9001, 8.4)	R			
3.2	Nominated sub-suppliers list for accessories, accumulator, air receiver and pressure containing parts.	R	R	R	R
4	**Production and service provision**				

	PURCHASER ASSESSMENT ACTIVITIES	CAS			
		A	B	C	D
4.1	**Materials Verification**				
4.1.1	Material traceability for pressure-containing components, spring, spring canister as per ISO 10474 or EN 10204, 3.1 certificate (S-707, 10.1, 10.3.1,10.3.2, 10.3.3, 10.4)	R	R	R	
4.1.2	Bolting hardness test for pressure-containing, mechanically loaded parts and mounting kits as per EN 10204, 2.2 certificate, if applicable (ISO 12490, 10.5)	R	R	R	
4.1.3	Material traceability for mechanically loaded parts and components of mounting kits, EN 10204, 2.2 certificate (ISO 12490, 10.6)	R	R	R	
4.1.4	Material requirements for pressure-containing parts and bolts exposed to sour service to ISO 15156, all parts (if applicable) (ISO 12490, 10.7)	R	R	R	R
4.2	**Actuator factory acceptance test**				
4.2.1	Control panel testing for each type (prior to mass production) (S-707, 13.1 & 13.6)	H	H	W	W
4.2.2	Actuator testing (S-707, 13.1 to 13.6)	H	W	W	R
5	**Release of actuator from actuator supplier or actuator manufacturer works**				
5.1	**Verify conformance to PO including as applicable**				
5.1.1	Preparation for Handling, packing, preservation and storage for actuator only (S-707, 16) – Not applicable if PO for assembly is placed with valve manufacturer or integrator	W	W	W	W
5.1.2	Final documentation review for actuator only; as per IRS (S-707L) – Not applicable if PO for assembly is placed with valve manufacturer or integrator	H	H	H	R
5.1.3	Release equipment (actuator) – Not applicable if PO for assembly is placed valve manufacturer or integrator	H	H	H	H
6	**Valve and actuator integration monitoring and factory acceptance test**				
6.1	Monitor assembly, internal testing with actuator, valve, actuator control equipment and accessories for each tag (S-707, Table 10)	W	S	S	R
6.2	Factory acceptance test (S-707, Table 10), completeness against PO requirements, ITP and approved drawings	H	H	H	H
7	**Release of complete assembly from supplier**				
7.1	**Verify conformance to PO including as applicable**				
7.1.1	Preparation for Handling, packing, preservation and storage (S-707, 16)	W	W	W	W
7.1.2	Final documentation review; as per IRS (S-707L)	H	H	H	R
7.1.3	Release equipment	H	H	H	H

Annex B
(normative)
Material traceability and certification requirements

Item	Certificate type	Traceability level	Additional requirements
Material traceability for pressure containing components, spring and spring canister	3.1	Level II	
Bolting hardness test for pressure-containing, mechanically loaded parts and mounting kits	2.2	Level II	
Material traceability for mechanically loaded parts and components of mounting kits	2.2	Level II	
Material requirements for pressure-containing parts and bolts exposed to sour service to ISO 15156, all parts (if applicable)	3.1	Level II	

Explanatory notes:

Inspection Certificates shall be provided in accordance with ISO10474 or EN10204 as adopted below.

A. **"2.1" Declaration of Compliance with the PO** - A document in which the supplier declares that the products supplied are in compliance with the requirements of the PO, without inclusion of any test results.

B. **"2.2" Test Report** - A document in which the supplier declares that the products supplied are in compliance with the requirements of the PO, and in which test results are supplied based on non-specific inspection and testing.

C. "**3.1" Inspection Certificate** - A document with test results based on specific inspection and testing, issued by the supplier and validated by the supplier's authorised inspection representative independent of the manufacturing department.

D. **"3.2" Inspection Certificate** - A document prepared by both the supplier's authorised inspection representative, independent of the manufacturing department, and either the purchaser nominated representative or the inspector designated by the regulations in which they declare that the products supplied are in compliance with the requirements of the order and for which test results are supplied.

E. Additionally, the purchaser has specified that all material product testing associated with "3.2" Inspection Certificates shall be performed in the presence of either a purchaser nominated representative or the inspector designated by the regulations, and the resultant test report stamped as "Witnessed". Failure to adhere to this requirement may lead to rejection of all material(s) being qualified for production.

Traceability

F. **Level I - Full Traceability** - Material is uniquely identified and its history tracked from manufacture through stockists (where applicable) to the supplier and to actual position on the equipment with specific location defined on a material placement record (the traceability to a specific location only applies to skids / packaged equipment, not to bulks).

G. **Level II - Type Traceability** – the supplier maintains a system to identify material throughout manufacture, with traceability to a material certificate.

H. **Level III - Compliance Traceability** – the supplier maintains a system of traceability that enables a declaration of compliance to be issued by the manufacturer.

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