

# Quality Requirements for Control Valves

Public Review Draft

## Revision history

VERSION	DATE	PURPOSE
0.1	October 2021	Issued for Public Review

## 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).

## Disclaimer

Whilst every effort has been made to ensure the accuracy of the information contained in this publication, neither IOGP nor any of its Members past present or future warrants its accuracy or will, regardless of its or their negligence, assume liability for any foreseeable or unforeseeable use made thereof, which liability is hereby excluded. Consequently, such use is at the recipient's own risk on the basis that any use by the recipient constitutes agreement to the terms of this disclaimer. The recipient is obliged to inform any subsequent recipient of such terms.

Please note that this publication is provided for informational purposes and adoption of any of its recommendations is at the discretion of the user. Except as explicitly stated otherwise, this publication must not be considered as a substitute for government policies or decisions or reference to the relevant legislation relating to information contained in it.

Where the publication contains a statement that it is to be used as an industry standard, IOGP and its Members past, present, and future expressly disclaim all liability in respect of all claims, losses or damages arising from the use or application of the information contained in this publication in any industrial application.

Any reference to third party names is for appropriate acknowledgement of their ownership and does not constitute a sponsorship or endorsement.

## Copyright notice

The contents of these pages are © International Association of Oil & Gas Producers. Permission is given to reproduce this report in whole or in part provided (i) that the copyright of IOGP and (ii) the sources are acknowledged. All other rights are reserved. Any other use requires the prior written permission of IOGP.

These Terms and Conditions shall be governed by and construed in accordance with the laws of England and Wales. Disputes arising here from shall be exclusively subject to the jurisdiction of the courts of England and Wales.

## 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).

## Table of Contents

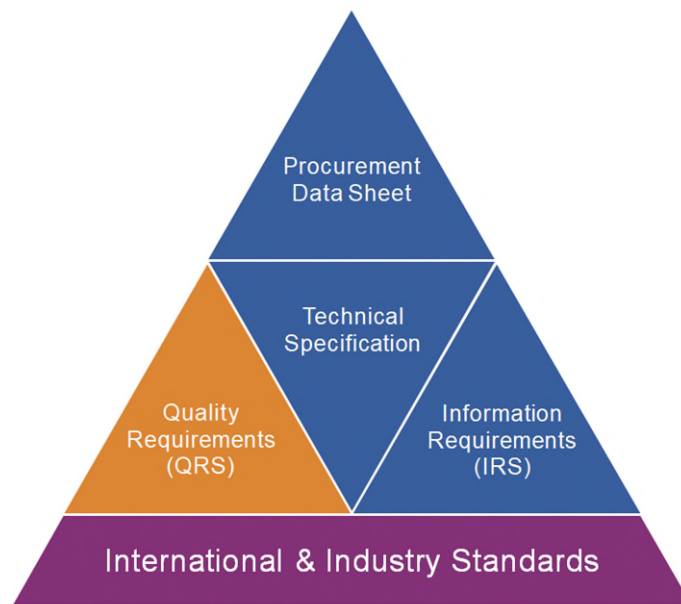
1	Scope .....	4
2	Normative references .....	4
3	Terms and definitions .....	4
4	Symbols and abbreviations .....	5
5	Quality requirements .....	5
	5.1 Quality management system.....	5
	5.2 Conformance assessment system (CAS) .....	5
6	Certification and traceability .....	6
7	Evidence — conformance records .....	6
	Annex A (normative) Purchaser conformity assessment requirements .....	7
	Annex B (normative) Certification traceability and requirements .....	9

## Introduction

The purpose of this quality requirements specification (QRS) is to specify quality management requirements and the proposed extent of purchaser intervention activities for the procurement of control valves in accordance with IOGP S-729 for application in the petroleum and natural gas industries.

Purchaser intervention activities are identified through the selection of one of four conformity assessment system (CAS) levels based on a risk and criticality assessment. The applicable CAS level is specified by the purchaser in the procurement data sheet or purchase order.

This QRS shall be used in conjunction with the specification (IOGP S-729), the procurement data sheet (IOGP S-729D) and the information requirements specification (IOGP S-729L) which together comprise the full set of specification documents. The introduction section in the 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 control valves to IOGP S-729 including:

- a) manufacturer quality management system requirements;
- b) purchaser conformity assessment (surveillance and inspection) activities;
- c) traceability requirements.

## 2 Normative references

For the purpose of this document, the documents referenced in IOGP S-729 and those listed below, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

IOGP S-729, *Specification for Control Valves*

ISO 9001, *Quality management systems — Requirements*

ISO 29001, *Petroleum, petrochemical and natural gas industries — Sector-specific quality management systems — Requirements for product and service supply organizations*

## 3 Terms and definitions

For the purpose of this document, the terms and definitions given in IOGP S-729 and ISO 9000 (normative to ISO 9001), and the following shall apply.

### 3.1

#### **conformity assessment**

demonstration that specified requirements are fulfilled

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

Note 2 to entry: Assessment activities may be undertaken at a manufacturer/sub-supplier premises, virtually by video link, desktop sharing, etc. or by review of information.

### 3.2

#### **conformity assessment system**

##### **CAS**

system that provides different levels of purchaser interventions to assess and verify manufacturer conformance to specified requirements

Note 1 to entry: CAS A applies to the highest risk and associated extent of verification. CAS D is the lowest.

### 3.3

#### **hold point**

##### **H**

<conformity assessment> point in the chain of activities beyond which an activity shall not proceed without the approval of the purchaser or purchaser representative

### 3.4

#### witness point

##### W

<conformity assessment> point in the chain of activities that the manufacturer shall notify the purchaser or purchaser representative before proceeding

Note 1 to entry: The operation or process may proceed without witness if the purchaser does not attend after the agreed notice period.

### 3.5

#### surveillance

##### S

<conformity assessment> observation, monitoring or review by the purchaser or purchaser representative of an activity, operation, process, product or associated information

### 3.6

#### review

##### R

<conformity assessment> review of the manufacturer's information to verify conformance to requirements

## 4 Symbols and abbreviations

For purposes of this document, the following symbols and abbreviations apply.

CAS	conformity assessment system
IRS	information requirements specification
QMS	quality management system
QRS	quality requirements specification (this document)

## 5 Quality requirements

### 5.1 Quality management system

The manufacturer shall operate and maintain a quality management system (QMS) that conforms with ISO 9001, ISO 29001, API Specification Q1 or an equivalent quality management system standard.

### 5.2 Conformance assessment system (CAS)

#### 5.2.1

The conformity assessment system (CAS) provides different levels of assessment of the manufacturer control activities. The CAS level is defined by the purchaser, using a risk-based approach, and included in the purchase order/contract. The defined CAS level may be adjusted by the purchaser during manufacture based on manufacturer performance and re-assessment of risk.

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

#### 5.2.2

Quality plans and inspection and test plans shall include provision for purchaser intervention activities based on the CAS level selected in the procurement data sheet or purchase order. See Annex A.

#### 5.2.3

Manufacturer performance in meeting the requirements may 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.

## **6 Certification and traceability**

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

## **7 Evidence — conformance records**

Documents and information shall be provided for in accordance with the associated IRS.

Public Review Draft



## Annex A (normative)

### Purchaser conformity assessment requirements

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

	PURCHASER ASSESSMENT ACTIVITIES	CAS			
		A	B	C	D
<b>1</b>	<b>Operational planning and control activities</b>				
1.1	Quality planning	H	H	-	-
1.2	Inspection and test planning (IOGP S-729, Clause 14, Table 13, Table 14, Table 15)	H	H	R	R
1.3	Pre-inspection/pre-production planning and review against compliance with purchase order (IOGP S-729, 1.1)	H	W	-	-
<b>2</b>	<b>Control of external supply</b>				
2.1	External supply scope, risk assessment and controls	H	W	-	-
2.2	Qualification and acceptance of body, bonnet and trim materials in accordance with IOGP S-563 MDSs for special materials including 22 Cr duplex, 25 Cr duplex, titanium, superaustenitic stainless steel materials, Ni-alloys (IOGP S-729, Table 5, Table 6, Table 8, Table 9)	H	H	R	R
<b>3</b>	<b>Production and service provision</b>				
3.1	Material verification				
3.1.1	Positive material identification (IOGP S-729, 14.1.8, Table 13)	H	W	R	R
3.2	Mandatory testing				
3.2.1	Visual inspection (IOGP S-729, 11.3.6, 12.3.3.3, 14.1.2, 16.1, 16.2, 16.3, 16.4, 16.5, 6.2.4, 6.2.5, 6.4, Table 13)	H	W	R	-
3.2.2	Dimensional check (IOGP S-729, 14.1.3, 6.2.4, 6.2.5, Table 13)	H	W	R	-
3.2.3	Hydrostatic test (IOGP S-729, 14.1.4.1, 14.1.4.3, 14.1.4.4, Table 13)	H	W	W	R
3.2.4	Seat leakage test (IOGP S-729, 14.1.5.1, 7.3.1, Table 13)	H	W	W	R
3.2.5	Packing test (IOGP S-729, 14.1.6, Table 13)	H	W	W	R
3.2.6	Functional test (IOGP S-729, 11.4.2, 11.5.3, 12.5.2, 12.7.1, 12.7.2, 14.1.7, Table 13)	H	W	W	R
3.3	Supplementary testing (if specified)				
3.3.1	Rated valve travel test (IOGP S-729, 14.2.1)	H	W	W	R
3.3.2	Fugitive emission production test (IOGP S-729, 14.2.2)	H	W	W	R
3.3.3	Flow capacity test (IOGP S-729, 14.2.3)	H	W	W	R

	PURCHASER ASSESSMENT ACTIVITIES <i>(continued)</i>	CAS			
		A	B	C	D
3.3.4	Flow characteristic test (IOGP S-729, 14.2.4)	H	W	W	R
3.3.5	Step response test (IOGP S-729, 13.2.4, 14.2.5)	H	W	W	R
3.3.6	Travel time test (IOGP S-729, 13.2.1, 13.2.2, 14.2.6, Table 13)	H	W	W	R
3.3.7	Low-temperature and cryogenic valves test				
3.3.7.1	Seat leakage test (IOGP S-729, 14.2.7.1, 7.3.1, Table 14)	H	W	W	R
3.3.7.2	Hydrostatic shell and body/bonnet/stem seal leakage test (IOGP S-729, 14.2.7.2, Table 15)	H	W	W	R
3.3.7.3	Functional test (IOGP S-729, 11.4.2, 11.5.3, 12.5.2, 12.7.1, 14.2.7.3.1, 14.2.7.3.2)	H	W	W	R
<b>4</b>	<b>Release of product or service</b>				
4.1	Preparation for handling, packing, preservation and storage (IOGP S-729, 17.2, 17.3, 17.4, 17.5)	H	W	-	-
4.2	Release of the item	H	H	H	H
<b>Key</b> H: Hold point W: Witness point R: Review S: Surveillance					

## Annex B (normative)

### Certification traceability and requirements

Item		Certificate type	Traceability level	Additional requirements
Valve component	Valve body, bonnet, end & bottom flange, bonnet bolting, stem and trim	3.1	Level II	
	Valve seats, retainers, seals, gaskets and packing assembly	2.2	Level III	
<p><b>NOTE 1 Certificates</b>            Inspection certificates shall be provided in accordance with ISO 10474 or EN 10204.</p> <p><b>NOTE 2 Traceability</b>            A. Level I — Full traceability — Material is uniquely identified and its history tracked from manufacture through stockists (where applicable) to the manufacturer 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).            B. Level II — Type traceability — The manufacturer maintains a system to identify material throughout manufacture, with traceability to a material certificate.            C. Level III — Compliance traceability — The manufacturer maintains a system of traceability that enables a declaration of compliance to be issued by the manufacturer.</p>				

**Registered Office**

City Tower  
Level 14  
40 Basinghall Street  
London EC2V 5DE  
United Kingdom  
T +44 (0)20 3763 9700  
reception@iogp.org

**Brussels Office**

Avenue de Tervuren 188A  
B-1150 Brussels  
Belgium  
T +32 (0)2 790 7762  
reception-europe@iogp.org

**Houston Office**

15377 Memorial Drive  
Suite 250  
Houston, TX 77079  
USA  
T +1 (713) 261 0411  
reception-americas@iogp.org

[www.iogp.org](http://www.iogp.org)

Draft