



International
Association
of Oil & Gas
Producers

SPECIFICATION
IOGP S-700Q

April 2024
Version 2.0

REDLINE

Version 2.0 to Version 1.0

Quality Requirements for Special-purpose Couplings (API)

Redline Version

Revision history

VERSION	DATE	PURPOSE
2.0	April 2024	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).

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).

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.

ABOUT THE REDLINE VERSION

This Redline version aims at comparing Version 2.0 to Version 1.0 (from Clause 1 onwards) but may not capture all changes.

The Redline version is not a specification document. It is a mark-up copy provided for information only. The user must refer to the official published version.

Table of contents

Foreword.....	1
Introduction	3
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 Conformity assessment system (CAS)	6
6 Certification and traceability	6
7 Evidence — conformance records	6
Annex A (normative) Purchaser conformity assessment requirements	7
Annex B (normative) Certification and traceability requirements	10

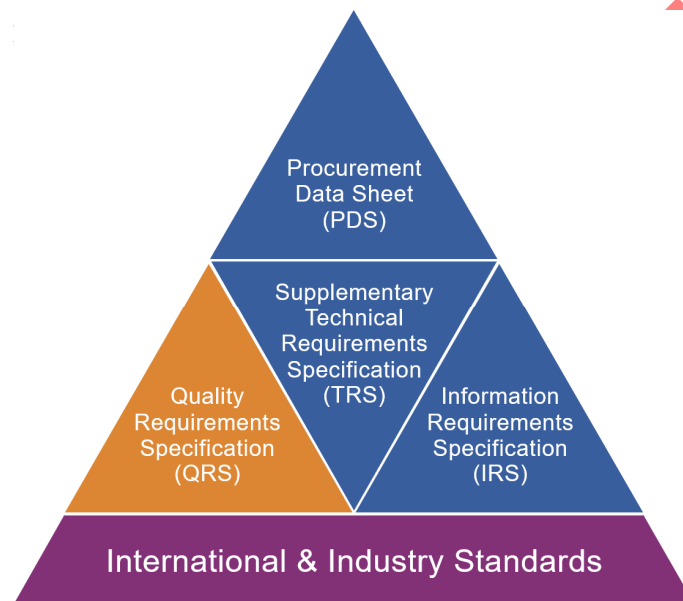
Redline Version

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 special-purpose couplings in accordance with IOGP S-700 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-700), the procurement data sheet (IOGP S-700D) and the information requirements specification (IOGP S-700L) 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 (QRS)**

1 Scope

To specify quality management requirements for the supply of [special-purpose couplings to IOGP S-700](#) ~~Supplementary Specification to API 671 Special Purpose Couplings for Petroleum, Chemical and Gas Industry Services~~ including:

- a) vendor quality management system requirements;
- b) purchaser conformity assessment (surveillance and inspection) activities;
- c) traceability requirements;
- ~~d) evidence of conformance.~~

2 Normative references

For the purpose of this document, the documents referenced in [IOGP S-700](#) 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.

~~ISO 9001, Quality management systems — Requirements~~

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

~~API Standard 671:2010, Special Purpose Couplings for Petroleum, Chemical and Gas Industry Services~~ [EN 10204, Metallic products — Types of inspection documents](#)

IOGP S-700, *Supplementary Specification to API [Standard 671 for Special-Purpose Couplings](#)*

[ISO 9001, Quality management systems — Requirements](#)

[ISO 10474, Steel and steel products — Inspection documents](#)

[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 ~~API Standard 671~~ [IOGP S-700](#) and ISO 9000 (normative to ISO 9001), and the following shall apply.

3.1

Conformity assessment

~~D~~emonstration that [specified](#) requirements ~~relating to a product, process, system, person or body~~ are fulfilled.

NOTE [Note 1 to entry](#): Conformity assessment (or ~~referred to as~~ assessment) includes but is not limited to review, inspection, verification and validation activities.

NOTE [Note 2 to entry](#): Assessment activities may be undertaken at a vendor/sub-vendor's premises, virtually by video link, desktop sharing, etc. or by review of information ~~formally submitted for acceptance or for information.~~

3.2

~~C~~conformity assessment system

~~(CAS)~~

~~Systems providing system that provides~~ different levels of ~~assessment of the vendor's control activities by the purchaser (second party) or independent body (third party) based on evaluation of the vendor's capability interventions to conform to the product or service specification~~ ~~assess~~ and ~~obligatory verify vendor conformance to specified~~ requirements.

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

3.3

~~Conformity assessment—Hold~~

~~hold point~~

~~H~~

~~<conformity assessment>~~ ~~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—Witness point~~

~~witness point~~

~~W~~

~~<conformity assessment >~~ ~~The~~ point in the chain of activities that the vendor shall notify the purchaser or purchaser's 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—Conformity—Surveillance~~

~~S~~

~~<conformity assessment >~~ ~~O~~bservation, monitoring or review by the purchaser or purchaser's representative of an activity, operation, process, product or associated information.

3.6

~~review—Conformity—Review~~

~~R~~

~~<conformity assessment >~~ ~~R~~review of the vendor'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.~~

4 Symbols and abbreviations

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

CAS ~~C~~conformity assessment system

IRS ~~I~~information requirements specification

QMS quality management system

QRS ~~Q~~quality requirements specification (this document)

5 Quality requirements

5.1 Quality management system

The vendor shall ~~demonstrate~~ operate and maintain a quality management system (QMS) that ~~the quality management arrangements established for the supply of products and services conform to~~ conforms with ISO 9001, ISO 29001, API Specification Q1 or an equivalent quality management system standard ~~agreed with the purchaser.~~

5.2 Conformity assessment system (CAS)

5.2.1

~~Quality plans and inspection and test plans developed as outputs to operational planning and control shall define the specific controls to be implemented by the vendor to ensure conformance with the specified requirements. The conformity assessment system (CAS) provides different levels of assessment of the vendor 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 vendor 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

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

5.2.3

Quality plans and inspection and test plans shall include provision for ~~the purchaser~~ conformity assessment system (intervention activities based on the CAS) as specified level selected in the procurement data sheet IOGP S-700D, or purchase order. See Annex A.

5.2.4

Vendor performance in meeting the requirements ~~will~~ 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.

NOTE 1 For industrial 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 purchaser, either, by reference to standard or specification requirements or in the scope, the vendor remains responsible for operational planning and control and demonstration of the conformity of products and services with the requirements. See ISO 9001, 8.1 and 8.2.

6 Certification and Traceability

Where material certification and traceability requirements are not specified in API Standard 671 or IOGP S-700, 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 the vendor 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, 8.2.3, 8.2.4, 8.5.6 and 8.7.~~

~~8~~ Evidence (— conformance records)

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

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
1	Planning Operational planning and control activities				
1.1	Quality planning (ISO 9001, 8 <u>(IOGP S-700, 12.1 and ISO 10005), 1</u>)	R <u>H</u>	R	R	-
1.2	Inspection and test plan (ISO 9001, 8.1 and ISO 10005)	H	H	W	R
1.3 <u>2</u>	Pre-Inspection/Pre <u>inspection and pre</u> -production planning <u>(IOGP S-700, 12.2.5)</u>	H	H	-	-
1.4	Pre-production start readiness review (IOGP S-700, 13.1.3)	H	H	-	-
2	Design and development activities				
2.1	Design and development planning				
2.1.1	Document <u>Design</u> review and design verification (IOGP S-700, 11. 2.5 , 11. 2.6 , 13.2.2.2 , 13.2.2.3 , 13.2.3.1 , 13.2.3.3)	H	W	W	WR
2.1.2	Fatigue analysis for applications where cyclic torques occur (IOGP S-700, 6.11, 7.3)	H	W	R	-
2.1.3	Potential unbalance calculations of complete coupling (IOGP S-700, 8.9.3, 13.2.1)	H	W	R	-
2.2	Manufacturing procedure qualification tests				
2.2.1	Non-destructive examination procedures are certified in accordance with the requirements of Article 1, Section V of ASME BPVC (IOGP S-700, 13.2.3.2)	H	W	R	
2.2.2	Personnel performing non-destructive examinations are qualified and certified in accordance with the requirements of Article 1, Section V of ASME BPVC	H	W	R	
3	Control of external supply				
3.1	External supply scope, risk assessment and controls (ISO 9001, 8.4 <u>(IOGP S-700, 12.2.3)</u>)	R <u>H</u>	R	R	-
4	Production and service provision				
4.1	Starting materials verification (surveillance against MPS)				
4.1.1	Material certification and traceability <u>inspection</u> (IOGP S-700, 11.5, 11.6 , 12.3.2 , 13.2.3.2)	W	W	R	-
4.1.2	Heat treatment records (IOGP S-700, 12.3.2, 13.2.3.2)	W	W	R	-
4.2	Component manufacture				
4.2.1	Component balance -balancing when Balancing Method 1 is selected in IOGP S-700D (IOGP S-700, 9.1, 9.2.1, 9. 2.2 , 9.3.5, 12.9.3.2 , 13.2.11.3.2 , 13.2 , 9.3.2)-11.6)	W	W	R	-
4.2.2	Non-destructive surface inspection of all metallic torque-transmitting components, bolts and other major parts (except diaphragms and discs) (IOGP S-700, 8.2 , 8.6.1.8 , 12.3.2, 12.3.4, 13.2 <u>12.3.25</u>)	W	W	R	-
4.2.3	Full non-destructive surface and sub-surface inspection of all welds after final treatment (IOGP S-700, 12.3.2, 12.3.5, 13.2.3.2)	W	W	R	-

4.3	Sub-assembly				
4.3.1	Assembly				
4.3.1.1	Assembly check balance verification when specified <u>Balancing Method 2 is selected</u> in IOGP S-700D (IOGP S-700, 9.1, 9.2.2, 9.3.3, 9.3.6, 12.9.3.2, 13.2.3.2) <u>9.1</u>)	W	W	R	-
4.3.1.2	Assembly balance verification when specified <u>Balancing Method 3 is selected</u> in IOGP S-700D (IOGP S-700, 9.1, 9.2.3, 9.3.3, 9.3.7, 12.3.2, 13.2.3.2)	W	W	R	-
4.3.1.3	Coupling residual unbalance verification <u>check</u> when specified in IOGP S-700D (IOGP S-700, 9.3.8, 12.1.9.3.8.2, 13K.4.1.1, K.4.2.3.2)	W	W	R	-
4.3.1.4	Coupling balance repeatability check when specified in IOGP S-700D (IOGP S-700, 9.3.9, 12.3.2, 13.2.3.2)	W	W	R	-
4.3.1.5	Component interchangeability test <u>check</u> when specified in IOGP S-700D (IOGP S-700, 9.3.10, 12.1.3, 12.3.2, 13.2.3.2)	W	W	R	-
4.3.2	Inspection and testing				
4.3.2.1	Coupling predicted <u>axial</u> natural frequency test <u>to verify the predicted ANF</u> when specified in IOGP S-700D (IOGP S-700, 12.4.1)	H	W	W	<u>WS</u>
4.3.2.2	Any other testing the vendor deems necessary to determine that equipment is satisfactory for the specified service and meets all purchaser requirements (IOGP S-700, 12.3.1)	W	W	R	-
4.3.2.32	Visual inspection (IOGP S-700, 12.6.17, 8.2, 8.5.2, 9.3.11.2, 9.4.1, 10.5, 11.2.3, 11.2.5, 11.2.6)	W	W	S	-
4.3.2.43	Dimensional inspection 11.5 b) 11.5 d) 11.6 b) 12.1.3 <u>including CMM taper bore dimensional verification</u> (IOGP S-700, 8.1.4, 8.5.1, 8.6.1.35, 8.6.1.48, 8.6.1.7, 8.6.1.9, 8.6.2.4, 8.6.2.4.2, 8.6.3.3, 8.10.1, 9.3.211.5, 11.2.5, 11.2.6, 12.1.3)	<u>H</u> W	W	R	-
4.3.2.54	Hub taper bore fit plug gauge blue check (IOGP S-700, 8.6.2.64)	H	W	R	-
4.3.2.65	Painting and coating inspection when painting/coating is specified in IOGP S-700D (IOGP S-700, 10.65, 12.5.1, <u>12.5.9</u>)	W	W	S	-
4.3.2.76	Plug-Ring and ring plug gauges hardness requirements <u>inspection</u> when tool a ring and plug gauges set is specified in IOGP S-700D (IOGP S-700, 11.2.5)	W	W	R	-
4.3.2.87	Plug-Ring and ring plug gauges roundness, surface finish and contact <u>inspections</u> when tool plug and ring gauges are specified in IOGP S-700D (IOGP S-700, 9.3.11.1, 9.3.11.6, 11.2.5)	W	W	R	-
4.3.2.98	Lapping tools hardness requirements <u>inspections</u> when tool lapping tools are specified in IOGP S-700D (IOGP S-700, 11.2.6)	W	W	S	-
4.3.2.109	Hydraulic pump <u>installation</u> and hose <u>removal tooling</u> pressure test when tool hydraulic tooling is specified in IOGP S-700D (IOGP S-700, 11.85)	R	R	R	-
4.3.2.110	Coupling <u>Inspection of the coupling</u> and tools (tooling markings as applicable) markings and, including any other markings specified in IOGP S-700D (IOGP S-700, 11.2.2, 11.2.5, 11.2.6, 12.1.5, 12.5.5, 12.5.6, 12.5.7, 12.5.8)	W	W	S	-
5	Release of product or service				
5.1	Verify <u>Verification of</u> conformance to the purchase order including as applicable				

5.1.1	Loose ship items, spares and special tools (as applicable) (IOGP S-700, 11.2, 13.1 , 11.2.3.6 , 12.1.1, 12.5.9)	W	W	R	-
5.1.2	Preservation (IOGP S-700, 11.5, 11.2.6 , 12.5.1, 12.5.4, 12.5.9)	W	W	R	-
5.1.3	Final documentation review; as per IRS (IOGP S-700L) (IOGP S-700, 13.2.3.2)	H	W	R	R
5.1.4 ₃	Release <u>of</u> equipment	H	H	H	H
<p>H is hold point, W is witness point, S is surveillance and R is review. NOTE Definitions for these terms are provided in Section 3.</p> <p>Key H: Hold point W: Witness point R: Review S: Surveillance</p>					

Redline Version

Annex B (normative) Certification and traceability requirements

Item		Certificate type	Traceability level	Additional requirements
Metallic Flexible Element Coupling	All torque transmitting components	3.1	Level II	
	Non-torque transmitting components	2.2	Level II	
	Special tools	2.2	Level II	

Explanatory notes

Inspection

NOTE 1 Certificates

[Inspection certificates](#) shall be provided in accordance with ISO 10474 or EN 10204.

NOTE 2 Traceability

A. Level I — Full Traceability — Material is uniquely identified and its history tracked from manufacture through stockists (where applicable) to the vendor 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 vendor maintains a system to identify material throughout manufacture, with traceability to a material certificate.

C. Level III — Compliance Traceability — The vendor maintains a system of traceability that enables a declaration of compliance to be issued by the vendor.

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

Division