



Exploration & Production

GENERAL SPECIFICATION

INSTRUMENTATION

GS EP INS 701

Technical Assessment of On-Off Actuators Manufacturers

00	01/2012	First issue
Rev.	Date	Notes

Owner: DEV/TEC	Managing entity: DEV/TEC/INS
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1. Scope

This General Specification defines Company practices and tools to use to perform technical assessment of On-Off Actuators Manufacturers.

2. Reference documents

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the EFFECTIVE DATE of the CONTRACT.

Standards

Reference	Title
Not applicable	

Professional Documents

Reference	Title
Not applicable	

Regulations

Reference	Title
Not applicable	

Codes

Reference	Title
Not applicable	

Other documents

Reference	Title
Not applicable	

**Total General Specifications**

Reference	Title
GS EP INS 137	On/off valve control panels and actuators functional and construction requirements
GS EP PVV 142	Valves

3. Technical assessment process of On-Off Actuators Manufacturers

The technical assessment process of an On-Off Actuators Manufacturer is part of the global assessment process of a Supplier, lead by the E&P Purchasing Division.

3.1 Step 1: Gathering of information

To start the technical assessment process, Appendix 1 of this document (Technical Information Analysis Form) shall be sent to the On-Off Actuators Manufacturer, by the Company.

The On-Off Actuators Manufacturer shall fill and send back this Form, to the Company, with all the others necessary documents requested.

3.2 Step 2: Data Analysis of Appendix 1 and following actions

After data analysis of Appendix 1, the INS discipline of E&P Technology Division, shall take a decision to proceed or not to the next step of the Manufacturer technical assessment process.

3.2.1 Case 1: Negative result given by the data analysis of Appendix 1

In case of negative result given by the data analysis of Appendix 1, the technical assessment process shall stop at this step. The technical assessment result of the Manufacturer is negative.

3.2.2 Case 2: Positive result given by the data Analysis of Appendix 1 - Audit of Manufacturer production site mandatory

Following positive result of Appendix 1 data analysis, an audit of the Manufacturer production site is deemed mandatory by the INS discipline of E&P Technology Division.

This audit shall be performed by the INS discipline of E&P Technology Division, or by its representative, and will give final result of the Manufacturer technical assessment.

3.2.3 Case 3: Positive result given by the data Analysis of Appendix 1 - Audit of Manufacturer production site not necessary

Following positive result of Appendix 1 data analysis, an audit of the Manufacturer production site, is not deemed necessary, by the INS discipline of E&P Technology Division, to complete the technical assessment process. The technical assessment result of the Manufacturer is positive.



3.3 Step 3: Assessment notification to the Manufacturer

The outcome of step 2 analysis (negative, positive...) is consolidated by the authorized Company entity, together with others parameters (financial, contractual and social responsibility, quality, HSE...) for final decision.

Then, the authorized Company entity will notify the Manufacturer of the outcome of global assessment.



Appendix 1 Technical Information Analysis Form: On-Off Actuators Manufacturer - EXCEL spreadsheet



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Appendix 1

	Technical Information Analysis Form : On-Off Actuators Manufacturer	GS EP INS 701 Appendix 1
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Quick guidelines to use this document : the objective of the following indications, are to the help user to fill the **Technical Information Analysis Form**.

This document has to be sent to the manufacturer to start technical assessment process before any survey at manufacturer location.
The manufacturer has to fill all information requested in all tables.

1) "Production Range" card :

On this card, the manufacturer has to indicate all its production ranges submitted for approval.

After technical assessment, Total or its representative, is able to indicate for which production ranges the manufacturer is finally approved.

2) "Theme I to Theme III" cards :

The manufacturer has to fill all tables of each cards, in order to have a better understanding of its production capacities.

After analysis of manufacturer answers, Total or its representative, can make comments, in blue column, for each manufacturer answers.

3) "Global Synthesis" cards :

On this card all general information (name, address, contact of manufacturer, date of audit, assessment report n°, Total specifications linked,...) written will be automatically pasted in all the others cards.

First section of this card has to be filled by the manufacturer by indicating general informations : name, address, contact, process concerned,...

The three others sections have to be filled by Total of its representative to summarize result and decision after analysis of the **Technical Information Analysis Form**.

In the last section, the signature of Total or its representative will be done, in order to validate the analysis result of this Form.



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	Technical Information Analysis Form : On-Off Actuators Manufacturer	GS EP INS 701 Appendix 1 Revision 00 Date : January 2012
According Total specifications : GS EP INS 137 & GS EP PVV 142		Assessment report N° : EP-TEC-INS-20xx-162-yy

MANUFACTURER								
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="background-color: #e0f0ff;">Manufacturer Name</th> </tr> <tr> <td style="text-align: center;">xxx</td> </tr> </table>	Manufacturer Name	xxx	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="background-color: #e0f0ff;">Activity and Process of Audited Workshop</th> </tr> <tr> <td style="text-align: center;">xxx</td> </tr> </table>	Activity and Process of Audited Workshop	xxx	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="background-color: #e0f0ff;">Audit Date</th> </tr> <tr> <td style="text-align: center;">xxx</td> </tr> </table>	Audit Date	xxx
Manufacturer Name								
xxx								
Activity and Process of Audited Workshop								
xxx								
Audit Date								
xxx								
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="background-color: #e0f0ff;">Manufacturer Head Office Address</th> </tr> <tr> <td style="text-align: center;">xxx</td> </tr> </table>	Manufacturer Head Office Address	xxx	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="background-color: #e0f0ff;">Manufacturer contacts (name, function, email, phone,...)</th> </tr> <tr> <td style="height: 100px;"></td> </tr> </table>		Manufacturer contacts (name, function, email, phone,...)			
Manufacturer Head Office Address								
xxx								
Manufacturer contacts (name, function, email, phone,...)								
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="background-color: #e0f0ff;">Name & Address of Audited Workshop</th> </tr> <tr> <td style="text-align: center;">xxx</td> </tr> </table>	Name & Address of Audited Workshop	xxx						
Name & Address of Audited Workshop								
xxx								

TOTAL OR REPRESENTATIVE COMPANY TEAM - TO BE FILLED BY TOTAL OR REPRESENTATIVE					
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="background-color: #e0f0ff;">Total Project Concerned</th> </tr> <tr> <td style="text-align: center;">xxx</td> </tr> </table>	Total Project Concerned	xxx	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="background-color: #e0f0ff;">Total or Representative Responsible for Technical Information Analysis (Name, Function, Service)</th> </tr> <tr> <td style="height: 50px;"></td> </tr> </table>	Total or Representative Responsible for Technical Information Analysis (Name, Function, Service)	
Total Project Concerned					
xxx					
Total or Representative Responsible for Technical Information Analysis (Name, Function, Service)					

Objectives of the Technical Information Analysis

TECHNICAL INFORMATION ANALYSIS / TECHNICAL ASSESSMENT RESULT (FOR THE PRODUCTION RANGE CONSIDERED) - TO BE FILLED BY TOTAL OR REPRESENTATIVE									
Result of Information Analysis of GS EP INS 701 - Appendix 1, filled by the Manufacturer									
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="background-color: #e0f0ff;">Yes / No</th> <th style="background-color: #e0f0ff;">Comments</th> </tr> <tr> <td style="text-align: center;">Level of information is appropriate</td> <td></td> </tr> <tr> <td style="text-align: center;">On site Audit Requested</td> <td></td> </tr> </table>	Yes / No	Comments	Level of information is appropriate		On site Audit Requested			
Yes / No	Comments								
Level of information is appropriate									
On site Audit Requested									
Result of Technical Assessment of Manufacturer (to be filled if on site audit is not deemed necessary)									
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="background-color: #e0f0ff;">Decision *</th> <th style="background-color: #e0f0ff;">Comments</th> </tr> <tr> <td style="background-color: #00ff00; text-align: center;">Satisfactory</td> <td></td> </tr> <tr> <td style="background-color: #ffff00; text-align: center;">Reserves to close to be satisfactory</td> <td></td> </tr> <tr> <td style="background-color: #ff0000; text-align: center;">Not satisfactory</td> <td></td> </tr> </table>	Decision *	Comments	Satisfactory		Reserves to close to be satisfactory		Not satisfactory	
Decision *	Comments								
Satisfactory									
Reserves to close to be satisfactory									
Not satisfactory									
Notes : * : Tip when appropriate									
CONCLUSIONS OF TECHNICAL INFORMATION ANALYSIS / GENERAL COMMENTS									

SIGNATURE OF TOTAL OR REPRESENTATIVE TEAM			
NAME	DATE	NAME	DATE



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MANUFACTURER		
Name & Address of Audited Workshop XXXX	Activity and Process of Audited Workshop XXXX	Audit Date XXXX

ACTUAL PRODUCTION RANGE / APPROVED PRODUCTION RANGE OF THE MANUFACTURER
<i>To list all the actual production ranges of the manufacturer and select and comment the approved ones.</i>

			To be completed by the Manufacturer			To be completed by Total or Company representative	
Type	Code	Designation as per GS EP INS 137	Max. units production/ year (pieces)	Capacity range *, product names/series, per control medium **		Approved capacity range *, product names/series, per control medium **, by this audit	
On-Off Actuators & Accessoires	1625-01 - On-Off Actuators						
	1625-01	Rotary Motion: Scotch Yoke		P		P	
				G		G	
				H		H	
				EH		EH	
				GOO		GOO	
	1625-01	Rotary Motion: Helical Spline		P		P	
				G		G	
				H		H	
				EH		EH	
				GOO		GOO	
	1625-01	Linear Motion: Piston		P		P	
				G		G	
				H		H	
				GOO		GOO	
	1625-01	Valve Control Panels & ass. Control Components		P	***	P	
				G	***	G	
				H	***	H	
				EH	***	EH	
				GOO	***	GOO	
	1626 - Special Actuators						
	1626	Submerged (In-Tank)		H		H	
	1626	Subsea		H		H	
	1627 - Motor Operated Actuators						
	1627	Linear Motion		E		E	
	1627	Rotary Motion		E		E	



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MANUFACTURER		
Name & Address of Audited Workshop XXXX	Activity and Process of Audited Workshop XXXX	Audit Date XXXX

ACTUAL PRODUCTION RANGE / APPROVED PRODUCTION RANGE OF THE MANUFACTURER
<i>To list all the actual production ranges of the manufacturer and select and comment the approved ones.</i>

			To be completed by the Manufacturer			To be completed by Total or Company representative	
Type	Code	Designation as per GS EP INS 137	Max. units production/ year (pieces)	Capacity range *, product names/series, per control medium **		Approved capacity range *, product names/series, per control medium **, by this audit	
Actuators for HIPS Valves and other SIL-Certified Valves	1628 - Actuators for HIPS Valves (and other Functional Safety SIL-Certified Valves)						
	1628	Rotary Motion		P		P	
		Scotch Yoke		H		H	
	1628	Rotary Motion		P		P	
		Helical Spline		H		H	
	1628	Linear Motion		P		P	
		Piston		H		H	
	1628	HIPS Valve Panels & ass. Control Components		P	***	P	
				H	***	H	

* Capacity range to indicate : Actuator torque range (Nm) and Testbench capability (Nm). *List all product names/series covered by this audit.*

** P = pneumatic, G = gas, E = electric, H = hydraulic, EH = electro-hydraulic, GOO = gas-over-oil

*** State either 'NO', 'IN-HOUSE' or 'SUB-SUPPLIER', further details to be completed as per dedicated sheets



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MANUFACTURER

Name & Address of Audited Workshop	Activity and Process of Audited Workshop	Audit Date
xxx	xxx	xxx

THEME I - GENERAL ORGANIZATION

All facilities described herein are meant to be permanent in-house facilities only. Any sub-contracted activity must be clearly indicated showing the names and addresses of related Subcontractors. The number, type and status of all listed equipment are subject to thorough checks by the COMPANY representative in charge of the Plant Survey during his visit of the facilities.

Table 1.1 - General Organization - Surface area (Plot plan to be joined if available)			
Zone	Surface area (m ²)	Description / Comments	Comments <i>To be filled by TOTAL or Company representative</i>
Overall			
Covered areas			
Offices			
Manufacturing workshops			
Actuators Assembling workshops			
Control panels fabrication workshops			
Laboratory			
Testing workshops			
Warehouses			

Table 1.2 - General Organization - Manufacturer Management : organization chart to join			
Position	Names	Comments	Comments <i>To be filled by TOTAL or Company representative</i>
Managing Director			
Sales Manager			
Plant Manager			
Production Manager			
Quality Assurance Manager			
Design/Engineering Manager			
Quality Control Manager			
Head of welding department			
HSE Manager			
Logistic Manager			
Functional Safety Manager			
External Funct. Saf. Cons.			
Others			



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Name & Address of Audited Workshop	Activity and Process of Audited Workshop	Audit Date
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THEME I - GENERAL ORGANIZATION

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Table 1.3 - General Organization - Personnel

Quality of Employees	Staff Quantity (manufacturer's personnel)	Contracted Personnel Quantity (personnel from external company which are working at the manufact.) *	Average years of service (staff)	Personnel qualification level (curriculum vitae)	Comments <i>To be filled by TOTAL or Company representative</i>
Commercial department					
Administration					
Project Management					
Engineering / R&D					
Production methodes office					
Procurement					
Expediting / Shipment					
Functional Safety Certified project engineers					
Functional Safety Certified shop personnel					
Fabrication : qualified welders					
Fabrication: machining					
Fabrication: assembling					
Fabrication: testing					
Fabrication: painting					
Fabrication: control panels					
Fabrication: HPUs					
Joining assembling of actuators and controls					
Quality Inspector (for testing : NDT, DT,...)					
Quality Inspector (on line)					
Quality for in-coming materials/parts					
Quality assurance					
Management					
Shop supervision					
Number of persons dedicated to customer site intervention					
Total number of Employees					

* state 'sub-supplier' when not performed in-house

Table 1.4 - General Organization - Communication With Customer / Working Documents Language

	Language used with customer : YES / NO ?	Which department team (engineering, commercial, production,...) and how many people are able to discuss in other language than mother tongue ?	Documents (testing procedures, drawing, control procedures,...) available in which language ?	Comments <i>To be filled by TOTAL or Company representative</i>
English				
French				
Others				



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MANUFACTURER

Name & Address of Audited Workshop	Activity and Process of Audited Workshop	Audit Date
xxx	xxx	xxx

THEME I - GENERAL ORGANIZATION

All facilities described herein are meant to be permanent in-house facilities only. Any sub-contracted activity must be clearly indicated showing the names and addresses of related Subcontractors. The number, type and status of all listed equipment are subject to thorough checks by the COMPANY representative in charge of the Plant Survey during his visit of the facilities.

Table 1.5 - General Organization - Work Load Status

Items to check	Comments / Description	Comments <i>To be filled by TOTAL or Company representative</i>
Ownership		
Annual turnover in M\$ or M€ (3 previous year)		
Men hour capacity		
Work shift : normal, 2x8, 3x8		
Present and future work load (%)		
Future investment (tools, building, human resources,...)		

Table 1.6 - General Organization - References on similar jobs

Year built	Customer	Country of installation	Valve service	Local environm.	Quantity of actuators	SIL level or HIPS ?	Type of actuators	Capacity range (Nm)	Comments <i>To be filled by TOTAL or Company representative</i>

Type of licences or patents	Description / Comments	Comments <i>To be filled by TOTAL or Company representative</i>



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MANUFACTURER

Name & Address of Audited Workshop	Activity and Process of Audited Workshop	Audit Date
xxx	xxx	xxx

THEME I - GENERAL ORGANIZATION

All facilities described herein are meant to be permanent in-house facilities only. Any sub-contracted activity must be clearly indicated showing the names and addresses of related Subcontractors. The number, type and status of all listed equipment are subject to thorough checks by the COMPANY representative in charge of the Plant Survey during his visit of the facilities.

Table 1.7 - General Organization - List of documents to be send by the Manufacturer, to Total, in English language, with all Tables filled out, before on-site technical review			
List of documents (refer to GS EP INS 137 and GS EP PVV 142)	Documents received : YES / NO ?	Documents available in English language : YES / NO ?	Comments <i>To be filled by TOTAL or Company representative, incl. conformity/deviations from GS referential</i>
Plot plan, layout of the plant			
General organization chart			
Quality Control Organization Chart			
Process flow chart			
Manufacturing procedures			
Assembling procedures			
Catalogues for all actuators & accessoir.			
Catalogues for valve control panels			
Detail specs: pneumatic actuators	*		
Detail specs: gas actuators	*		
Detail specs: electric actuators	*		
Detail specs: hydraulic actuators	*		
Detail specs: electro-hydraulic actuators	*		
Detail specs: gas-over-oil actuators	*		
Detail specs: HIPS actuators	*		
Detail specs: HPUs	*		
Detail specs: valve control panels	*		
3rd party actuator SIL certificates			
Testing procedure: hydrostatic press. test			
Testing procedure: dimensional test			
Testing procedure: functional test			
Testing procedure: torque test			
Repairing procedures : welding, ...			
Control procedures : DT, NDT, ...			
Painting & preparation procedures			
Packaging and preservation procedures			
Non-conformities management procedures			
In-coming material inspection procedures			
Sub-supplier evaluation, follow-up and audit procedures			
Quality manual			
ISO, API, ATEX certificates, others,....			
IMO approval certificates (BV, DNV, etc)			
HSE policy			
Example of manufacturer's documents retranscribing the client's requirements			
Example of audit report : audit made by customer manufacturer or audit made by manufacturer on its sub-suppliers			
* Example equipment drawings with BOM, for each product family/series concerned			



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MANUFACTURER

Name & Address of Audited Workshop	Activity and Process of Audited Workshop	Audit Date
XXX	XXX	XXX

THEME II - ENGINEERING

All facilities described herein are meant to be permanent in-house facilities only. Any sub-contracted activity must be clearly indicated showing the names and addresses of related Subcontractors. The number, type and status of all listed equipment are subject to thorough checks by the COMPANY representative in charge of the Plant Survey during his visit of the facilities.

Table 2.1 - Engineering / Design Capacity - Sub-contracting or Sub-supplier				
	Yes / No	Sub-contractor name (external company which are working for the manufacturer, but outside the manufacturer)	Facilities of the sub-contractor (hardware, software, human resources,...)	Comments <i>To be filled by TOTAL or Company representative</i>
Design				
Drawing				
Calculation				
Functional Safety Items				

Table 2.2 - Engineering / Design Capacity - Construction codes used, availability and updating of codes and standards			
Code	Date of Revision	Description / Comments	Comments <i>To be filled by TOTAL or Company representative</i>
GS EP INS 101			
GS EP INS 102			
GS EP INS 107			
GS EP INS 137			
GS EP INS 146			
GS EP INS 900			
GS EP COR 350			
GS EP COR 354			
GS EP PVV 142			
GS EP PVV 211			
GS EP PVV 920			
ASME VIII			
Other press. design codes			
IEC 60079			
IEC 60529			
IEC 61508 (FS case only)			
IEC 61511 (FS case only)			
EIREDA (FS case only)			
OREDA (FS case only)			
API RP 14C			
API RP 552			
Others (manuf. to complete)			



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MANUFACTURER

Name & Address of Audited Workshop	Activity and Process of Audited Workshop	Audit Date
XXX	XXX	XXX

THEME II - ENGINEERING

All facilities described herein are meant to be permanent in-house facilities only. Any sub-contracted activity must be clearly indicated showing the names and addresses of related Subcontractors. The number, type and status of all listed equipment are subject to thorough checks by the COMPANY representative in charge of the Plant Survey during his visit of the facilities.

Table 2.3 - Engineering / Design Capacity - Calculation Facilities (Softwares for design calculation : finite element, thermal, flow, stress, hydrostatic, others...)				
Type of Design	Design Codes	Computer Programs	Sub-contracted (if any)	Comments <i>To be filled by TOTAL or Company representative</i>
SIL calculations				
SIL demonstration				
Reliability data				
Others (<i>manuf. to complete</i>)				

Table 2.4 - Engineering / Design Capacity - Drawing Facilities					
Number of CAD Work Stations	Computer Program Names	Number / Quantity of permanent Staff	Staff Qualifications	Sub-contracted (if any)	Comments <i>To be filled by TOTAL or Company representative</i>

Number of Drawing Boards	Number of Permanent Staff	Staff Qualifications	Sub-contracted (if any)	Comments	Comments <i>To be filled by TOTAL or Company representative</i>



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MANUFACTURER		
Name & Address of Audited Workshop XXX	Activity and Process of Audited Workshop XXX	Audit Date XXX

THEME III - MANUFACTURING

All facilities described herein are meant to be permanent in-house facilities only. Any sub-contracted activity must be clearly indicated showing the names and addresses of related Subcontractors. The number, type and status of all listed equipment are subject to thorough checks by the COMPANY representative in charge of the Plant Survey during his visit of the facilities.

Table 3.1 - Workshop General Organization : Manufacturing, assembling and testing locations					
Activity	Sub-contracted outside manufact. workshop : YES / NO / PARTIAL (complete table 3.12)	Name of plant and/or Sub-contractor (list all possible plants for each product series and components separately)	Address of plant and/or Sub-contractor	Comments	Comments To be filled by TOTAL or Company representative
Casting		see table 3.2			
Forging		see table 3.3			
Welding					
Machining					
Mat. inspection					
Mat. testing					
Lining/Coating					
Funct. testing					
Assembling					
Painting					
P/G VCP manufacturing					
H VCP manufacturing					
E control unit manufacturing					
EH VCP manufacturing					
GOO VCP manufacturing					
HPU manufacturing					
Accumulator manufacturing					
Others					

P = pneumatic, G = gas, E = electric, H = hydraulic, EH = electro-hydraulic, GOO = gas-over-oil, VCP = valve control panel, HPU = hydraulic power unit

Table 3.2 - Casting plants list and description			
Casting plant name	Casting plant address	Component description	Comments To be filled by TOTAL or Company representative

Table 3.3 - Forging plants list and description			
Forging plant name	Forging plant address	Component description	Comments To be filled by TOTAL or Company representative



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MANUFACTURER		
Name & Address of Audited Workshop XXX	Activity and Process of Audited Workshop XXX	Audit Date XXX

THEME III - MANUFACTURING
<i>All facilities described herein are meant to be permanent in-house facilities only. Any sub-contracted activity must be clearly indicated showing the names and addresses of related Subcontractors. The number, type and status of all listed equipment are subject to thorough checks by the COMPANY representative in charge of the Plant Survey during his visit of the facilities.</i>

Table 3.4.a - Welding - Description of Welding Process in Place (permanent process only)								
Welding Process	Manual	Automatic	ASME P-number	Impact Test	ASME IX	ISO 15614	Other standard	Comments <i>To be filled by TOTAL or Company representative</i>
SMAW								
SAW								
GMAW								
GTAW								
FCAW								
Weld Overlay Processes								

Table 3.4.b - Welding - Description of Qualified Welding Procedures in Place (by approximate numbers)								
Welding Process	Manual	Automatic	ASME P-number	Impact Test	ASME IX	ISO 15614	Other standard	Comments <i>To be filled by TOTAL or Company representative</i>
SMAW								
SAW								
GMAW								
GTAW								
FCAW								
Weld Overlay Processes								

Table 3.4.c - Welding - Description of Welding Staff : numbers of welders qualified per welding process and material grade							
Welding Process	ASME IX	EN 287	Carbon Steel P1	Stainless steel P8	Other standard	Other standard	Comments <i>To be filled by TOTAL or Company representative</i>
SMAW							
SAW							
GMAW							
GTAW							
FCAW							
Others							

Table 3.4.d - Welding - Description of Welding Staff : number and qualifications (to be joined)				
	Number	Type of Qualification	Comments	Comments <i>To be filled by TOTAL or Company representative</i>
Welding Engineer				
Welding Supervisor				



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THEME III - MANUFACTURING

All facilities described herein are meant to be permanent in-house facilities only. Any sub-contracted activity must be clearly indicated showing the names and addresses of related Subcontractors. The number, type and status of all listed equipment are subject to thorough checks by the COMPANY representative in charge of the Plant Survey during his visit of the facilities.

Table 3.5.a - Machining - Description of Equipment in Place

Equipment	Type / Number	Max. Capacity	General maintenance condition	Comments	Comments <i>To be filled by TOTAL or Company representative</i>
Boring Mills					
Milling					
Lathes					
Drilling machines					
Lapping machines					
Others					

Table 3.6.a - Assembling of Actuators - Description of Equipment in Place

Equipment	Type / Number	Max. Capacity	General maintenance condition	Description / Comments	Comments <i>To be filled by TOTAL or</i>
Handling					
Pneumatic screwing					
Dynamometric keys					
Working desks					
Others					

Table 3.7.a - Fabrication of Valve Control Panels - Description of Equipment in Place

Equipment	Type / Number	Max. Capacity	General maintenance condition	Description / Comments	Comments <i>To be filled by TOTAL or</i>
Handling					
Pneumatic screwing					
Dynamometric keys					
Working desks					
Others					



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THEME III - MANUFACTURING

All facilities described herein are meant to be permanent in-house facilities only. Any sub-contracted activity must be clearly indicated showing the names and addresses of related Subcontractors. The number, type and status of all listed equipment are subject to thorough checks by the COMPANY representative in charge of the Plant Survey during his visit of the facilities.

Table 3.8.a - Fabrication of Springs - Description of Equipment in Place

Equipment	Type / Number	Max. Capacity	General maintenance condition	Description / Comments	Comments <i>To be filled by TOTAL or Company representative</i>

Table 3.9.a - Fabrication of Accumulators (P, G & H) - Description of Equipment in Place

Equipment	Type / Number	Max. Capacity	General maintenance condition	Description / Comments	Comments <i>To be filled by TOTAL or Company representative</i>

Table 3.10.a - Product Testing & Inspection - Description of Equipment in Place

Test type	Test sub-contracted outside manufact. workshop : YES / NO / PARTIAL	Fluid Medium	Range	Max Pressure (bars) or Torque (Nm)	Quantity of actuators tested by hour per bench	Water supply with a controlled chloride content ? <i>If yes, indicate the maximum chloride content</i>	Number of test bench	Comments / Description (% of sub-contracted tests, test description,...)
Hydrostatic pressure test actuators								
Hydrostatic pressure test accumulators								
Dimensional Test								
Functional Test (inc VCP)								
Torque Test								
VCP Test								
HPU Test								
GOO Test								
Others								

VCP = valve control panel, HPU = hydraulic power unit



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THEME III - MANUFACTURING
<i>All facilities described herein are meant to be permanent in-house facilities only. Any sub-contracted activity must be clearly indicated showing the names and addresses of related Subcontractors. The number, type and status of all listed equipment are subject to thorough checks by the COMPANY representative in charge of the Plant Survey during his visit of the facilities.</i>

Table 3.11 - Painting / Coating - Description of Equipment in Place					
	Type	Description	Max Capacity	Description / Comments	Comments <i>To be filled by TOTAL or Company representative</i>
Manual shot-blasting					
Automatic shot-blasting					
Painting inside workshop					
Painting outside workshop					
Coating of components					
Others					

Table 3.12 - Sub-contracting : List of sub-contracted manufacturing operations					
Manufacturing Operations	Sub-contractor (name, address,...)	Under which conditions : thickness range, material grade, diameter, weight, ... (for which reasons) ?	% of sub- contracting	Comments (follow-up, supervision, proximity of workshop...)	Comments <i>To be filled by TOTAL or Company representative</i>
Casting	see table 3.2				
Forging	see table 3.3				
Welding and/or repairs					
Machining					
Surface lining/coating					
Assembling of actuators					
Fabrication of valve control panels					
Springs fabrication	see table 4.4				
Accumulators (P, G & H) fabrication	see table 4.4				
Painting					



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MANUFACTURER		
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THEME IV - PRODUCTS MANAGEMENT (CONTROL, TESTING, INSPECTION, STORAGE)

All facilities described herein are meant to be permanent in-house facilities only. Any sub-contracted activity must be clearly indicated showing the names and addresses of related Subcontractors. The number, type and status of all listed equipment are subject to thorough checks by the COMPANY representative in charge of the Plant Survey during his visit of the facilities.

Table 4.1.a - In-coming Material Management - Material Storage			
Type of Storage	Dimension	Comments / Description (material stored,...)	Comments <i>To be filled by TOTAL or Company representative</i>
Covered storage yard			
Open storage yard			
Warehouse			

Table 4.1.b - In-coming Material Management - Storage Conditions		
Storage Conditions for :	Description / Comments	Comments <i>To be filled by TOTAL or Company representative</i>
Small material		
Fragile material		
Welding consumables		
Dye penetrant products		
Gaskets		
Actuators		
Control panels		
Others		

Table 4.2.a - Inspection, Testing and Quality Control - Quality Control (Inspection) Organisation (attach an organization chart)					
Function or Qualification	Staff (number/quantity of people)	Contracted (number/quantity of people)	Qualification level	Qualification referential	Comments <i>To be filled by TOTAL or Company representative</i>
QC Manager					
Workshop inspector					
Radiographic Inspector					
Radiographic Operator					
UT Inspector					
MPI Inspector					
DP Inspector					
Others					



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MANUFACTURER		
Name & Address of Audited Workshop XXX	Activity and Process of Audited Workshop XXX	Audit Date XXX

THEME IV - PRODUCTS MANAGEMENT (CONTROL, TESTING, INSPECTION, STORAGE)

All facilities described herein are meant to be permanent in-house facilities only. Any sub-contracted activity must be clearly indicated showing the names and addresses of related Subcontractors. The number, type and status of all listed equipment are subject to thorough checks by the COMPANY representative in charge of the Plant Survey during his visit of the facilities.

Table 4.2.b - Inspection, Testing and Quality Control - Non Destructive Testing and Control Equipment							
Type of Inspection	Type of Equipment	Number of Equipment	Calibration of Equipment updated (yes/no) ?	NDT procedures (availability, issuance, updating)	Number of tests per year	Sub-contracted testing : Yes / No / Partial ?	Comments / Names of sub-contractor / Description of Capacity
X-rays							
Gamma rays							
Ultrasonic Testing							
Magnetic particle							
Liquid penetrant							
OOG leak test (helium,...)							
Dimensional control devices (control gage)							
Others							

Table 4.3.a - Finished Goods Management - Goods Storage			
Type of Storage	Dimension	Comments / Description (material stored,...)	Comments <i>To be filled by TOTAL or Company representative</i>
Covered storage yard			
Open storage yard			
Warehouse			

Table 4.3.b - Finished Goods Management - Storage Conditions		
Storage Conditions for :	Description / Comments	Comments <i>To be filled by TOTAL or Company representative</i>
Small goods		
Fragile goods		
X-ray films		
Actuators		
Control panels		
Others		



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MANUFACTURER		
Name & Address of Audited Workshop XXX	Activity and Process of Audited Workshop XXX	Audit Date XXX

THEME IV - PRODUCTS MANAGEMENT (CONTROL, TESTING, INSPECTION, STORAGE)

All facilities described herein are meant to be permanent in-house facilities only. Any sub-contracted activity must be clearly indicated showing the names and addresses of related Subcontractors. The number, type and status of all listed equipment are subject to thorough checks by the COMPANY representative in charge of the Plant Survey during his visit of the facilities.

Table 4.4 - Procurement Practices - Manufacturer's Suppliers List / Source of Materials				
Material	Suppliers *	Number of audits / year	Comments (follow-up procedures, approval,...)	Comments To be filled by TOTAL or Company representative
Plates and pipes				
Flanges				
Castings	see table 3.2			
Forgings	see table 3.3			
Bolting				
Gaskets				
Actuator springs				
Accumulators (P,G & H)				
Packings				
Tubing	**			**
Compression fittings	**			**
Control components: P	** & ***			**
Control components: G	** & ***			**
Control components: E	**			**
Control components: H	** & ***			**
Control components: EH	** & ***			**
Control components: OOG	** & ***			**
Complete assembled VCP				
Compact (stack) manifolds	**			**
Valve position beacons	**			**
Limit switches	**			**
SMART partial stroke test	**			**
Analogue position monitors	**			**
Ex Junction boxes	**			**
Ex Cable glands	**			**
Others				

* Define all possible suppliers and their product series

** Suppliers for these items must be in accordance with Total's corporate EP approved vendor list, this audit form cannot be used for derogations

*** For example: filter/regulator units, solenoid valves, pneumatic valves, quick exhaust, boosters, relief valves, gauges, manifolds, etc.

P = pneumatic, G = gas, E = electric, H = hydraulic, EH = electro-hydraulic, GOO = gas-over-oil, VCP = valve control panel, HPU = hydraulic power unit