



**HELLENIC GAS  
TRANSMISSION  
SYSTEM OPERATOR**

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**TECHNICAL JOB  
SPECIFICATION**

**970/2**

**REVISION 0**

**DATE 05/04/2011**

## **HIGH PRESSURE (HP) TRANSMISSION SYSTEMS**

### **SHOP INSPECTION OF EQUIPMENT AND MATERIALS FOR NGT PROJECT**



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CHANGES LOG

REVISIONS LOG

Rev. No	Rev. Date	REASON FOR CHANGE	Made By	Approved By
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## 1.0 GENERAL

### 1.1 SCOPE

This specification defines the extent of inspection and certification requirements of all purchased equipment and materials to be incorporated in high pressure natural gas projects. Certification requirements shall be covered by an approved Third Party Organization (Inspector) which shall be appointed by the materials and equipment purchaser.

It is designed to be used in conjunction with Material Requisition (M.R.), **Job Specification No. 970/3**, the other project specifications, Applicable Standards & European Commission (EC) Directives in their latest revision which define specific inspection tasks which Vendor/Manufacturer, Inspector will perform.

The Vendor/Manufacturer shall supply the pressure equipment in accordance with the essential safety requirements of the **PED No. 97/23/EC (Common Ministerial Decision 16289/330/99)** as per the applicable category and the relevant documentation as per **PED Annex I paragraph 3.3 and 3.4 at his own cost**. Gas Transmission Pipelines and annexed equipment are excluded from PED requirements.

The Vendor/Manufacturer shall apply the requirements of all the applicable EC Directives for each item, equipment or assembly, **at his own cost**.

All items, equipment or assemblies shall bear the CE marking in accordance with all the applicable EC Directives (e.g. for PED 97/23/EEC, LVD 2006/95/EEC, ATEX 94/9/EC, CPD 89/106/EEC, EMC 2004/108/EEC, Machinery 2006/42/EEC, etc any other applicable EC Directives), **at Vendor/Manufacturer's cost**.

The following inspection percentages are related to the quantity of the items of equipment and materials on this project and are not intended to indicate the degree of inspection to be performed.

Where **100%** inspection is specified, each item will be inspected but not necessarily each component making up the item.

Where **10%** inspection is specified, in the case that total quantity is more than **1.000** pieces, only **100** of the total quantity purchased on each order will be inspected. If these are satisfactory, no further inspection will be made. In the case of bulk orders, the percentage inspection will be carried out at intervals throughout the period of delivery, not by carrying out one inspection to inspect say **10%** of the order quantity.

The degree of inspection, which shall be performed, is defined in the next sections in conjunction with the attached "**Inspection Activity Plans**" (I.A.P.). Any non-standard inspection considered necessary for special items with unusual manufacturing features will be called up in the particular Material Requisition.

**In the event of conflict** between this specification, a project specification or a Material Requisition, **the more stringent** shall apply. However EC Directives are compulsory and prevailing to any other requirement.

The scope of the Inspector inspection work defined in this specification is based on using Suppliers of proven ability approved by the Owner.

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Whenever purchased equipment includes components of a different category to the primary category under which it is listed herein, and then these components shall be inspected to the extent defined in the paragraphs of this specification relating to these components. In particular, this applies to package plants and Vendor/Manufacturer of Assembled Units, where Vendor/Manufacturer of a piece of major equipment is required to carry out shop assembly of other associated components.

Any additional requirements will be identified on the Material Requisition.

The scope of Inspector inspection services does not include the provision of any licensed inspection or certification that may be required by Statutory Inspection Authority.

Inspector has the option/right of attending all tests and inspections at Manufacturer's or at Sub-Manufacturer's works. Vendor/Manufacturer shall give a **ten (10) working days** advance notice that the equipment will be available for inspection on a specified date. Additionally the test certificates and equipment dossiers, as applicable, shall be made available for checking at the same time.

In the event that material and/or equipment is found to be unsatisfactory or not in compliance with the drawing or specification (rejection notice issued by Owner and/or Owner's Representative), special rectification procedures shall not be put in hand before a corrective procedure has been submitted and approved by Owner (clearance of the rejection notice).

Material and/or equipment may be repaired only with the concurrence of Inspector.

However additionally to the above Owner and/or Owner's Representative have the option/right of attending all tests and inspections at Manufacturer's or at Sub- Manufacturer's works. Vendor's/Manufacturer's shall give a ten (10) working days advance notice that the equipment will be available for inspection on a specified date. Additionally the test certificates and equipment dossiers, as applicable, shall be made available if requested for Owner and/or Owner's Representative approval.

## **1.2 SPECIAL REQUIREMENTS**

Manufacturers Quality Control Plan shall be submitted to Owner's and/or Owner's Representative for review and approval.

Material certificates of pressure retaining parts shall be according to requirements of clause 3, **ELOT EN 10204** and the requirements of EU Directive **PED No. 97/23/EC**.

Material Certificates of non-pressure retaining parts provided by Vendor/Manufacturer shall bear a certificate "type 2.2" as per **ELOT EN 10204**. P.Q.R (Procedure Qualification Records) must not be issued more than five (5) years ago.

W.Q.R. (Welder Qualification Record) must not be issued more than two (2) years ago and the welders' performance in the relevant P.Q.R., during the last six (6) months should be proved.

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Positive Material Identification (P.M.I.) testing shall be performed at Vendor/Manufacturer's cost for all alloy materials and weldings, in accordance with **Job Specifications No 900/9 and No 900/3**.

The Vendors/Manufacturers shall sent to Inspector the "Notification for Inspection" concerning the Inspection points as defined in the relevant I.A.P. herein (Spot Witnessing, Witnessing, Hold) and according to the instructions of **Job Specification No. 970/3**. For pressure equipment the Welding, Destructive and Non Destructive Testing Procedures and Personnel must be approved by a Notified Body, **at Vendor/Manufacturer 's Cost**.

## 2.0 EXTENT OF INSPECTION & REQUIRED CERTIFICATION

### GENERAL

The extent of Inspection shall be performed in accordance with the following instructions, the applicable Material Requisition and the relevant Inspection Activity Plan (I.A.P.).

### 2.1 STEEL PIPES

Seamless pipe **10%** witnessing inspection by Inspector.

ERW pipe, **100%** witnessing, inspection by Inspector.

In accordance with **ELOT EN 10208-2, ELOT EN 1594, Job Specification No. 171/1, Job Specification No. 834/1** requirements.

Inspector will review the Final Documentation / Certificates of the **total order**, as per the relevant I.A.P.

### 2.2 STEEL CASING PIPES

No witnessing inspection.

Inspector will review the Final Documentation / Certificates of the **total order** as per **Job Specification No 176/1** requirements and relevant I.A.P.

### 2.3 VALVES

All valves with DN >200 or with SMYS >360 N/mm<sup>2</sup> will be witnessing inspected by Inspector.

All valves in accordance with **ELOT EN 14141, ELOT EN 1092-1, ELOT EN 1503-1, ELOT EN 13942 (ISO 14313 modified)** and the relevant **Job Specifications No 510/2, No 510/3, No 510/4, 510/5, & No 578/1**.

Inspector will review the Final Documentation / Certificates of the **total order**, as per the relevant I.A.P.

### 2.4 PIPING MATERIALS

No witnessing inspection,

#### a) *Fittings and Flanges*

For fittings and flanges with size greater than **DN 300** or made from grades with SMYS greater than 360 N/mm<sup>2</sup>, Vendors/Manufacturers will provide an inspection certificate "**type3.2**" in accordance with **ELOT EN 10204**. For all other materials, certificates "**type 3.1**" in accordance with **ELOT EN 10204**

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is required. Inspector will review the Material Certificates of the **total order**, in accordance with **Job Specifications No 552/1, No 552/2 and No 562/1.**

**b) Stud - Bolts and Nuts**

Inspector will review the Material Test Certificates "**type 3.1**" as per ELOT EN 10204 of the **total order**, in accordance with **Job Specification No 570/4.**

**c) Gaskets**

Inspector will review the Material Test Certificates "**type 2.2**" as per ELOT EN 10204 of the **total order**, in accordance with **Job Specification No 570/3.**

**2.5 CENTRIFUGAL PUMPS**

All pumps will be witnessing inspected by Inspector in accordance with ELOT EN ISO 5199 and **Job Specification No 311/2.**

**2.6 ODORIZING PLANT**

All equipment will be witnessing inspected by Inspector in accordance with DIN 30650 for Odorant Containers, API 675 for Dozing Pumps, ELOT EN 13445 requirements and the applicable **Job Specifications No 911/1 and No 314/1.**

**2.7 FILTERS / STRAINERS, SCRAPER TRAPS, DRUMS, LIQUID CATCHERS & VENT CLOSURES**

All equipment will be witnessing inspected by Inspector in accordance with the requirements of ELOT EN 13445 and **Job Specifications No. 134/1, No. 191/1, No 130/1 & No 192/1.**

**2.8 HEAT EXCHANGERS / FUEL GAS HEAT EXCHANGERS**

All equipment will be witnessing inspected by Inspector in accordance with the requirements of ELOT EN 13445 and **Job Specification No 210/2.**

**2.9 TANKS**

All equipment will be witnessing inspected by Inspector in accordance with ELOT EN 14015 requirements.

**2.10 BOILERS**

No witnessing inspection.

Inspector will review the Final Documentation / Certificates of the **total order**, as per **Job Specification No 247/1** requirements.

**2.11 BURNERS**

No witnessing inspection.

Inspector will review the Final Documentation / Certificates of the **total order**, as per **Job Specification No. 246/1** requirements.

**2.12 HOT INDUCTION BENDS**

All equipment will be witnessing inspected by Inspector in accordance with **Job Specification No. 552/3** requirements.

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### 2.13 INSULATING COUPLINGS

All equipment will be witnessing inspected by Inspector in accordance with **Job Specification No. 597/1** requirements.

### 2.14 METERING AND PRESSURE REGULATING STATION

All equipment will be witnessing inspected by Inspector in accordance with **ELOT EN 1776, ELOT EN 12186, ELOT EN 12405-1**, requirements and the **Job Specifications No 610/1, No 612/1, No 615/1, No 616/2, No 624/1, No 629/1, No 629/3, No 639/1** and **No 641/1**.

All components shall be inspected individually in accordance with the corresponding paragraphs of this specification.

### 2.15 TURBINE METER

All equipment will be witnessing inspected by Inspector in accordance with **ELOT EN 12261** and **Job Specification No 612/1**.

### 2.16 ULTRASONIC METER

Ultrasonic meter shall be inspected by Inspector in accordance with **ISO TR 12765** and **Job Specification No 612/2**. The body of the meter shall be inspected by Inspector in accordance with **ELOT EN 12261** and **Job Specification No 612/2**.

### 2.17 MOTOR & PNEUMATIC OPERATED VALVES

All actuators and valves individually and assembled will be witnessing inspected by Inspector, in accordance with the corresponding paragraphs of this specification and the relevant Job Specifications.

### 2.18 CONTROL VALVES

**10 %** witnessing inspection by Inspector but not less than one **(1)** valve per type, in accordance with **ELOT EN 334** and **ELOT EN 14382** and **Job Specifications No 624/1** and **No 629/1**.

Inspector will review the Final Documentation / Certificates of the **total order**, as per the relevant I.A.P.

### 2.19 PRESSURE & THERMAL RELIEF VALVES

All equipment will be witnessing inspected by Inspector in accordance with **ELOT EN 334** and **ELOT EN ISO 4126** and **Job Specification No. 639/1** requirements.

### 2.20 CONTROL PANEL / SCADA / TELECOMMUNICATION / SHUT-DOWN / POWER SUPPLY / BATTERY SYSTEMS

All equipment will be witnessing inspected by Inspector in accordance with the relevant **Job Specification No 641/1**, etc.

### 2.21 GAS CHROMATOGRAPHS

All equipment will be witnessing inspected by Inspector in accordance with **Job Specification No 616/2**.

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## 2.22 INSTRUMENT & FIBER OPTIC CABLES

Instrument & Fiber Optic Cables will be spot witnessing inspected by Inspector in accordance with Inspection Activity Plan requirements. Each cable shall be tested at the factory in accordance with the requirements of **ELOT EN 60794, IEC 1515 / ELOT EN 61515, IEC 60584-3 / HD 446.3, ELOT EN 50173, ISO-IEC 11801** and the relevant **Job Specifications No 660/1** and **No 752/1**.

Testing of fiber optic cables shall be performed using an optical time Domain Reflectometer (OTDR) on each core to confirm integrity and to provide base line information for field-testing after installation.

Individual cable test certificates shall be provided for each reel of wire and cable provided.

## 2.23 ELECTRONIC FLOW COMPUTERS

No witnessing inspection.

Inspector will review the Final Documentation / Certificates of the **total order**, as per **Job Specification No 615/1** requirements.

## 2.24 ELECTRIC MOTORS

All motors 110 KW and larger, will be witnessing inspected by Owner and/or Owner's Representative in accordance with **ELOT EN 60034-1, ELOT EN 60079-7** and **ELOT EN 60034-14**, Job Specification and Material Requisition requirements.

For other motors inspection shall include only review of Inspection Documents, in accordance with the above-mentioned specifications.

## 2.25 ELECTRICAL SWITCHGEAR

All equipment will be witnessing inspected by Inspector in accordance with the relevant **Job Specification No 721/3**.

## 2.26 ELECTRICAL POWER CABLES

No witnessing inspection.

Inspector will review the Final Documentation / Certificates of the **total order**, in accordance with the requirements of **IEC 60502 & ELOT EN 60332-3**.

## 2.27 CATHODIC PROTECTION / EARTHING / LIGHTNING EQUIPMENT

Equipment will be spot witnessing inspected by Inspector in accordance with the relevant Material Requisition & Inspection Activity Plan.

## 2.28 EMERGENCY GAS / DIESEL GENERATORS

All equipment will be witnessing inspected by Inspector in accordance with **ELOT EN 60439-1** for power and control panel board and **ELOT EN 60034-1, -2 & -2A** for generator testing requirements.

## 2.29 FIRE FIGHTING SYSTEM

Equipment will be witnessing inspected by Inspector in accordance with **99/36/EEC** Directive requirements.

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### 2.30 CRANES

All lifting equipment: hoists, cranes, lifts and lifting equipment components will be witnessing inspected by Inspector, in accordance with **DIN 15018** (or equivalent), **ELOT EN 13000** and in accordance with the requirements of the applicable **European Directive 2006/42/EEC "Machinery"** and Material Requisition requirements.

### 2.31 HEATING, VENTILATING AND AIR CONDITIONING

No witnessing inspection.

Inspector will review the Final Documentation / Certificates of the **total order**, in accordance with the requirements of the applicable **European Directives 2006/95/EEC (LVD), 93/68/EEC (CE MARKING)**.

### 2.32 STRUCTURAL STEEL

Structural steel will be spot witnessing inspected by Inspector in accordance with **Specification No 499/17** and the approved drawings requirements.

Inspector will review the Final Documentation / Certificates of the **total order**, as per the relevant I.A.P.

### 2.33 OTHER MATERIALS AND EQUIPMENT

Extent of inspection will be as specified in the relevant Material Requisition requirements.





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### 3.0 INSPECTION ACTIVITY PLANS FOR ACTIONS BY OWNER'S REPRESENTATIVES / THIRD PARTY / VENDORS & REQUIRED CERTIFICATION

**Definitions of Reviewing (R), Witnessing (W), Spot Witnessing (SW), Monitoring (M), Hold (H)**

#### **General**

The above terms are used in connection with the checking of technical documentation and its confirmation by Inspector at the manufacturer's shop and written Inspection Notifications by Vendors/Manufacturers are requested in accordance with **Job Specification No 970/3**.

#### **Reviewing (R)**

Technical documents issued by third parties (manufacturers, subcontractors, other organizations) are reviewed by the Inspector in order to check whether their contents apply to the project under consideration and comply with the requirements of the Specifications and Material Requisition.

For instance, any existing certificates on welder's performance qualifications are checked, in order to ascertain whether a welder's qualifications are sufficient for the particular case.

Every document Reviewed by the Inspector will receive the Inspector's "Review" stamp.

#### **Witnessing (W)**

By witnessing is meant that the Inspector is physically present during the action being witnessed. A written Inspection Notification by Vendor/Manufacturer is required.

For Inspection and testing successfully performed and witnessed by the Inspector, an Inspection Report shall be issued and signed by the Inspector.

#### **Spot Witnessing (SW)**

A written Inspection Notification by Vendor/Manufacturer at the beginning of the inspection activity is required.

Should be extended depending on the kind of the equipment and Inspector's satisfaction, according to the Material Requisition requirements. Inspection Report will be issued and signed by the Inspector.

#### **Monitoring (M)**

By Monitoring is meant that the Inspector at least temporarily attended a test inspection activity or personally satisfied himself that the correct testing procedure was followed and the particular testing equipment / inspection procedure was in accordance with the Material Requisition requirements.

All relevant technical documents will be endorsed by means of signature and stamping by the Inspector.

#### **Hold Point (H)**

A written Inspection Notification by Vendor/Manufacturer is required.

This is a binding request to witness on inspection or test procedure. The presence of the Inspector is mandatory and the procedure will not take place without his presence, unless he waives this right informing the Vendor/Manufacturer **in writing only**.

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**3.1 Inspection Activity Plan (I.A.P.) for Steel Pipes.**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with standards and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
<b>A. PRE-INSPECTION MEETING</b>		
Check of Inspection requirements.	H	---
<b>B. RAW MATERIALS CHECK</b>		
Coil Visual Examination.	SW	---
Material Certificates for coil, powder coating & adhesive.	R	<b>ELOT EN 10204 (Note 1)</b>
<b>C. PIPES INSPECTION &amp; TESTING</b>		
Production and welding operations.	M	B
Ultrasonic inspection of skeep for lamination.	SW	B
Check of size.	SW	B
Pipe identification.	SW	B
Calibration certificates of tensile and impact machines.	R	B
Cross roll straightening.	SW	B
<b>PRODUCT TEST</b>	SW	B
Chemical analysis (2 / heat).		
Tensile testing for base metal and weld (1 / 100 pipes / heat).		
Impact test for base metal, weld and HAZ (1 set / 100 pipes/heat).		
Hardness test for HAZ, base, weld (4 per heat).		
Reverse bend test (4 per heat).		
Flattering test.		
Heat treatment temperature check.	M	B
End beveling for each pipe.	SW	B
NDT personnel qualifications.	R	B
UT equipment calibration.	M	B
Ultrasonic inspection of weld zone (per each pipe)	SW	B
Hydrotest (per each pipe at a hold time of 10 sec)	SW	B
Visual examination.	SW	B
Dimensional check (ID, OD, wall thickness, length, weight, ends preparation, residual magnetism, out of roundness, peaking).	SW	B

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**3.1 Inspection Activity Plan (I.A.P.) for Steel Pipes (cont'd)**

SUBJECT	ACTION	CERTIFICATION
<b>D. PIPES COATING INSPECTION &amp; TESTING</b>		
Coating operations.	M	B
Roughness & shaft contamination tests.	SW	B
Visual examination.	SW	B
Calibration of wall-thickness gauge.	M	B
Coating wall thickness measurements.	SW	B
Holiday test.	SW	B
<b>E. FINAL PRODUCT ACTIVITIES</b>		
Marking.	SW	B
Mill test certificate.	R	B
		<b>ELOT EN 10204 Type 3.1 (Note 1)</b>
Inspection data book.	R	B
Inspection release notice per packing list/shipment.	H	<b>C (Note 2, 3)</b>

- Abbreviations:**
- W** = Witness
  - A** = Documents reviewed by Inspector
  - B** = Documents issued by Vendor's/Manufacturer's Q.C.
  - C** = Certificate issued by Inspector
  - M** = Monitor
  - SW** = Spot witness
  - H** = Hold
  - R** = Review

- Notes:**
- 1) "type 3.1" for DN ≤ 200 and SMYS ≤ 360 N/mm<sup>2</sup>  
 "type 3.2" for DN > 200 or SMYS > 360 N/mm<sup>2</sup>
  - 2) An Inspection Certificate type 3.2 as per ELOT EN 10204
  - 3) For small quantities the Owner may accept 3.1 Certificates provided the material manufacturer is approved.

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### 3.2 Inspection Activity Plan (I.A.P.) for **Steel Casing Pipes**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material Certificates for Final Product.	R	B ELOT EN 10204 Type 3.1

**Abbreviations:**

- W** = Witness
- A** = Documents reviewed by Inspector
- B** = Documents issued by Vendor's/Manufacturer's Q.C.
- C** = Certificate issued by Inspector
- M** = Monitor
- SW** = Spot witness
- H** = Hold
- R** = Review

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**3.3 Inspection Activity Plan (I.A.P.) for Valves**

**3.3.1 Inspection Activity Plan (I.A.P.) for Double Block & Bleed Valves**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Pre-Inspection Meeting.	H	---
Material Certificates for Main Components.	R	<b>Note 1</b>
WPS / PQR / WPQR	R	B, A, <b>Note 2</b>
Radiographic Examination.	R	B
MP / DP Examination.	R	B, <b>Note 2</b>
Ultrasonic Examination.	R	B
Heat Treatment Records.	R	B
Visual & Dimensional Examination.	SW	B
Hydrostatic Test.	W	B
Pneumatic Test.	W	B
Functional Test.	W	B
Check of Painting (adhesion / porosity).	W	B
Check of Coating (for buried valves).	W	B
Name Plate Marking.	W	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C, <b>Note 3, 4</b>

- Abbreviations:**
- W** = Witness
  - A** = Documents reviewed by Inspector
  - B** = Documents issued by Vendor's/Manufacturer's Q.C.
  - C** = Certificate issued by Inspector
  - M** = Monitor
  - SW** = Spot witness
  - H** = Hold
  - R** = Review

- Notes:**
- 1) For all pressure retaining parts (except nuts & bolts) made of materials with SMYS >360 N/mm or DN >200, Vendor/Manufacturer will provide Material Certificates in accordance with ELOT EN 10204 "type 3.2". For parts with DN ≤ 200 and SMYS ≤ 360 N/mm<sup>2</sup> "type 3.1".
  - 2) According to ELOT EN 14141 and ELOT EN 473 requirements.
  - 3) An Inspection Certificate "type 3.2" as per ELOT EN 10204.
  - 4) For small quantities the Owner may accept 3.1 Certificates provided the material manufacturer is approved.

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**3.3 Inspection Activity Plan (I.A.P.) for Valves (cont'd)**

**3.3.2 Inspection Activity Plan (I.A.P.) for Other Valves (See Note 4).**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material Certificates for Main Components & Final Product.	R	Note 1
WPS/PQR/WPQR	R	B, A, Note 2
Radiographic Examination.	R	B
MP / DP Examination.	R	B, Note 2
Ultrasonic Examination.	R	B
Heat Treatment Records.	R	B
Visual & Dimensional Examination.	SW	B
Hydrostatic Test.	W	B
Pneumatic Test.	W	B
Functional Test.	W	B
Check of Painting (adhesion / porosity).	W	B
Check of Coating (for buried valves).	W	B
Name Plate Marking.	W	B
CE Mark Check.	W	B
EC Declaration of Conformity.	R	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C, Note 3

- Abbreviations:**
- W** = Witness
  - A** = Documents reviewed by Inspector
  - B** = Documents issued by Vendor's/Manufacturer's Q.C.
  - C** = Certificate issued by Inspector
  - M** = Monitor
  - SW** = Spot witness
  - H** = Hold
  - R** = Review

- Notes:**
- 1) For all pressure retaining parts, Vendor/Manufacturer will provide Material Certificates in accordance with ELOT EN 10204 "type 3.2" for DN > 200 or SMYS > 360 N/mm<sup>2</sup>.
  - 2) According to ELOT EN 14141 and ELOT EN 473 requirements.
  - 3) An Inspection Certificate "type 3.2" for DN > 200 and SMYS > 360 N/mm<sup>2</sup>.
  - 4) For valves with DN ≤ 200 and SMYS ≤ 360 Certificates ELOT EN 10204 "type 3.1" for final product and main components.

**3.4 Inspection Activity Plan (I.A.P.) for Centrifugal Pumps (Note 1)**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material Certificates.	R	<b>Note 2</b>
Material Identification.	W	B
NDT Procedure Qualification.	R	B, A, <b>Note 3</b>
NDT Inspection Personnel Qualification Records.	R	B, A, <b>Note 3</b>
Radiographic Examination Records.	R	B, <b>Note 3</b>
Dye penetrant/magnetic particle inspection records	R	B, <b>Note 3</b>
Visual inspection evidence of cracks, excessive roughness, laps, shrinkages or any other defects.	W	B
Dimensional check and visual inspection.	R	B
Hydrostatic testing of casing.	W	B
Balancing of impeller/shaft assembly.	R	B
Performance tests & NPSH test if it is applicable in accordance with <b>paragraph 2.5.</b>	H	A, B
Dismantling and reassembly.	W	B
Name Plate Marking.	W	B
CE Mark Check.	W	B
EC Declaration of Conformity.	R	B
Check of painting (after painting completion).	W	B
Check for completeness, including auxiliary piping, mechanical seal, coupling and spares.	H	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

- Abbreviations:**
- W** = Witness
  - A** = Documents reviewed by Inspector
  - B** = Documents issued by Vendor's/Manufacturer's Q.C.
  - C** = Certificate issued by Inspector
  - M** = Monitor
  - SW** = Spot witness
  - H** = Hold
  - R** = Review

- Notes**
- 1) Inspection of Electric Motors in accordance with the requirements of relevant paragraph 2 and the corresponding Inspection Plan.
  - 2) For Pressure retaining parts, Vendor/Manufacturer shall provide Material Certificates conforming to ELOT EN 10204 "type 3.1".
  - 3) According to ELOT EN 473 requirements.

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### 3.5 Inspection Activity Plan (I.A.P.) for Odorizing Plant

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material certificates ( <b>Note</b> ).	R	B
Non-destructive testing procedure qualification.	R	B
Radio graphic examinations.	R	B
Odorizing pump hydrostatic test.	W	B
Unit hydrostatic test.	W	B
Leakage test of complete unit using odorant.	H	B
Odorizing pump mechanical running test.	W	B
Odorizing pump performance test and demonstration of the total flow range from maximum to minimum with the contractual repeatability and linearity.	H	A, B
Checking of controls.	W	B
Checking of relief valve setting.	W	B
Complete system full function test (string test).	W	B
Noise and vibration measurement.	W	B
CE Mark check.	W	B
EC Declaration of Conformity.	R	B
Name plate marking.	W	B
Cleaning, preservation, painting.	R	B
Check of completeness including spares.	W	B
Preparation for shipment.	R	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

**Abbreviations :**

- W** = Witness
- A** = Documents reviewed by Inspector
- B** = Documents issued by Vendor's/Manufacturer's Q.C.
- C** = Certificate issued by Inspector
- M** = Monitor
- SW** = Spot witness
- H** = Hold
- R** = Review

**Note :** For all pressure retaining parts, Vendor/Manufacturer will provide Material Certificates in accordance with ELOT EN 10204 type 3.1" for DN ≤ 200 and SMYS ≤ 360 N/mm<sup>2</sup>, "type 3.2" for DN > 200 or SMYS < 360 N/mm<sup>2</sup>. All electrical equipment and components used in potentially explosive atmospheres or in intrinsically safe circuits shall have EEx approval and conformity certificates issued by a Notified Body as per EU Directives, i.e. ATEX.



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### 3.6 Inspection Activity Plan (I.A.P.) for **Filters / Strainers**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material Certificates.	R	B, <b>Note 1</b>
Identification of Material	M	—
Welding Procedures.	R	A, B, <b>Note 2</b>
Welders Qualification.	R	A, B, <b>Note 2</b>
Mechanical and hardness test.	R	B
NDT Personnel Qualification.	R	B, <b>Note 2</b>
MP / DP Examinations.	R	B, <b>Note 2</b>
US Examinations.	R	B, <b>Note 2</b>
Radiographic Examinations.	R	B, <b>Note 2</b>
Visual Examination.	W	B
Dimensional Control	W	B
Leakage Check.	H	B
Pressure Test.	H	B
Functional Test.	H	B
Painting Check (after painting completion).	W	B
Name Plate Marking.	W	B
CE Mark Check.	W	B
EC Declaration of Conformity.	R	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

**Abbreviations:**
  
**W** = **Witness**
  
**A** = **Documents reviewed by Inspector**
  
**B** = **Documents issued by Vendor's/Manufacturer's Q.C.**
  
**C** = **Certificate issued by Inspector**
  
**M** = **Monitor**
  
**SW** = **Spot witness**
  
**H** = **Hold**
  
**R** = **Review**

- Notes:** 1) For pressure retaining parts, Vendor/Manufacturer shall provide **Material Certificates** conforming to ELOT EN 10204 "type 3.1" for  $DN \leq 200$  and  $SMYS \leq 360 \text{ N/mm}^2$ , "type 3.2" for  $DN > 200$  or  $SMYS > 360 \text{ N/mm}^2$ .
- 2) According to ELOT EN 13445 and ELOT EN 473 requirements.

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**3.7 Inspection Activity Plan (I.A.P.) for Scraper Traps**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Pre-Inspection meeting.	H	—
Material Certificates.	R	B, Note 1
Identification of Materials.	W	B
Welding Procedures.	R	B, A, Note 2
Welders Qualification.	R	B, A, Note 2
Weld repair procedures.	R	B, A, Note 2
Welding Monitoring.	SW	B
Heat treatment.	R	B, A, Note 2
Hardness test.	W	B
NDT Personnel Qualification.	R	B, Note 2
MP / DP Examinations.	R	B
Ultrasonic Examinations.	R	B
Radiographic Examinations.	R	B
Visual Examination.	W	B
Dimensional Control.	W	B
Pressure Test (Hydrostatic, Pneumatic).	H	B
Surface treatment test.	R	B
Painting Check (after painting completion).	W	B
Name Plate Marking.	W	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

- Abbreviations:**
- W** = Witness
  - A** = Documents reviewed by Inspector
  - B** = Documents issued by Vendor's/Manufacturer's Q.C.
  - C** = Certificate issued by Inspector
  - M** = Monitor
  - SW** = Spot witness
  - H** = Hold
  - R** = Review

- Notes :**
- 1) For pressure retaining parts, Vendor/Manufacturer shall provide Material Certificates conforming to ELOT EN 10204 "type 3.1" for DN ≤ 200 and SMYS ≤ 360 N/mm<sup>2</sup>, "type 3.2" for DN > 200 or SMYS > 360 N/mm<sup>2</sup>.
  - 2) According to ELOT EN 13445 and ELOT EN 473 requirements.

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**3.8 Inspection Activity Plan (I.A.P.) for Drums / Liquid Catchers**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material Certificates.	R	Note 1
Transfer of Marking.	M	—
Welding Procedures.	R	B, A, Note 2
Welders Qualification.	R	B, A, Note 2
Edge preparation fit-up, alignment.	SW	—
Weld repair procedures.	R	B, A, Note 2
Preheating.	SW	B
NDT Procedure Qualification.	R	B, Note 2
NDT Personnel Qualification.	R	B, Note 2
Heat treatment.	R	B, A
Radiographic examinations.	R	B, Note 2
Liquid penetrant examination and/or magnetic particle examination.	R	B, Note 2
Ultrasonic examination records.	R	B, Note 2
Hardness test.	R	B
Visual and dimensional check.	W	B
Hydrostatic test.	H	B
Pneumatic test of reinforcing pads.	W	B
Name plate marking.	W	B
Painting Check (after painting completion).	W	B
CE Mark Check.	W	B
EC Declaration of Conformity.	R	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

- Abbreviations:**
- W** = Witness
  - A** = Documents reviewed by Inspector
  - B** = Documents issued by Vendor's/Manufacturer's Q.C.
  - C** = Certificate issued by Inspector
  - M** = Monitor
  - SW** = Spot witness
  - H** = Hold
  - R** = Review

- Notes :**
- 1) For pressure retaining parts, Vendor/Manufacturer shall provide Material Certificates conforming to ELOT EN 10204 "type 3.1".
  - 2) According to ELOT EN 13445 and ELOT EN 473 requirements.

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**3.9 Inspection Activity Plan (I.A.P.) for Vent Closures**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

	<b>ACTION</b>	<b>CERTIFICATION</b>
Material certificates.	R	<b>Note 1</b>
Transfer of marking.	M	—
Welding procedures.	R	A, B <b>Note 2</b>
Welders qualification.	R	A, B <b>Note 2</b>
Weld repair procedures.	R	A, B <b>Note 2</b>
Heat treatment.	R	A, B
Hardness test.	R	B
NDT personnel qualification.	R	B, <b>Note 2</b>
MP / DP examinations.	R	B
Ultrasonic examinations.	R	B
Radiographic examinations.	R	B
Visual examination.	W	B
Dimensional control.	W	B
Pressure test.	H	B
Surface treatment test.	R	B
Name plate marking.	W	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	<b>C</b>

- Abbreviations:**
- W** = Witness
  - A** = Documents reviewed by Inspector
  - B** = Documents issued by Vendor's/Manufacturer's Q.C.
  - C** = Certificate issued by Inspector
  - M** = Monitor
  - SW** = Spot witness
  - H** = Hold
  - R** = Review

- Note :**
- 1) For pressure retaining parts Vendor's/Manufacturer's will provide Material Certificates conforming to ELOT EN 10204 "type 3.1".
  - 2) According to ELOT EN 13445 and ELOT EN 473 requirements.

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**3.10 Inspection Activity Plan (I.A.P.) for Heat Exchangers / Fuel Gas Heat Exchangers**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material Certificates.	R	Note 1
Transfer of Marking.	M	—
Welding Procedures.	R	B, A, Note 2
Welders Qualification.	R	B, A, Note 2
Post weld heat treatment records.	R	B,A
Mechanical and hardness test.	R	B
NDT Personnel Qualification.	R	B, Note 2
MP/DP Examinations.	R	B, Note 2
US Examinations.	R	B, Note 2
Radiographic examinations.	R	B, Note 2
Visual examination.	W	B
Dimensional control.	W	B
Leakage check.	H	B
Pressure test.	H	B
Pneumatic test of reinforcing pads.	W	B
Name plate marking.	W	B
Painting Check (after painting completion).	W	B
CE Mark Check.	W	B
EC Declaration of Conformity.	R	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

- Abbreviations**
- W** = Witness
  - A** = Documents reviewed by Inspector
  - B** = Documents issued by Vendor's/Manufacturer's Q.C.
  - C** = Certificate issued by Inspector
  - M** = Monitor
  - SW** = Spot witness
  - H** = Hold
  - R** = Review

- Notes :**
- 1) For pressure retaining parts, Vendor/Manufacturer shall provide Material Certificates conforming to ELOT EN 10204 "type-3.1".
  - 2) According to ELOT EN 13445 and ELOT EN 473 requirements.

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### 3.11 Inspection Activity Plan (I.A.P.) for Tanks

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material Certificates.	R	<b>Note 1</b>
Material Identification.	W	B
Welding procedures and qualifications.	R	B, A, <b>Note 2</b>
NDE procedures & personnel qualifications.	R	B, <b>Note 2</b>
UT examination.	SW	B, <b>Note 2</b>
Radiographic examinations.	R	B, <b>Note 2</b>
MP examination.	SW	B, <b>Note 2</b>
Post weld heat treatment.	M	B
Pneumatic test.	W	B
Hydrostatic test.	W	B
Visual and dimensional check.	W	B
Vacuum and leak test (bottom / shell).	SW	B
Sandblasting, Painting, coating.	SW	B
Name plate marking.	W	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

**Abbreviations:**
  
**W** = Witness
   
**A** = Documents reviewed by Inspector
   
**B** = Documents issued by Vendor's/Manufacturer's Q.C.
   
**C** = Certificate issued by Inspector
   
**M** = Monitor
   
**SW** = Spot witness
   
**H** = Hold
   
**R** = Review

- Notes :**
  
 1) For pressure retaining parts, Vendor/Manufacturer shall provide Material Certificates conforming to ELOT EN 10204 "type 3.1".
   
 2) According to ELOT EN 14015 and ELOT EN 473 requirements.



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### 3.12 Inspection Activity Plan (I.A.P.) for Hot Induction Bends

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Pre-inspection meeting.	H	
Material Certificates for raw materials.	R	<b>ELOT EN 10204 "type 3.2"</b>
Material Identification.	W	B
Bending.	M	B
Heat Treatment.	M	B
Bevelling.	SW	B
Mechanical test (tensile, impact, hardness).	SW	B
NDE Personnel Qualification.	R	<b>B, Note</b>
MP examinations at bevel.	SW	B
Ultrasonic examinations for 100% longit, welds, bevel end +50mm wall thickness.	SW	B
Visual examination.	W	B
Dimensional control (wall thickness, ovality).	W	B
Pigging.	SW	B
Name plate marking.	W	B
Mill test certificate (for final product).	R	<b>B, EN 10204 "Type 3.2"</b>
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

**Abbreviations :**

- W = Witness**
- A = Documents reviewed by Inspector**
- B = Documents issued by Vendor's/Manufacturer's Q.C.**
- C = Certificate issued by Inspector**
- M = Monitor**
- SW = Spot witness**
- H = Hold**
- R = Review**

**Note :** According to ELOT EN 473 requirements.

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**3.13 Inspection Activity Plan (I.A.P.) for Insulating Couplings**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT		CERTIFICATION
Material Certificates.	R	B, <b>Note 1</b>
Identification of materials.	M	B
Welding procedures.	R	A, B, <b>Note 2</b>
Welders qualification.	R	A, B, <b>Note 2</b>
Mechanical and hardness test.	R	B
NDE Personnel Qualification.	R	B, <b>Note 2</b>
MP / DP Examinations.	R	B, <b>Note 2</b>
Ultrasonic examinations.	R	B, <b>Note 2</b>
Radiographic examinations.	R	B, <b>Note 2</b>
Electric test report.	R	B
Visual examination.	W	B
Dimensional control.	W	B
Air leakage test.	H	B
Pressure test.	H	B
Functional test.	H	B
Painting check (after painting completion).	W	B
Name plate marking.	W	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

- Abbreviations :**
- W** = Witness
  - A** = Documents reviewed by Inspector
  - B** = Documents issued by Vendor's/Manufacturer's Q.C.
  - C** = Certificate issued by Inspector
  - M** = Monitor
  - SW** = Spot witness
  - H** = Hold
  - R** = Review

- Notes :**
- 1) For pressure retaining parts, Vendor/Manufacturer shall provide Material Certificates conforming to ELOT EN 10204 "type 3.1" for DN ≤ 200 and SMYS ≤ 360 N/mm<sup>2</sup>, "type 3.2" for DN > 200 or SMYS > 360 N/mm<sup>2</sup>.
  - 2) According to ELOT EN 473, ELOT EN 583-1 and ELOT EN 1290 requirements.



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**3.14 Inspection Activity Plan (I.A.P) for Metering & Pressure Regulating (M/R (Note 1))**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Pre-Inspection Meeting.	H	—
Material Certificates.	R	<b>Note 2</b>
Positive Material Identification Certificates.	R	B
Explosion proof / protection degree / calibration / type test certificates ( <b>Note 4</b> ).	R	B
Identification of materials.	W	B
WPS / PQR / WPQR	R	B, A, <b>Note 2</b>
Welding Monitoring.	SW	B, <b>Note 3</b>
NDE procedures.	R	B
MP examination.	SW	B, <b>Note 2</b>
Radiographic examination.	R	B, <b>Note 2</b>
Pneumatic test.	W	B
Hydrostatic test for : <b>filter</b>	H	B
<b>Turbine or ultrasonic meter</b> (as applicable).		
Dimensional check.	W	B
Visual examination.	W	B
Functional test / factory equipment tests.	W	B
Assembly and final inspection of the complete package.	H	B
Sandblasting, painting.	SW	B
CE Mark Check.	W	B
EC Declaration of Conformity.	R	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C, <b>Note 5</b>

- Abbreviations :**
- W** = Witness
  - A** = Documents reviewed by Inspector
  - B** = Documents issued by Vendor/Manufacturer's Q.C.
  - C** = Certificate issued by Inspector
  - M** = Monitor
  - SW** = Spot witness
  - H** = Hold
  - R** = Review

- Notes:**
- 1) All components shall be inspected individually in accordance with the corresponding paragraphs and inspection plans of this Specification.
  - 2) For Pressure retaining parts, Vendor/Manufacturer shall provide Material Certificates conforming to EN 10204 "type 3.1" "type 3.1" for DN ≤ 200 and SMYS ≤ 360 N/mm<sup>2</sup>, "type 3.2" for DN > 200 or SMYS > 360 N/mm<sup>2</sup>.
  - 3) According to ELOT EN 473 requirements.
  - 4) Approved by Notified Body as per EU Directives, i.e. ATEX.
  - 5) An Inspection Certificate in accordance with ELOT EN 10204, "type 3.2" will be issued by Inspector for the overall construction of the M/R Skid with Components (the total skid unit).

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**3.15 Inspection Activity Plan (I.A.P.) for Turbine or Ultrasonic Meters**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material Certificates.	R	B, <b>Note 1</b>
Visual Inspection and Dimensional Check.	W	B
Operational / function / repeatability test / calibration and metrological performance test.	W	<b>Note 2</b>
Type test / factory test certificates.	R	B
Checking of identification / marking, labeling check.	W	B
Checking of completeness.	W	B
Check of Explosion Proof Certificate issued by an approved certification body.	R	B
CE Mark check.	W	B
EC Declaration of conformity.	R	B
Inspection Data Book.	R	B
Inspection Release Notice	H	C

- Abbreviations :**
- W** = **Witness**
  - A** = **Documents reviewed by inspector**
  - B** = **Documents issued by Vendor's/Manufacturer's Q.C.**
  - C** = **Certificate issued by Inspector**
  - M** = **Monitor**
  - SW** = **Spot witness**
  - H** = **Hold**
  - R** = **Review**

**Note 1: Manufacturer's test report according to ELOT EN 10204 - "type 3.1".**

**Note 2: Certification shall be issued by an Accredited Independent laboratory.**

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**3.16 Inspection Activity Plan (LAP.) for Motor & Pneumatic Operated Valves (Note 1)**

The I.A.P. is a guideline defining the minimum extent of Inspector activities.

- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material Certificates.	R	<b>Note 2</b>
Identification of materials.	M	—
Welding procedures.	B	A, B, <b>Note 3</b>
Welders qualification.	R	A, B, <b>Note 3</b>
Mechanical and hardness test.	R	B
NDT Personnel Qualification.	R	B, <b>Note 3</b>
MP / DP Examinations.	R	B, <b>Note 3</b>
Ultrasonic Examinations.	R	B, <b>Note 3</b>
Post weld heat treatment (if applicable).	R	B
Radiographic examinations.	R	B, <b>Note 3</b>
Electric test report.	R	B
Visual Examination.	W	B
Dimensional control.	W	B
Leakage test.	H	B
Pressure test.	H	B
Functional test.	H	B
Painting check (after painting completion).	W	B
Name plate marking.	W	B
CE Mark Check.	W	B
EC Declaration of Conformity.	R	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C, <b>Note 4</b>

- Abbreviations :**
- W** = Witness
  - A** = Documents reviewed by Inspector
  - B** = Documents issued by Vendor's/Manufacturer's Q.C.
  - C** = Certificate issued by Inspector
  - M** = Monitor SW = Spot witness
  - H** = Hold
  - R** = Review

**Notes**

- 1) Inspection of pneumatic/electric actuators in accordance with the corresponding inspection plan.
- 2) For pressure retaining parts Vendor/Manufacturer will provide Material Certificates for raw materials and final product conforming to EN 10204 "type 3.1" for DN ≤ 200 and SMYS ≤ 360 N/mm<sup>2</sup>, "type 3.2" for DN > 200 or SMYS > 360 N/mm<sup>2</sup>.
- 3) According to ELOT EN 14141, ELOT EN 473 and ELOT EN 12732 requirements.
- 4) An Inspection Certificate "type 3.2" will be issued by the Inspector after the order's completion.

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**3.17 Inspection Activity Plan (I.A.P.) for Electric Actuators**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Mechanical and Chemical Test Certificates for main components and final product.	R	<b>Note</b>
Insulation test.	W	B
Functional test.	W	B
Performance test.	W	B
Check of explosion proof and weather proof certificates issued by an approved certification body.	R	B
Visual and dimensional check.	W	B
CE Mark Check.	W	B
EC Declaration of conformity.	R	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

- Abbreviations :**
- W = Witness**
  - A = Documents reviewed by Inspector**
  - B = Documents issued by Vendor's/Manufacturer's Q.C.**
  - C = Certificate issued by Inspector**
  - M = Monitor**
  - SW = Spot witness**
  - H = Hold**
  - R = Review**

**Note :** Manufacturer's test report according to ELOT EN 10204 "type 2.2".

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**3.18 Inspection Activity Plan (I.A.P.) for Pneumatic Actuators**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Mechanical & Chemical Test Certificates for main components and final product.	R	<b>Note</b>
Insulation test.	W	B
Functional test.	W	B
Tightness test for Cylinder and Pneumatic Piping.	W	B
Running Test.	W	B
Operation and Performance test.	W	B
Check of explosion proof and weather proof certificates issued by an approved certification body.	R	B
Visual and dimensional check.	W	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

**Abbreviations :**
  
**W = Witness**
  
**A = Documents reviewed by Inspector**
  
**B = Documents issued by Vendor's/Manufacturer's Q.C.**
  
**C = Certificate issued by Inspector**
  
**M = Monitor**
  
**SW = Spot witness**
  
**H = Hold**
  
**R = Review**

**Note : Manufacturer's test report according to ELOT EN 10204 "type 2.2".**

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**3.19 Inspection Activity Plan (I.A.P.) for Control Valves**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material Certificates.	R	<b>Note 1</b>
Identification of materials.	M	—
Welding procedures.	R	A, B, <b>Note 2</b>
Welders qualification.	R	A, B, <b>Note 2</b>
Mechanical and hardness test.	R	B
NDE Personnel Qualification.	R	<b>Note 2</b>
MP / DP Examinations.	R	B, <b>Note 2</b>
Ultrasonic examinations.	R	B, <b>Note 2</b>
Radiographic examinations.	R	B, <b>Note 2</b>
Visual examination.	W	B
Dimensional control.	W	B
Leakage test.	H	B
Pressure test.	H	B
Functional test.	H	B
Painting check (after painting completion).	W	B
Name plate marking.	W	B
CE Mark Check.	W	B
EC Declaration of Conformity.	R	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

- Abbreviations:**
- W** = Witness
  - A** = Documents reviewed by Inspector
  - B** = Documents issued by Vendor's/Manufacturer's Q.C.
  - C** = Certificate issued by Inspector
  - M** = Monitor
  - SW** = Spot witness
  - H** = Hold
  - R** = Review

- Notes :**
- 1) For pressure retaining parts Vendor/Manufacturer will provide Material Certificates for raw materials and final product conforming to ELOT EN 10204 "type 3.1" for DN ≤ 200 and SMYS ≤ 360 N/mm<sup>2</sup>, "type 3.2" for DN > 200 or SMYS > 360 N/mm<sup>2</sup>.
  - 2) According to ELOT EN 14141, ELOT EN 473 and ELOT EN 12732 requirements.

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### 3.20 Inspection Activity Plan (I.A.P.) for **Pressure & Thermal Relief Valves**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material Certificates.	R	<b>Note 1</b>
Identification of materials.	M	—
Welding procedures.	R	A, B, <b>Note 2</b>
Welders qualification.	R	A, B, <b>Note 2</b>
Mechanical and hardness test.	R	B
NDT Personnel Qualification.	R	B, <b>Note 2</b>
MP / DP Examinations.	R	B
Ultrasonic examinations.	R	B
Radiographic examinations.	R	B
Visual examination.	W	B
Dimensional control.	W	B
Leakage test.	H	B
Pressure test.	H	B
Functional test.	H	B
Painting check (after painting completion).	W	B
Name plate marking.	W	B
CE Mark Check.	W	B
EC Declaration of Conformity.	R	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

**Abbreviations :**
  
**W** = **Witness**
  
**A** = **Documents reviewed by Inspector**
  
**B** = **Documents issued by Vendor's/Manufacturer's Q.C.**
  
**C** = **Certificate issued by Inspector**
  
**M** = **Monitor**
  
**SW** = **Spot witness**
  
**H** = **Hold**
  
**R** = **Review**

- Notes :**
  
 1) For pressure retaining parts Vendor/Manufacturer will provide Material Certificates conforming to EN 10204 "type 3.1" for DN ≤ 200 and SMYS ≤ 360 N/mm<sup>2</sup>, "type 3.2" for DN > 200 or SMYS > 360 N/mm<sup>2</sup>.
- 2) According to ELOT EN 14141, ELOT EN 473 and ELOT EN 12732 requirements.

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**3.21 Inspection Activity Plan (I.A.P.) for Control Panels - Scada System - Telecommunication System - Distributed Control System - Emergency Shut Down System**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Functional and factory acceptance test.	W	B
Visual and dimensional examination.	W	B
Check of explosion proof and protection degree certificates issued by an approved certification body.	R	B
Dielectric, calibration and insulation test.	W	B
Electrical performance test.	W	B
Loop simulation test.	W	B
Checking of labeling.	W	B
Painting check.	W	B
Material and test certificates.	R	B
Visual and dimensional check.	W	B
CE Mark Check.	W	B
EC Declaration of Conformity.	R	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

- Abbreviations :**
- W** = Witness
  - A** = Documents reviewed by Inspector
  - B** = Documents issued by Vendor's/Manufacturer's Q.C.
  - C** = Certificate issued by Inspector
  - M** = Monitor
  - SW** = Spot witness
  - H** = Hold
  - R** = Review



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### 3.22 Inspection Activity Plan (I.A.P.) for Gas Chromatographs

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material Certificates.	R	<b>B, Note 1</b>
Visual Inspection and Dimensional Check.	W	B
Operational / function / calibration & metrological performance test.	W	<b>Note 2</b>
Type test / factory test certificates.	R	B
Quantity Check.	W	B
Checking of identification / marking, labelling check.	W	B
Checking of completeness.	W	B
Check of Explosion Proof Certificate issued by an approved certification body.	R	B
CE Mark check.	W	B
EC Declaration of conformity.	R	B
Inspection Data Book.	R	B
Inspection Release Notice	H	C

**Abbreviations :**

- W** = Witness
- A** = Documents reviewed by Inspector
- B** = Documents issued by Vendor's/Manufacturer's Q.C.
- C** = Certificate issued by Inspector
- M** = Monitor
- SW** = Spot witness
- H** = Hold
- R** = Review

**Note 1 :** Manufacturer's test report according to ELOT EN 10204 - "type 3.1".

**Note 2 :** Certification shall be issued by an accredited independent laboratory at Vendor's/Manufacturer's cost.

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### 3.23 Inspection Activity Plan (I.A.P.) for **Instrument and Fiber Optic Cables**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material certificates for raw and final product.	R	<b>ELOT EN 10204 Type 3.1</b>
Cables layout and wiring check.	SW	B
Visual and dimensional check.	SW	B
Attenuation / Manufacturer's tests.	SW	B
Marking (for cables and drums).	SW	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

**Abbreviations :**
  
**W** = Witness
   
**A** = Documents reviewed by Inspector
   
**B** = Documents issued by Vendor's/Manufacturer's Q.C.
   
**C** = Certificate issued by Inspector
   
**M** = Monitor
   
**SW** = Spot witness
   
**H** = Hold
   
**R** = Review

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### 3.24 Inspection Activity Plan (LAP.) for Instrument and Emergency Power Supplies and Battery Systems (U.P.S. etc.)

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.
- U.P.S. System.
- Battery.

SUBJECT	ACTION	CERTIFICATION
Material certificates.	R	—
Full operational test.	W	B
Dielectric tests.	W	B
Dimensional check & visual inspection.	W	B
Check of safety & operational interlocks.	W	B
Checking of completeness.	W	B
Certification of all components including type tests and type of protection.	R	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

**Abbreviations:** W = Witness  
A = Documents reviewed by Inspector  
B = Documents issued by Vendor's/Manufacturer's Q.C.  
C = Certificate issued by Inspector  
M = Monitor  
SW = Spot witness  
H = Hold  
R = Review

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### 3.25 Inspection Activity Plan (I.A.P.) for **Electric Motors**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material certificates.	R	B
Manufacturer's tests in accordance with <b>ELOT EN 60034-1</b> :	W	B
<ul style="list-style-type: none"> <li>• Dimensional check &amp; visual inspection.</li> <li>• Load characteristic including <math>\eta</math> load test.</li> <li>• Torque test (160%, 15S).</li> <li>• Over speed test.</li> <li>• Vibration test.</li> <li>• Calculation of efficiency / if agreed upon.</li> <li>• Measurement of noise level.</li> <li>• Determination of insulation resistance.</li> <li>• Dielectric test (high voltage).</li> <li>• Measurement of locked motor current.</li> </ul>		
Checking of completeness.	W	B
Name plate.	W	A
Certification of all components including type tests and type of protection.	R	B
CE Mark check.	W	B
EC Declaration of Conformity.	R	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

**Abbreviations :**
  
**W** = Witness
   
**A** = Documents reviewed by Inspector
   
**B** = Documents issued by Vendor's/Manufacturer's Q.C.
   
**C** = Certificate issued by Inspector
   
**M** = Monitor
   
**SW** = Spot witness
   
**H** = Hold
   
**R** = Review

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**3.26 Inspection Activity Plan (I.A.P.) for Electrical Switchgear (Circuit Breakers, Power Centers, Motor Control Centers, Distribution Boards)**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material certificates.	R	B
Factor test (Routine test).	W	B
Full operational tests.	W	B
Checking of completeness.	W	B
Check of safety & operational interlocks.	W	B
Dimensional check & visual inspections.	W	B
Certification of all components including type tests, type of protection and explosion proof certificate issued by an approved certification body.	R	B
CE Mark check.	W	B
EC Declaration of Conformity.	R	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

- Abbreviations :**
- W** = Witness
  - A** = Documents reviewed by Inspector
  - B** = Documents issued by Vendor's/Manufacturer's Q.C.
  - C** = Certificate issued by Inspector
  - M** = Monitor
  - SW** = Spot witness
  - H** = Hold
  - R** = Review

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**3.27 Inspection Activity Plan (LAP.) for Cathodic Protection / Earthing / Lightning Equipment**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material certificates.	R	B
Dimensional check.	W	B
Full operational tests.	W	B
Checking of completeness.	W	B
Certification of all components including type tests, type of protection and explosion proof by an approved certification body.	R	B
Factory and routine test.	W	B
CE Mark check.	W	B
EC Declaration of Conformity.	R	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

- Abbreviations :**
- W** = Witness
  - A** = Documents reviewed by Inspector
  - B** = Documents issued by Vendor's/Manufacturer's Q.C.
  - C** = Certificate issued by Inspector
  - M** = Monitor
  - SW** = Spot witness
  - H** = Hold
  - R** = Review

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**3.28 Inspection Activity Plan (I.A.P.) for Emergency Gas / Diesel Generator**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material certificates.	R	B
NDT procedure qualification.	R	A
NDT inspection personnel qualification records.	R	A
Ultrasonic examination records.	R	B
Radiographic examination records.	R	B
Dye penetrant / magnetic particle inspection records.	R	B
Dimensional check and visual inspection.	W	B
Hydrostatic test (where required).	W	B
Performance and running tests together with the driven machine.	H	A
Governor test.	W	B
Dismantling after test (partial).	W	B
Site running test	H	A
Vibration measurement.	W	B
Noise measurement.	W	B
Fuel and exhaust gas leakage check.	W	B
Emission measurement.	W	B
CE Mark check.	W	B
EC Declaration of Conformity.	R	B
Name plate marking.	W	B
Cleaning, preservation, painting.	R	B
Check of completeness including spares.	W	B
Preparation for shipment.	R	B
Completeness of documentation.	R	B
Inspection Release Notice.	H	C

**Abbreviations :**

- W = Witness**
- A = Documents reviewed by Inspector**
- B = Documents issued by Vendor's/Manufacturer's Q.C.**
- C = Certificate issued by Inspector**
- M = Monitor**
- SW = Spot witness**
- H = Hold**
- R = Review**

**Note :** all above for the large machinery only.

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- 3.29** Inspection Activity Plan (I.A.P.) for **Fire Fighting System**
- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
  - Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material certificates.	R	B
Manufacturer's tests:	W	B
• Full operational test.		
• Dielectric tests.		
• Dimensional check & visual inspection.		
Checking of completeness.	W	B
Certification of all components including type tests and type of protection.	R	B
CE Mark check.	W	B
EC Declaration of Conformity.	R	B
Inspection Data Book.	R	B
inspection Release Notice.	H	C

- Abbreviations :**
- W** = Witness
  - A** = Documents reviewed by Inspector
  - B** = Documents issued by Vendor's/Manufacturer's Q.C.
  - C** = Certificate issued by Inspector
  - M** = Monitor
  - SW** = Spot witness
  - H** = Hold
  - R** = Review



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### 3.30 Inspection Activity Plan (I.A.P.) for Cranes

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material certificates for main beam and drum.	R	B, Note 1
Hook and rope certificates.	R	B, Note 2
Cables certificates.	R	B, Note 2
Electric motors certificates.	R	B, Note 2
Check of explosion proof and weather proof certificates issued by an approved certification body.	R	B
Identification of material / components.	W	B
WPS / PQR.	R	A, B, Note 3
Inspection during assembly.	SW	—
Examination of welds.	W	B
NDT examination / MT 20% on fillet welds.	W	B, Note 3
Painting check (after painting completion).	W	B
Final visual and dimensional check.	W	B
Speed control.	W	B
Noise control certificate.	R	B
Dynamic overload test 120% of rated load.	W	B
Static overload test 150% of rated load.	W	B
Insulation resistance and voltage test.	W	B
Functional test (functional sequence, operational test for limit switches).	W	B
Name plate marking.	W	B
CE Mark check.	W	B
EC Declaration of conformity.	R	B
Check of completeness.	W	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

**Abbreviations:**

- W** = Witness
- A** = Documents reviewed by Inspector
- B** = Documents issued by Vendor's/Manufacturer's Q.C.
- C** = Certificate issued by Inspector
- M** = Monitor
- SW** = Spot witness
- H** = Hold
- R** = Review

**Notes**

- 1) According to ELOT EN 10204 "type 3.1".
- 2) According to ELOT EN 10204 "type 2.2".
- 3) According to ELOT EN 473 and ELOT EN 12732.

**HELLENIC GAS TRANSMISSION SYSTEM OPERATOR**



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**3.31** Inspection Activity Plan (I.A.P.) for **Structural Steel**

- The I.A.P. is a guideline defining the minimum extent of Inspector activities.
- Type and extent of tests will strictly comply with codes and / or other specifications of the relevant Material Requisition.

SUBJECT	ACTION	CERTIFICATION
Material certificates, type <b>ELOT EN 10204 "type 3.1"</b> .	R	B
Welding procedure qualification records.	R	A, B
Examination surface preparation.	SW	—
Examination of welds.	W	—
Final visual inspection.	SW	B
NDT examination.	SW	B
Final dimensional check.	SW	B
Compliance with requisition (approved drawings).	R	B
Marking / Tagging.	SW	B
Inspection Data Book.	R	B
Inspection Release Notice.	H	C

- Abbreviations :**
- W** = Witness
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