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HELLENIC GAS TRANSMISSION SYSTEM OPERATOR

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TECHNICAL JOB SPECIFICATION
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HIGH PRESSURE (HP) TRANSMISSION SYSTEMS

GAS SLAM- SHUT VALVES

QUALITY ASSURANCE PAGE

CHANGES LOG

REVISIONS LOG

0	05-04-2011	FIRST ISSUE	PQ DPT.	VG
Rev. No	Rev. Date	REASON FOR CHANGE	Made By	Approved By

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REFERENCED DOCUMENTS

Job Specification 500/5
[Piping Material]

Job Specification 830/1
[External Painting]

Job Specification 970/2
[Shop Inspection of Equipment and Materials for NGT Project]

EU DIRECTIVE 94/9/EC ATEX
[Equipment Explosive Atmospheres Directive]

EU DIRECTIVE 97/23/EC PED
[Pressure Equipment Directive]

EU DIRECTIVE 2006/95/EC LVD
[Low Voltage Directive]

ELOT EN 14382
[Safety devices for gas pressure regulating stations and installations - Gas safety shut-off devices for inlet pressures up to 100 bar]

ELOT EN 60529
[Degrees of protection provided by enclosures (IP code)]

ELOT EN 60947-5-6
[Low-voltage switchgear and control gear - Part 5-6: Control circuit devices and switching elements, DC interface for proximity sensors and switching amplifiers (NAMUR)]

ELOT EN ISO 8434
[Metallic tube connections for fluid power and general use]

DIN 2353
[Non-soldering compression fittings with cutting ring - Complete fittings and survey]

1.0 SCOPE

1.1 ITEM

Slam-shut valves (safety shut-off devices).

1.2 SERVICE

Non corrosive gas.

1.3 APPLICATION

Provide rapid shut-off of gas supply in the event where the pressure in the down stream piping system has reached an upper or lower set pressure.

2.0 GENERAL REQUIREMENTS

2.1 LEGISLATION AND STANDARDS

- **EU DIRECTIVE 97/23/EC PED**
- **EU DIRECTIVE 94/9/EC ATEX**
- **EU DIRECTIVE 2006/95/EC LVD**
- **ELOT EN 14382**

2.2 UNITS

Metric

2.3 PATTERN

Manufacturer's standard.

Valve body shall be provided with indication of flow direction.

2.4 CONSTRUCTION

2.4.1 GENERAL

The slam-shut valve shall be gas operated, but may only consume gas momentarily when triggered. They shall be pilot operated.

All pressure safety valves shall offer protection facilities against unauthorized adjustments of the set-points.

In normal operation as well as in case of a diaphragm break-down, gas may not enter the room in which the valve is installed.

2.4.2 RESPONSE TIME

Less than two seconds.

2.4.3 ACCURACY

As per **ELOT EN 14382.**

2.4.4 VALVE BODY DESIGN

Split body or top-entry design.

The slam-shut valve consists of a valve body, an actuator, a controller, a proximity sensor and other items necessary to provide a safe function. The design of the valve body shall facilitate easy maintenance preferably without the need to remove the entire valve from the pipeline.

2.4.5 FLANGES

Flanges shall conform to the relevant piping specifications **(Job Specification 500/5).**

2.4.6 SEAT SEALING

Soft seated or metal-to-metal with resilient inserts.

2.4.7 ACTUATOR CONTROLLER BODY OR ANY EXTERNAL CONNECTION

Shall be designed for at least the same pressure rating as the valve body.

2.4.8 CONTROLLER

The controller shall have provision against unauthorized changes of set point.

2.4.9 AUXILIARY PIPING AND CONNECTIONS

Means of pressure equalizing shall be provided as an integral part of the slam-shut valve.

Auxiliary piping and fittings shall be made of stainless steel.

Fittings shall conform to **DIN 2353** and **ELOT EN ISO 8434.**

If the specified fittings are not supplied, adaptor fittings shall be delivered.

2.4.10 ADDITIONAL TRIGGERING DEVICE

Local, manually operated.

Mounting of remote controlled triggering device shall be possible.

2.4.11 POSITION INDICATION

Local indication of open and closed position.

2.4.12 ACCESSORIES

The valve shall be supplied with non "contact" inductive proximity sensor for close signaling.

The proximity sensor shall be in accordance with **ELOT EN 60947-5-6.** Enclosure protection shall be min. IP 65 **(ELOT EN 60529),** as far as outdoor installations are concerned. For indoor installations, IP 54 protection class can be accepted. The proximity switch shall be suitable for use in a hazardous area, and in accordance with its classification study. The applicable norm shall be the **EU Directive 94/9/EC ATEX.**

Impulse lines of SSV must be provided with 3-way spring actuated valve to allow on stream verification/adjustment. The outdoor installed impulse lines shall be electrically heat traced and insulated to maintain a gas temperature of at least +5° C, when the ambient temperature drops to -20° C.

2.5 MATERIALS

2.5.1 GENERAL

Only materials conforming to recognized material standards shall be used.

Attention is drawn to **Job Specification 970/2,** where the material certification requirements are specified.

2.5.2 VALVE BODY

Cast or forged steel as given in **ELOT EN 14382.**

2.5.3 ACTUATOR AND CONTROLLER

The materials that shall be used for all moving parts and sliding surfaces which are vital to the trouble-free functioning of the safety device shall be corrosion - resistant.

2.5.4 SOFT SEATS AND SEALS

Suitable elastomer.

2.6 SURFACE TREATMENT

Refer to **Job Specification 830/1.**

2.7 NON DESTRUCTIVE EXAMINATION

2.7.1 BODY

All exterior and accessible interior surfaces of bodies and covers shall be magnetic particle examined according to **ELOT EN 14382.**

2.7.2 WELDS (IF ANY)

All joints shall be radiographed and found acceptable in accordance with **ELOT EN 14382.**

Where both radiography and ultrasonic examinations are unfit for detection then magnetic particle examination may be used.

2.8 TYPE TEST

In accordance with **ELOT EN 14382.**

2.9 FACTORY TEST

Each slam-shut valve shall be tested in accordance with the requirements of **ELOT EN 14382.**

2.9.1 STRENGTH TEST

As per **ELOT EN 14382.**

2.9.2 TIGHTNESS TEST

As per **ELOT EN 14382.**

2.9.3 FUNCTIONAL TEST

Each valve including accessories shall pass a functional test for accuracy group, response time verification, etc, as per **ELOT EN 14382.**

2.10 MARKING

Each safety valve shall be fitted with a stainless steel marker plate, indicating all relevant technical data required by **ELOT EN 14382.**

The plate shall additionally be marked with the contract and item tag numbers.

2.11 DELIVERY

The slam-shut valves shall be delivered completely assembled. All outlets shall be capped and protected against corrosion.

3.0 INSPECTION AND CERTIFICATION

Inspection will be performed by an Accredited Inspection Body appointed by Owner.

Inspection requirements are defined in the following documents.

a. Material Requisition.

b. **Job Specification 970/2.**

c. Relevant project specifications.

d. Inspection clauses of applicable codes.

Inspection procedures to be followed are detailed in Owner document "Inspections and Test Instructions for NGT Project".

4.0 COMPLIANCE WITH THE EU DIRECTIVES

All parts that comply with the "New Approach" directives shall be provided with:

a. A physical CE marking and other information as required by the relevant directives.

b. A declaration of conformity which lists all the directives with which the product complies.

c. Any other information specified by the directive, e.g. user instructions.