



**HELLENIC GAS
TRANSMISSION
SYSTEM OPERATOR**

357-359, MESSOGION AVE.,
15231 ATHENS, GREECE
Tel.: 210 6501258
Fax : 210 6501551

**TECHNICAL JOB
SPECIFICATION**

570/4

REVISION 0

DATE 05/04/2011

**HIGH PRESSURE (HP) TRANSMISSION
SYSTEMS**

STUD – BOLTS AND NUTS

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it is specially furnished

QUALITY ASSURANCE PAGE

CHANGES LOG

REVISIONS LOG

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

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REFERENCE DOCUMENTS

Job Spec. No. 970/2
[Shop Inspection of Equipment and Material for NGT Project]

ELOT EN 1515-1
[Flanges and their joints - Bolting - Part 1: Selection of bolting]

ELOT EN 1515-3
[Flanges and their joints. Bolting. Classification of bolt materials for steel flanges, class designated]

ELOT EN 1759-1 [Flanges and their joints. Circular flanges for pipes, valves, fittings and accessories, class-designated. Steel flanges, NPS 1/2 to 24]

ELOT EN 10045-1
[Charpy impact test on metallic materials; part 1: test method]

ELOT EN 10269
[Steels and nickel alloys for fasteners with specified elevated and/or low temperature properties]

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1.0 SCOPE

1.1 ITEM

Bolting materials for flanged joints.

1.2 SERVICE

Sweet natural gas with sporadic passage of water and glycol.

1.3 ADDITIONAL INFORMATION

Additional information may be given in the Material Requisition and should be read in conjunction with this material specification.

2.0 GENERAL REQUIREMENTS

2.1 TYPE

Stud bolts with 2 nuts as per **ELOT EN 1515-1** and **ELOT EN 1515-3**, for flanges as per **ELOT EN 1759-1**.

2.2 MATERIAL

2.2.1 STUD BOLTS

Material 42CrMo4 as per **ELOT EN 10269**. See also table 1 of **ELOT EN 1515-3**.

2.2.2 NUTS

Material C45E as per **ELOT EN 10269**.
Nuts larger than 12 mm shall not be machined from barstock.

2.2.3 IMPACT TESTS

Stud bolts and nuts with thread diameter ≥ 50 mm shall be Charpy V-notch impact tested in accordance with **ELOT EN 10045-1**. Test temperature shall be -20°C or lower.

2.3 DIMENSIONS

2.3.1 DIAMETER

As per Material Requisition

2.3.2 BOLT LENGTH

As per Material Requisition

2.3.3 THREAD

Fine thread as per **ELOT EN 1515-1**.

2.3.4 NUT

As per **ELOT EN 1515-1**.

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2.4 MARKING

As per material standard.

2.5 SURFACE TREATMENT

Zinc (hot dipped galvanized) or phosphate coated.

2.6 PACKING

Bolts with nuts shall be packed separately by type, diameter and length. The packing shall be legibly marked with diameter and length.

3.0 TECHNICAL DOCUMENTATION

3.1 QUANTITY

Four copies of each, inclusive of original, for all documents and certificates. Also electronic files of all Documents and Certificates must be submitted by Contractor to the Owner.

3.2 DOCUMENT REQUIREMENTS

3.2.1 ON DELIVERY

Vendor's inspection certificate marked with Owner's supply contract number and containing as a minimum.

- Chemical analysis results.
- Tensile test results representative of the finished materials (studs only).
- Proof load test results representative of the finished materials (nuts only).
- Hardness test results representative of the finished materials (nuts only).
- Impact test results (thread diameter \geq 50 mm only)

4.0 INSPECTION AND CERTIFICATION

Inspection requirements are defined in the following documents.

- a. Material requisition
- b. DESFA Job Specification No. 970/2 "Shop inspection of equipment and material for NGT project"
- c. Relevant project specifications
- d. Inspection clauses of applicable codes

Inspection procedures to be followed are detailed in Owner's document "Inspection and Test Instructions".