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Research and Technology Management

امور تدوین استانداردها

Standardization Division

IGS

Iranian Gas Standards

مشخصات فنی خرید

عمل کننده هیدرولیکی شیرآلات

Gas over Oil Actuators

FOREWORD

This standard is intended to be mainly used by **NIGC** and contractors and has been prepared on interpretation of recognized standards , technical documents , knowledge ,backgrounds and experiences in gas industries at national and international levels.

Iranian Gas Standards (**IGS**) are prepared , reviewed and ammended by technical standard committees within NIGC Standardization Div. and submitted to the **NIGC's "STANDARDS COUNCIL"** for approval .

IGS Standards are subject to revision , amendment or withdrawal , if required , thus the latest edition of **IGS** shall be checked/inquired by **NIGC** users .

This standard must not be modified or altered by the end users within **NIGC** and her contractors. Any deviation from normative references and/or well known manufacturers specifications must be reported to Standardization div.

Any comments from concerned parties on **NIGC** distributed **IGS** are welcome to technical standards committees and will receive serious attention and consideration should a revision to standards is recommended .

GENERAL DEFINITIONS :

Throughout this standard the following definitions , where applicable , should be followed :

1- "**STANDARDIZATION DIV.**" has been organized to deal with all aspects of industrial standards in NIGC . Therefore , all queries for clarification or amendments are requested to be directed to the mentioned div.

2- "**COMPANY** " : refers to national iranian gas company .

3- "**SUPLIER**" : refers to a firm who will supply the service , equipment or material to igs specification whether as the prime producer or manufacturer or a trading firm .

4- "**SHALL** " : is used where a provision is mandatory.

5- "**SHOULD** " : is used where a provision is advised only.

6- "**MAY** " : is used where a provision is completely discretionary.

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NATIONAL IRANIAN GAS COMPANY

SPECIFICATION FOR GAS OVER OIL ACTUATORS

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RESEARCH DEPARTMENT STANDARD COMPANY

ACTUATOR

GENERAL DESIGN CONDITIONS

- 1- The actuator shall be natural gas – over – oil double act – ING type . the actuator shall be supplied with emergency hand pump , local push buttons of , local position indicator , **automatic line break system (if specified)** and emergency power gas storage tank for a complete operations (one open & one close stroke) .
The line break system shall have an adjustable range of 0.5 to 4 bar / min rate of drop and shall over ride the local push buttons of lever .
- 2- The supplier shall submit , with his technical quotation the actual curves and values for the actuator output torque and the torque required for operation of the valve , plotted against each other within the specified pressure and temperature conditions as in actuator data sheet .
- 3- The supplier shall indicate in his bid the actual torque values required to operate the valve (s) within the specified operating IMESS , operating PRJ actuator at the extreme temperatures as listed in actuator data sheet,
- 4- The actuator maximum operating time at minimum pressure shall be as follows :
For valves up to 30 in , 45 SEC
For valves 32 to 56 in 120 SEC
- 5- The actuator itself shall be provided with hydraulic torque limit switch when remote control is not required .
- 6- The hydraulic manual over- ride shall be provided pressure .with proper relief valve to limit the developed pressure.
- 7- The pneumatic components shall be totally enclosed in a water proof enclosure .

GENERAL REQUIREMENTS

Supplier is required to submit the following information and material in English , 3 sets with technical quotation and 10 sets after receiving the order .

- 1- All technical information and original catalogue (s).
- 2- Material specifications for all components .
- 3- Complete parts list catalogue (s) .

- 4- Recommended spare part lists and prices for commissioning and two years operation .
- 5- General drawing (s) showing outline dimension .
- 6- Manual for installation, commissioning ,operational maintenance including trouble shooting procedures.
- 7- Detailed description and drawing (s) for operation of the control system .
- 8- All piping for hydraulic and pneumatic circuits shall be stainless steel AISI -316.
- 9- Both actuator and emergency storage tank shall be sized for minimum line pressure
- 10-When valve and actuator are not delivered assembled together the supplier shall supply all necessary items .
Fittings , tubing , stop valves and shuttle valves, etc. ,for complete installation of valve and associated actuator. .
- 11-The serial no , of the valve tested with the actuator shall be marked on the actuator name plate .
- 12-The valve stem (extension) & actuator yoke shall be marked for proper alignment for field assembling .
- 13-Actuator shall operate using line pressure directly
No pressure actuator is allowed .

VALVE AND ACTUATOR TEST

Each valve and its corresponding actuator shall be assembled together and following tests shall be performed locally and / or by remote (if remote control is specified) .

- 1- With valve in close position and differential pressure across the valve equal to maximum operating pressure, valve shall be opened smoothly and without any difficulty .
During the test , the actuator feed pressure shall be equal to the specified maximum pressure.
The same test as above shall be performed for specified operating and minimum pressure .
- 2- With valve in open position , the valve shall be closed and opened for minimum 10 times with specified minimum and maximum operating pressure.
- 3- With valve in close position , the valve shall be opened by using hand pump under maximum differential pressure condition and shall be closed using hand pump under maximum required torque condition .

- 4- With the valve in open position , line break system shall close the valve at maximum, operating and minimum pressure for the following rate pressure drops:0.5 ,0.75, 1.0, 1.25, 1.5 ,2.0, 2.5 ,3.0 ,3.5,and 4.0 bar per minute .

Duration of closing time shall also be specified for each case .

ELECTRICAL , COMPONENTS TEST

- 1- If remote control is required , the solenoid valve and limit switches shall be tested and adjusted separately and corresponding certificates shall be supplied by the manufacturer .
- 2- The solenoid valves and limit switches and all other electrical components shall be enclosed in an explosion proof closure for zone 1 , group (natural gas) , EX /e , T4 IEC 79-7 .
- 3- Test certificates for all above mentioned items shall be submitted prior to shipment

ACTUATOR TEST

- 1- The actuator shall be pressurized with all its components 1.25 times the maximum working pressure for a duration of 2 hours using recording gauge .
No leakage or pressure drop shall be observed .
- 2- The actuator shall be tested on torque machine and it shall produce the required torques for conditions specified in section " a" item 1.

MARKING (NAME PLATE)

Each actuator shall carry , grouped together on a steel badge plate , the following inscriptions .

- 1- Manufacturer name and trade mark .
- 2- Type , model and serial number .
- 3- Max , and min. working pressure .
- 4- Max , and min. operating temperature .
- 5- Line break range .
- 6- Line break setting .
- 7- Range of opening and closing time .
- 8- Out put torque at min . working pressure .
- 9- Corresponding valve serial number and size .
- 10-Relief valve setting .

11-Purchase order and item number .

12-Year of manufacture .

PAINTING

The external surface of the actuator shall be thoroughly cleaned by removing all rust and mill scale . surfaces to be painted shall be completely free from grease , grit and other foreign materials .

Actuator shall be painted with organic zinc rich system according to BS -5493(1977) reference no SD3, with total thickness of 100 microns .

Paint specification shall be in accordance with reference no .

of BS-5493(1977) final color shall be gray according to ASA-49

SHIPMENT

For valve sizes larger than 20 inch after performing all the required tests the valve with stem extension & actuator shall be packed separately.

The actuator and valve with stem extension shall then be clearly marked so that it can re-assembled in the field . for valve sizes up to 20 inch after performed all the required tests. The valve , stem extension and the actuator shall be assembled together & packed and delivered as one unit .

DATA SHEET

Manufacturer,s name	
Model no.	

ELEMENT	UNIT	DATA						REMARK
Operating pressure	PSI	Min.		normal		max		
Operating temperature	C	min				max		
Remote control	-----	yes or no						
Solenoid valve	-----	Normally open or close						
Line brake system	psi	min		max				