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| <b>Examination Procedure</b><br><br>Rubrik / Title<br><b>Performance testing of valve actuators</b> | Beteckning / Document<br><b>KBE EP-115</b>         |
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## 1 Scope

This Examination Procedure specifies the performance testing that shall be applied to all electrically powered valve actuators.

## 2 Objective

To check the correct operation and performance of valve actuators and the setting range and performance of their limit switches.

## 3 Method

### 3.1 No-load test

The valve actuator is operated in both directions with no load and the motor current is measured.

### 3.2 Load test

Unless otherwise specified, the output shaft of the actuator shall be loaded with the torque specified in the Technical Specification while the following tests are carried out.

1. With the end of travel limit switches set as required by the Technical Specification, the actuator shall be run in both directions and operation of the switches checked.
2. With the torque switches set to maximum values in both directions, the actuator shall be run in both directions with increasing load until the torque switches operate. Motor voltage, current and torque when the switches operate shall be noted and the switches checked for correct performance.
3. With the torque switches disconnected the maximum torque of the actuator in both directions is measured. Voltage and current at maximum torque shall also be measured.
4. With the torque switches set to the value called for in the Technical Specification, the actuator shall be run in both directions, and operation of the switches checked.
5. The end of travel limit switches shall be set as specified in the Technical Specification. The actuator is operated in both directions, and operating time and number of turns required for full travel are measured.

6. The changeover mechanism for manual/motor operation shall be checked by turning the manual operation handwheel through a few turns in each direction with the selector mechanism set to "Manual" position, and then restarting the motor.

## 4 Acceptance Criteria

The actuator must operate normally during all checks outlined above. Measured values of voltage, current, torque and operation time must meet the requirements in the Technical Specification.

The maximum torque as measured under Item 3 above shall be between 1,4 and 2,0 times rated torque.

Irrespective of the position of the Manual/Motor selector lever, the manual operating handwheel must remain stationary when the motor drive is engaged.

## 5 Documentation

Inspections carried out shall be documented by means of inspection report. Several inspections within one and the same inspection plan may be included in the same document.

Inspections carried out as routine (100%) with the units supplied shall be reported to the Purchaser with original documents.

The document shall as a minimum include the following:

- Product inspected

Product, designation, quantity, production number and reference to the Purchaser's order number shall be specified.

- Identity

The identity of the product in terms of a type-tested design and/or a specification shall be specified if this identity is not certified in a separate document.

- Examination Procedure

The procedure used for the inspection shall be specified (this Examination Procedure or other procedure agreed upon by Supplier and Purchaser).

- Measurement equipment

Type of equipment, unit number, calibration data, etc, shall be specified for testing devices, which performance is significant to the results.

- Results

Measured values which are to be documented as per the procedure and any deviations shall be reported.

It shall be evident that the product has met the set requirements.

- Inspector

Date and signature of the inspector responsible.

- Approval

The document shall be examined and approved by the quality assurance function and according to the manufacturer's internal instructions.