



INSTALLATION, OPERATION AND MAINTENANCE MANUAL - DAMPERS

List of Contents

1	INSTALLATION, OPERATION AND MAINTENANCE MANUAL.....	3
1.1	GENERAL INTRODUCTION.....	3
1.2	SCOPE	3
1.3	HEALTH AND SAFETY INFORMATION.....	3
1.3.1	Requirements	3
1.3.2	Warning all dampers	4
2	PNEUMATIC SHUT-OFF DAMPERS	4
2.1	General information	4
2.1.1	Connection to ductwork	4
2.1.2	Air connection.....	4
2.1.3	Electric connection	5
2.1.4	End control.....	5
2.2	Operation instruction.....	5
2.2.1	Preparation for start-up.....	5
2.2.2	Start-up procedure.....	5
2.2.3	Normal operation	5
2.2.4	Shut-down.....	5
2.3	Maintenance	6
2.3.1	Every 6 months	6
2.3.2	Yearly.....	6
3	PNEUMATIC FIRE AND GAS DAMPERS.....	6
3.1	General information	6
3.1.1	Connection to ductwork	6
3.1.2	Air connection.....	6
3.1.3	Electric connection	6
3.1.4	End control.....	7
3.2	Operation instruction.....	7
3.2.1	Preparation for start-up.....	7
3.2.2	Start-up procedure.....	7
3.2.3	Normal operation	7
3.2.4	Shut-down.....	7
3.3	Maintenance	8
3.3.1	Every 6 months	8
3.3.2	Yearly.....	8

1 INSTALLATION, OPERATION AND MAINTENANCE MANUAL

This document contains instructions regarding installation, operating and maintenance of the following dampers

- Pneumatic Shut-off dampers
- Pneumatic Fire & Gas dampers

1.1 GENERAL INTRODUCTION

Purpose of this procedure is to ensure proper operation and maintenance of dampers. All the equipment is delivered in accordance with requirements in the contract documents. Details about the equipment is covered by other documents.

1.2 SCOPE

The actuator on pneumatic dampers operates through the solenoid valve. If the solenoid valve loose power, the pressure will drain through the exhaust valve, and the damper closes. Limit switches for detecting closed/open damper is detected from metal-plate that rotate with actuator-nob for safe detecting of the damper position. If loss of air supply or electrical power, the damper will go to close position. Gasket on blades is provided to meet specifications for fire and gastight dampers. The gasket is made of self-adhesive cellular neoprene.

1.3 HEALTH AND SAFETY INFORMATION

1.3.1 Requirements

Contamination of instrument air with dirt and some lubrication media will result in damage to actuator and shaft seals, and/or seals for solenoid valve. Instrument air shall be clean and dry. Moisture will result in corrosion of the springs and potential damage of the seals. Over pressure of instrument air will result in damage to seals. Pressure shall be within the limits defined on project data sheets. Over/under voltage to the coil will result in the solenoid valve failing closed. Voltage shall be within +/- 10% of the rated voltage for the product. The client must ensure that the actuator is operated at within the specified operational temperature range. Operating at higher/lower temperature could result in failure of the seals.

1.3.2 Warning all dampers

During opening and closing of the dampers, manually-electrically or by pneumatic force, be aware of the following:

- The actuator spring return movement
- The pinching movement of the blades
- The pinching movement of the linkage (if applicable)
- The pinching movement of the limit switch flag
- The pinching movement of the indicator pointer

Trained personnel who guarantee restoration to its original condition must carry out the overhauls and repairs. We recommend that you contact an authorized repair agent. Never produce any hazardous situations by climbing without safety devices.

2 PNEUMATIC SHUT-OFF DAMPERS

2.1 General information

2.1.1 Connection to ductwork

Check the flanges on the ductwork and equipment for damages. Remove any dirt and foreign parts from the flanges. Mount the gasket on the ductwork flange. Connect the equipment to the ductwork flange, and fasten the equipment with described screws, washers, spring washers and nuts. To tighten the bolts, start from the centre of the flanges and work to both sides to the corner bolts. Do not bend the damper flanges to fit the screws. After tightened the bolts, the damper parts must be tested for smooth movement. On automatic operated dampers, be aware of correct supply to the damper. If the ductwork continues, use the same procedure as earlier described. Check once again the damper parts for smooth movements.

2.1.2 Air connection

The internal tubing is cleaned, connected and tested by BAAS. Check drawings for correct size of supply connection. Please ensure that pneumatic tubing is cleaned before connection. Check air pressure before operation.

2.1.3 Electric connection

Damper with limit switches and solenoid valve has a junction box. The electrical components are adjusted and the loops are tested by manufacturer. Before the electric power is switched on, make sure the voltage is correct. For more information, please refer to the wiring diagram.

2.1.4 End control

When the installation is complete, you need to make a function test of the damper. Open and close the damper a few times to be sure that the damper operates correctly. Both manually and with control signal, if applicable.

2.2 Operation instruction

2.2.1 Preparation for start-up

Check that the connection to the position is correctly installed. Check that the correct air line is connected to the correct connection point, with correct air pressure. Check that the mechanical opening device handle, if supplied, is removed from the attachment shaft.

2.2.2 Start-up procedure

With compressed air, open and close each separate damper 2 or 3 times. Check that the damper open and close without excess resistance. The position of all dampers at start up is described in the start-up procedure for the HVAC-system.

2.2.3 Normal operation

The dampers are operated according to the ventilation operation procedure.

2.2.4 Shut-down

The damper shall fail safe to a closed position on loss of instrument air via spring return mechanism. The damper solenoid is provided with a valve and quick connector for use in a black start situation. If loss of air supply or electrical power occurs, the damper will go to close position.

2.3 Maintenance

2.3.1 Every 6 months

Shut off the air to the damper and make a visible inspection of the components in the drive-unit. Open and close the damper according to system operation specification, to visually see that the damper blades move from open to closed position. Look at the arrow on the drive-unit for confirmation. Use the signal to the control panel to check that the signal from the limit switch is given.

2.3.2 Yearly

Clean the components and linkage if dirty. Use some drops of machinery oil on the moving parts. If there is some damage on the painting on the actuator, clean the spot and coat the area with zinc primer.

3 PNEUMATIC FIRE AND GAS DAMPERS

3.1 General information

3.1.1 Connection to ductwork

Check the flanges on the ductwork and equipment for damages. Remove any dirt and foreign parts from the flanges. Mount the gasket on the ductwork flange. Connect the equipment to the ductwork flange, and fasten the equipment with described screws, washers, spring washers and nuts. To tighten the bolts, start from the centre of the flanges and work to both sides to the corner bolts. Do not bend the damper flanges to fit the screws. After tightened the bolts, the damper parts must be tested for smooth movement. On automatic operated dampers, be aware of correct supply to the damper. If the ductwork continues, use the same procedure as earlier described. Check once again the damper parts for smooth movements.

3.1.2 Air connection

The internal tubing is cleaned, connected and tested by BAAS. Check drawings for correct size of supply connection. Please ensure that pneumatic tubing is cleaned before connection. Check air pressure before operation.

3.1.3 Electric connection

Damper with limit switches and/or solenoid valve has a junction box. Necessary holes for incoming cable glands must be drilled in the junction box, if not specified. It is

preferable to do this before the damper is mounted. The electrical components are adjusted and the loops are tested by manufacturer. Before the electric power is switched on, make sure the voltage is correct. For more information, please refer to the wiring diagram.

3.1.4 End control

When the installation is complete, you need to make a function test of the damper. Open and close the damper a few times to be sure that the damper operates correctly.

3.2 Operation instruction

3.2.1 Preparation for start-up

Check that the connection to the position is correctly installed. Check that the correct air line is connected to the correct connection point, with correct air pressure. Check that the mechanical opening device handle, if supplied, is removed from the attachment shaft.

3.2.2 Start-up procedure

With compressed air, open and close each separate damper 2 or 3 times. Check that the damper open and close without excess resistance. The position of all dampers at start up is described in the start-up procedure for the HVAC-system.

3.2.3 Normal operation

The dampers are operated according to the ventilation operation procedure.

3.2.4 Shut-down

The damper shall fail safe to a closed position on loss of instrument air via spring return mechanism. The damper solenoid is provided with a valve and quick connector for use in a black start situation. If loss of air supply or electrical power occurs, the damper will go to close position.

For Fire Dampers equipped with a trigger: the damper will close if the trigger nut smelts.

3.3 Maintenance

3.3.1 Every 6 months

Shut off the air to the damper and make a visible inspection of the components in the drive-unit. Open and close the damper according to system operation specification, to visually see that the damper blades move from open to closed position. Look at the arrow on the drive-unit for confirmation. Use the signal to the control panel to check that the signal from the limit switch is given. If the damper has air trigger, ensure that there is no dirt in the trigger unit. After removing the air trigger insert, check the melting nut.

3.3.2 Yearly

Clean the components and linkage if dirty. Use some drops of machinery oil on the moving parts. Shut-off the air supply and open the air trigger. Remove insert and clean the melting nut.