

# **OLS Bubble-tight Isolation Damper & Ultra-low Leakage Damper (Circular)**

## **Installation Instructions**

Doc No. : IM-092023/0005/00  
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First Issued Date : 14 Sep 2023

# Installation Instruction of Circular Isolation Damper and Ultra-low Leakage Damper

This document applies for the following OLS isolation damper and ultra-low leakage damper:

i] DSR450

ii] DSR075

Installing a circular bubble-tight damper requires careful attention to ensure proper function and performance. Here is a general guideline to follow for damper installation.

### 1. Caution

- a] Keep the dampers in clean place and handle with care. Do not unpack before installation.
- b] If the dampers are internally painted with a special coating, handle them with care during installation to avoid damaging the coating.
- c] Check damper weight before installation.

### 2. Preparation of duct connection

a] Prepare the damper: Start by removing any packaging materials and inspecting the damper for any visible damage. Ensure that the damper is the correct size and type for your application.

b] Check that the connecting duct flanges (PCD, hole size and spacings) matches exactly with the damper flanges. The duct flange width may be 6 mm smaller than that of the damper.

Note: Damper flanges are pre-cut with Ø11mm holes with spacing not more than 100 mm.

c] Construct the connecting duct according to the nominal size (order size), which means the duct's internal diameter should match the nominal size and not be smaller.

d] The damper's internal diameter is made 6 mm smaller than the nominal size used to order the damper. This is to prevent the blades from clashing with the connecting duct.

e] Use high quality 4 mm thick solid rubber gasket between damper and duct flanges to prevent air leakage. The rubber seal should be about 55 durometers in hardness and should be cut to suit the duct flange width.

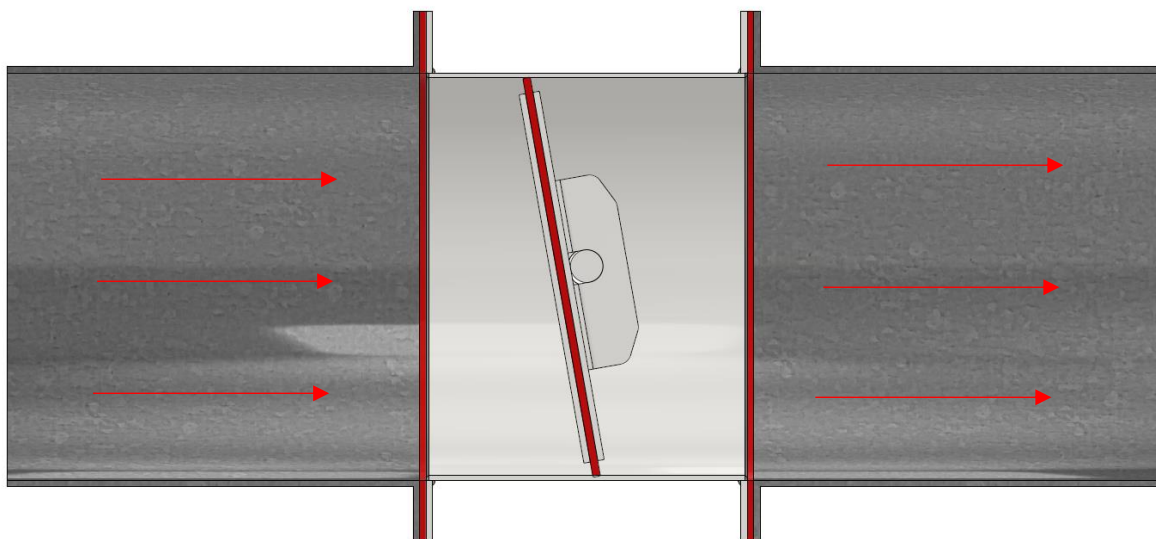
f] If desired, an inspection opening may be provided on the connecting duct on each side of the damper for inspection and troubleshooting. The inspection opening must be with a leakproof panel to the damper rated pressure. In addition, the connected ducts may be short (say 600 mm length) to enable easy access to the damper for maintenance and repair.

### 3. Installation procedure

a] Fix the solid rubber gasket to the connecting duct flanges with adhesive.

b] Check the direction of airflow. The damper may be used for bi-directional flow as the shaft packing seal is able to provide an airtight seal to duct pressure of 4.5 kPa. However, the preferred airflow direction is with the blade shaft downstream, in case the duct pressure should rise

significantly when the damper blade closes, to prevent exposure of the shaft seal to excessive positive pressure.



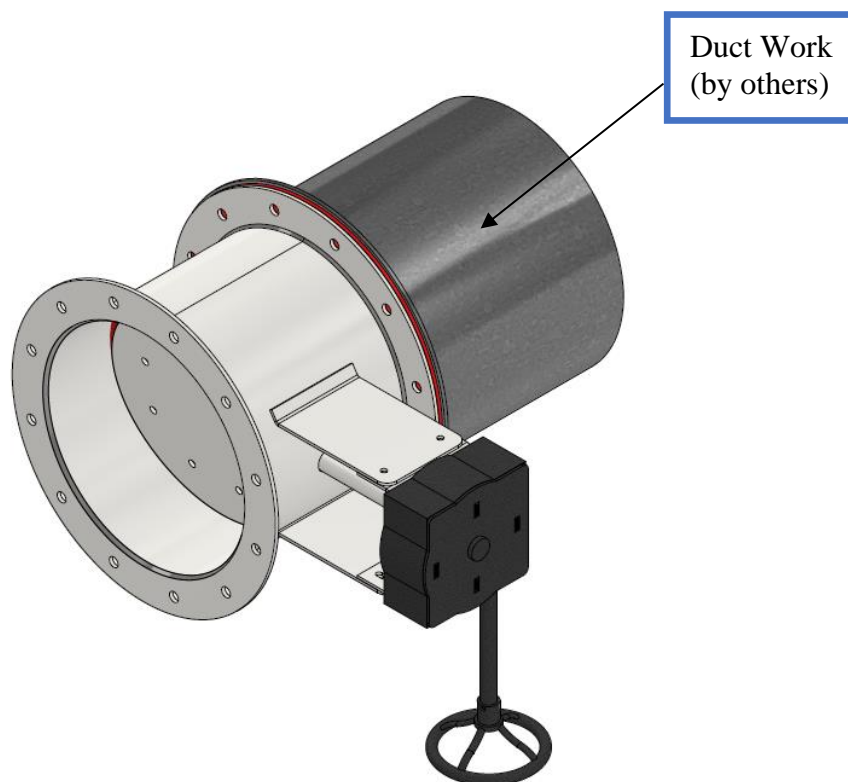
**Figure 1: preferred airflow direction**

c) Lift the damper and match the mounting holes on the damper and duct flanges. Tighten any four holes that are diagonally opposite of each other with Type 304 stainless steel M10 bolts and nuts.

d) Fasten the four bolts and nuts with sufficient torque to prevent the damper from moving.

e) Check that all the holes on the duct and damper flanges matches, then tighten the bolts and nuts with 30Nm torque.

f) Fasten the remaining holes as shown in figure 2. Each hole to be fastened with a bolt (35 mm long) and a nut, a spring washer and 2 pcs of flat washer provided.



**Figure 2**

g) Connect the duct for the other side, and repeat steps [c] and [f], refer to figure 3.

h) Check there is no obstruction on the internal side.

i) Operate the damper, and check that the damper blade seal is not in contact with the adjacent duct on the vertical sides. Adjust the duct position if necessary.

Figure 5 and figure 6 below show the illustration on the joining between damper flange and duct flange.

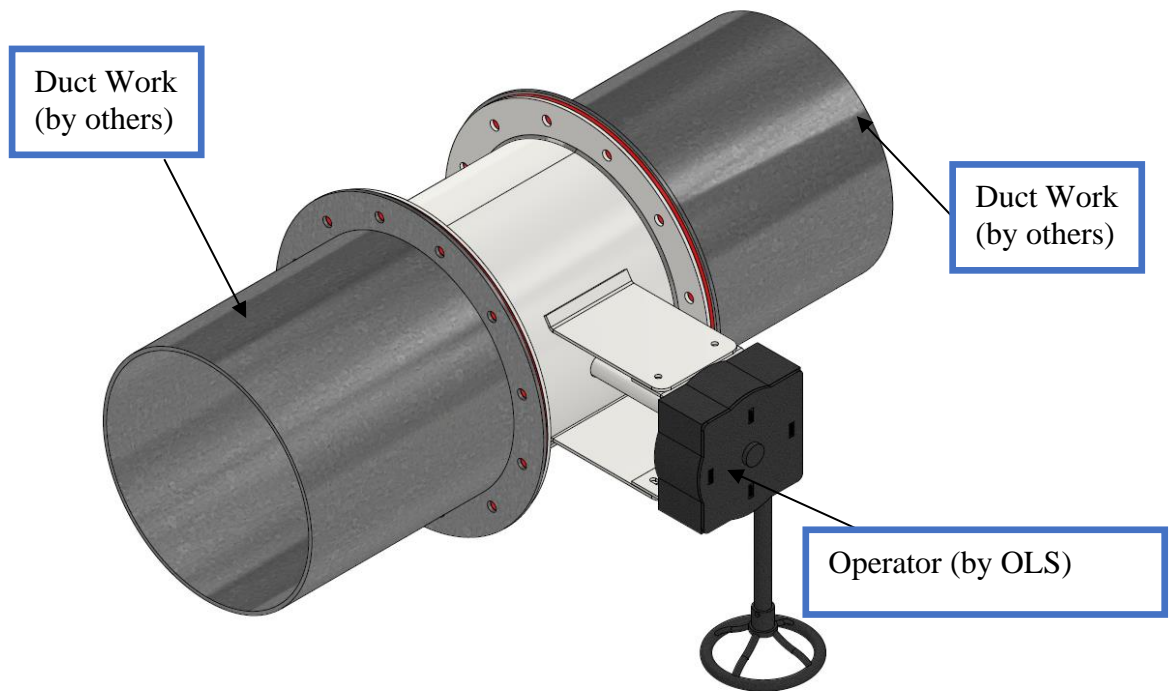


Figure 3

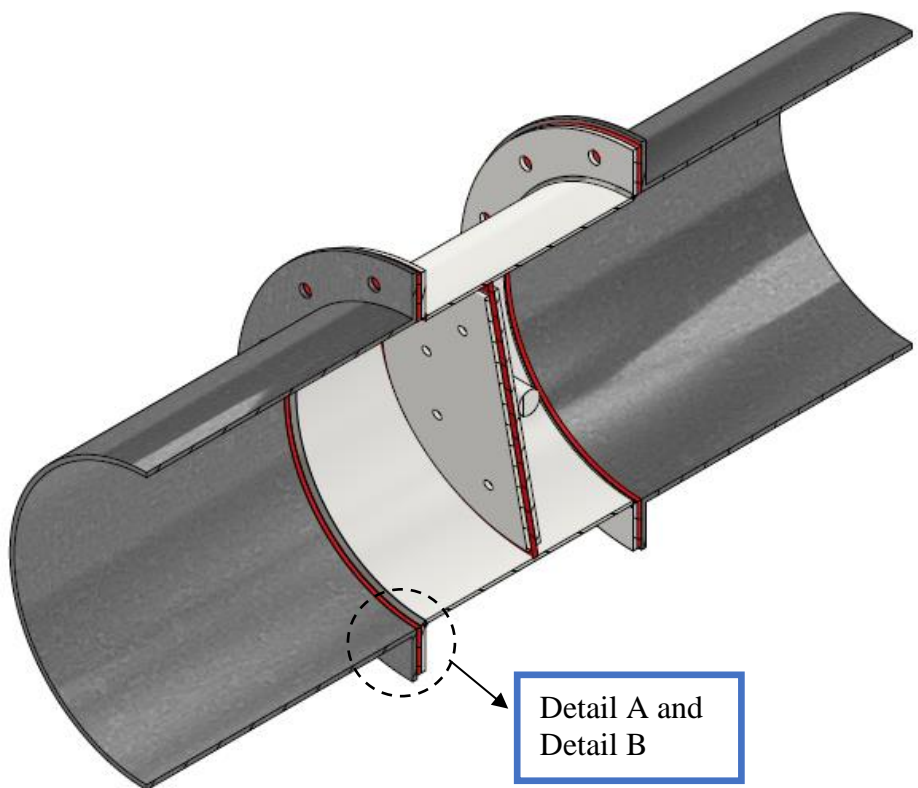


Figure 4

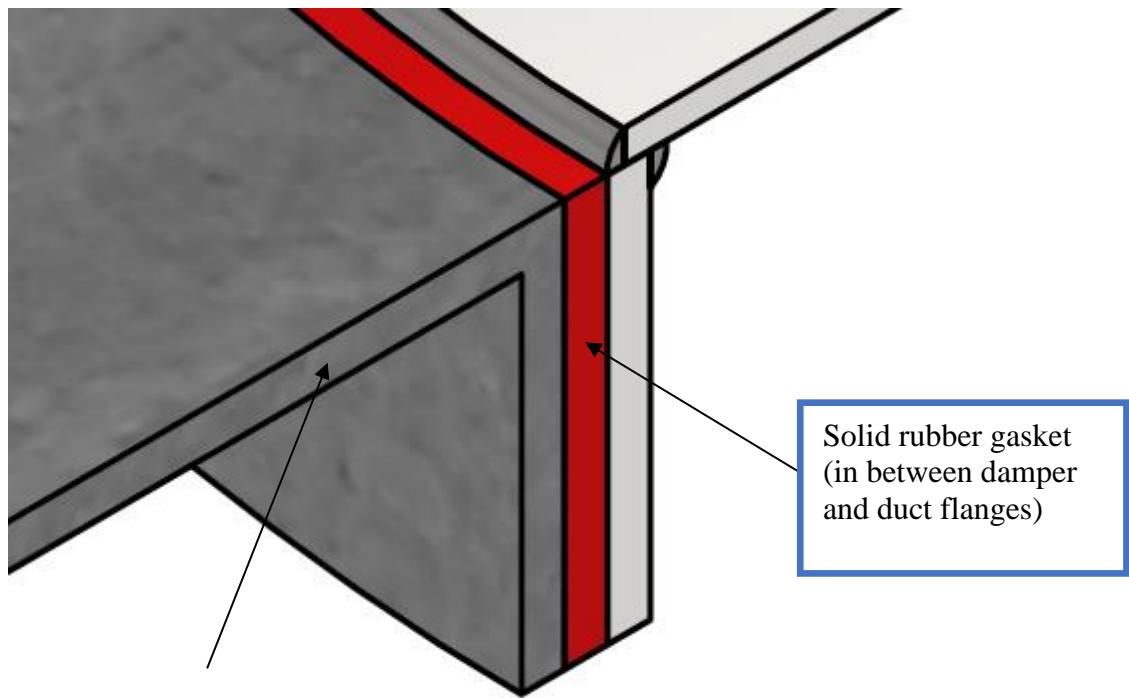


Figure 5: Detail A

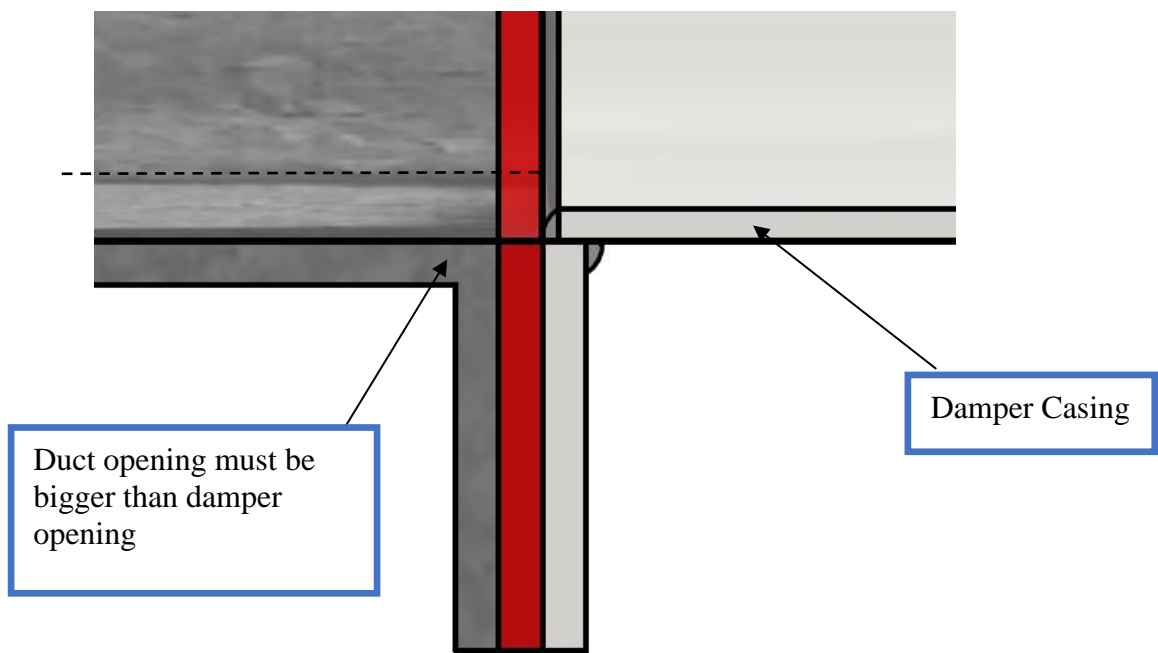


Figure 6: Detail B

#### 4. Functionality test

- a] For electrically powered dampers, please ensure power supply is correct before wiring connection.
- b] Damper blades may protrude out of damper casing when fully open. Ensure no personnel is near the damper during operation.
- c] Once the damper is securely installed, test its operation. Connect the damper to the control system and verify that it opens and closes smoothly
- d] After installation, check the overall system for any leaks, obstructions, or issues that may affect the damper's performance. Make any necessary adjustments or repairs as needed.