Guide Specification

Specifier notes are indicated in red font. Delete all specifier notes prior to publication in project specifications.

Volume Dampers, Integrated Automation Control Dampers

PART 1 - GENERAL

1.1. SECTION INCLUDES

1.1.1. Dampers as scheduled on drawings.

1.2. RELATED SECTIONS

1.2.1. Common work results for HVAC.

1.2.2. Instrumentation and Control for HVAC

1.3 REFERENCES

1.3.1. Standard SS-EN 1751: 2014, Annex C

1.3.2. ISO 5135, “Acoustics -- Determination of sound power levels of noise from air-terminal devices, air-terminal units, dampers and valves by measurement in a reverberation room.”

1.3.3. ISO 3741, “Acoustics -- Determination of sound power levels of noise sources using sound pressure -- Precision methods for reverberation rooms.”

1.4. SUBMITTALS

1.4.1. Provide Submittals in accordance with Administrative Requirements.

1.4.2. Provide manufacturer’s data for each type of product indicated including the following:

1.4.2.1. Performance Data, including leakage, pressure drop, noise ratings and environmental declarations.

1.4.2.2 Construction Data, including materials of construction, finish and mounting details; and performance data including unit controller, static pressure drop and noise ratings.

1.4.2.3. Volume Damper Schedule. Include unit designation, room location, quantity, model number, size, airflow rates, pressure drops and accessories included.

1.4.2.4.

1.5. QUALITY ASSURANCE

1.5.1. Manufacturer Qualifications

1.5.1.1. Manufacturers damper fabrication facility shall be ISO9001 and ISO14001 certified.

1.5.2. Product Qualifications

1.5.2.1. Dampers shall be tested in accordance with SS-EN 1751: 2014, Annex C, ISO 5135, and ISO 3741.

1.6. DELIVERY, STORAGE AND HANDLING

1.6.1. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly indicating manufacturer and material.

1.6.2. Storage: Store materials in a dry area indoors, protected from damage and in accordance with manufacturer's instructions.

1.6.3. Handling: Handle and lift dampers in accordance with manufacturer's instructions. Protect materials and finishes during handling and installation to prevent damage. Do not carry the damper with the airflow measuring tube.

1.7. WARRANTY

1.7.1. Provide manufacturer’s standard limited warranty for a period not in excess of 18 months from the date of shipment by the Seller, or 12 months from the date of commencement of installation, whichever occurs first.

PART 2 – PRODUCTS

2.1. MANUFACTURER

2.1.1. Subject to compliance with project plans and specifications the following manufacturers are approved to supply products.

2.1.1.1. Swegon ([www.swegon.com](http://www.swegon.com)).

2.1.2. Substitutions not permitted.

2.2. ROUND AND RECTANGULAR DAMPERS

2.2.1. Models: Where shown on drawings, provide the following dampers

2.2.1.1. Model: REACT V volume control damper as manufactured by Swegon.

2.2.1.2. Model: REACT P pressure control damper as manufactured by Swegon.

2.2.1.2. Model: REACT PX pressure control damper with remote pressure sensor as manufactured by Swegon.

2.2.2. Ratings

2.2.2.1. Leakage Classes shall be in accordance with SS-EN 1751:

2.2.2.1.1. Round Dampers: casing airtightness leakage class C, closed damper leakage class 4, pressure class A.

2.2.2.1.2. Rectangular Dampers: casing airtightness leakage class C, closed damper leakage class 3, pressure class A.

2.2.3. Construction

2.2.3.1. Damper casing shall be mechanically assembled of galvanized sheet steel.

2.2.3.2. Provide round damper with O-ring gaskets at air inlet and discharge connections.

2.2.3.3. Provide rectangular damper with flanged air inlet and discharge connections. Installing contractor to gasket flange when connecting to ductwork.

2.2.3.4. Provide controller/actuator mounting plate with offset to allow 1” thick field-applied external insulation.

2.2.3.1. Corrosion Classes shall be in accordance with ISO 12944-1:

 2.2.3.1.1. Round and Rectangular Dampers: corrosion class C3

2.2.4. Controller/actuator

2.2.4.1. REACT V Volume Control Damper Pressure Independent Controls

 2.2.4.1.1. Provide factory-installed integrated inlet flow sensor. Round damper: position flow sensor near discharge of damper to facilitate mounting directly downstream of duct bends and transitions.

**Specifier note: specify one or more of the following controller actuator types to meet project requirements. Delete unused types.**

2.2.4.1.2.

a) Type GMB - Modbus and analog controller/actuator by Gruner, factory mounted, wired and piped to inlet flow sensor tubes; field readable and adjustable setting, illuminated display for direct reading. Tool-free settings made directly on the controller. Provide one GUIV3-M for the project to remotely set and read controller parameters even when the actuator is not powered. Field convertible to pressure control mode.

b) Type SR GMB - Modbus and analog controller/actuator with spring return by Gruner, factory mounted, wired and piped to inlet flow sensor tubes

c) Type BMP - Mp-Bus and analog controller/actuator by Belimo, factory mounted, wired and piped to inlet flow sensor tubes. Field readable and adjustable setting via external hand-held terminal model ZTH EU, PC-Tool or Belimo Assistant App

d) Type BMB - Modbus and analog controller/actuator by Belimo, factory mounted, wired and piped to inlet flow sensor tubes. Field readable and adjustable setting via external hand-held terminal model ZTH EU, PC-Tool or Belimo Assistant App.

e) Type BBAC - BACnet and analog controller/actuator by Belimo, factory mounted, wired and piped to inlet flow sensor tubes. Field readable and adjustable setting via external hand-held terminal model ZTH EU, PC-Tool or Belimo Assistant App.

f) Type SKNX - KNX controller/actuator by Siemens, factory mounted, wired and piped to inlet flow sensor tubes. Field readable and adjustable setting via external hand-held terminal model AST20.

**Specifier note: specify one or more of the following controller actuator types to meet project requirements. Delete unused types.**

2.2.4.2 REACT P Pressure Control Damper Controls

a) Type GMB - Modbus and analog controller/actuator by Gruner, pressure sensor for field-mounting; field readable and adjustable setting, illuminated display for direct reading. Tool-free settings made directly on the controller with screwdriver.

2.2.4.3 REACT PX Pressure Control Damper Controls

a) Type GMB - Modbus and analog controller/actuator by Gruner, remote pressure sensor for field-mounting; field readable and adjustable setting, illuminated display for direct reading. Tool-free settings made directly on the controller with screwdriver.

2.2.5. Accessories

**Specifier note: specify one or more of the following controller actuator types to meet project requirements. Delete unused types.**

2.2.5.1. Model REACT M: stand-alone airflow measurement. Modbus and analog controller by Gruner, factory mounted, wired and piped to inlet flow sensor tubes; field readable, illuminated display for direct reading. Settings made directly on the controller with screwdriver.

 2.2.5.2. Model FSR: Duct mounting clamp for removing round damper cleaning and inspection.

 2.2.5.3. Model REACT V Cover – controller panel cover.

 2.2.5.4. Hand-held terminal

2.2.5.4.1. Model ZTH EU: Hand-held terminal for Belimo controller/actuator.

2.2.5.4.1. Model GUIV-3: Hand-held terminal for Gruner controller/actuator.

2.2.5.4.3. Model AST20: Hand-held terminal for Siemens controller/actuator.

2.2.5.5. Model ZIP-BT-NFC: Dongle for Bluetooth connection to Belimo Assistant App.

2.2.5.6. Model LUNA RC a TEMP-MB: Room controller for temperature regulation.

2.2.5.7. Model LUNA RC a CO2-TEMP-MB: Room controller for CO2 and temperature regulation.

2.2.5.8. Model DETECT IAQ a CO2-TEMP-MB: CO2 and temperature regulation for room areas

2.2.5.9. Model DETECT IAQ OCS a CO2-TEMP-MB: CO2 and temperature regulation with PIR for room areas

2.2.5.10 Model DETECT IAQ D a CO2-TEMP-MB: CO2 and temperature regulation with PIR for duct mounting

2.2.5.11 Model: DETECT O V110: Occupancy sensor, wall-mounted.

2.2.5.12 Model: DETECT O T360: Occupancy sensor, ceiling-mounted.

2.2.5.13 Duct Adapters

2.2.5.13.1. Model DUCT ADAPTER 160-6": Adapter for installing size 160 in a 6" circular duct

2.2.5.13.2. Model DUCT ADAPTER 315-12": Adapter for installing size 315 in a 12" circular duct

2.2.5.13.2. Model DUCT ADAPTER 630-25" Adapter for installing size 630 in a 24" circular duct

PART 3 – EXECUTION

3.1. EXAMINATION

3.1.1. Examine areas where dampers are to be installed for compliance with requirements for installation tolerances and other conditions affecting performance of equipment.

3.1.2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2. INSTALLATION

3.2.1. Install equipment in accordance with manufacturer instructions, these specification, best practices and all applicable building codes.

3.2.2. Drawings indicate general arrangement of ducts, fittings and accessories. Air inlet and outlet locations have been indicated to achieve design requirements for air volume, noise criteria, airflow pattern, throw and pressure drop. Make final locations where indicated as much as practical. For units installed in lay-in ceiling panels, locate units in center of panel. Where architectural features or other items conflict with installation, notify architect for a determination of final location.

3.2.3. Install dampers with airtight connections to ducts and allow service and maintenance of dampers.

3.3. ADJUSTING

3.3.1. After installation, adjust minimum and maximum air flow on damper controller as indicated in sequence of operation before air balancing.