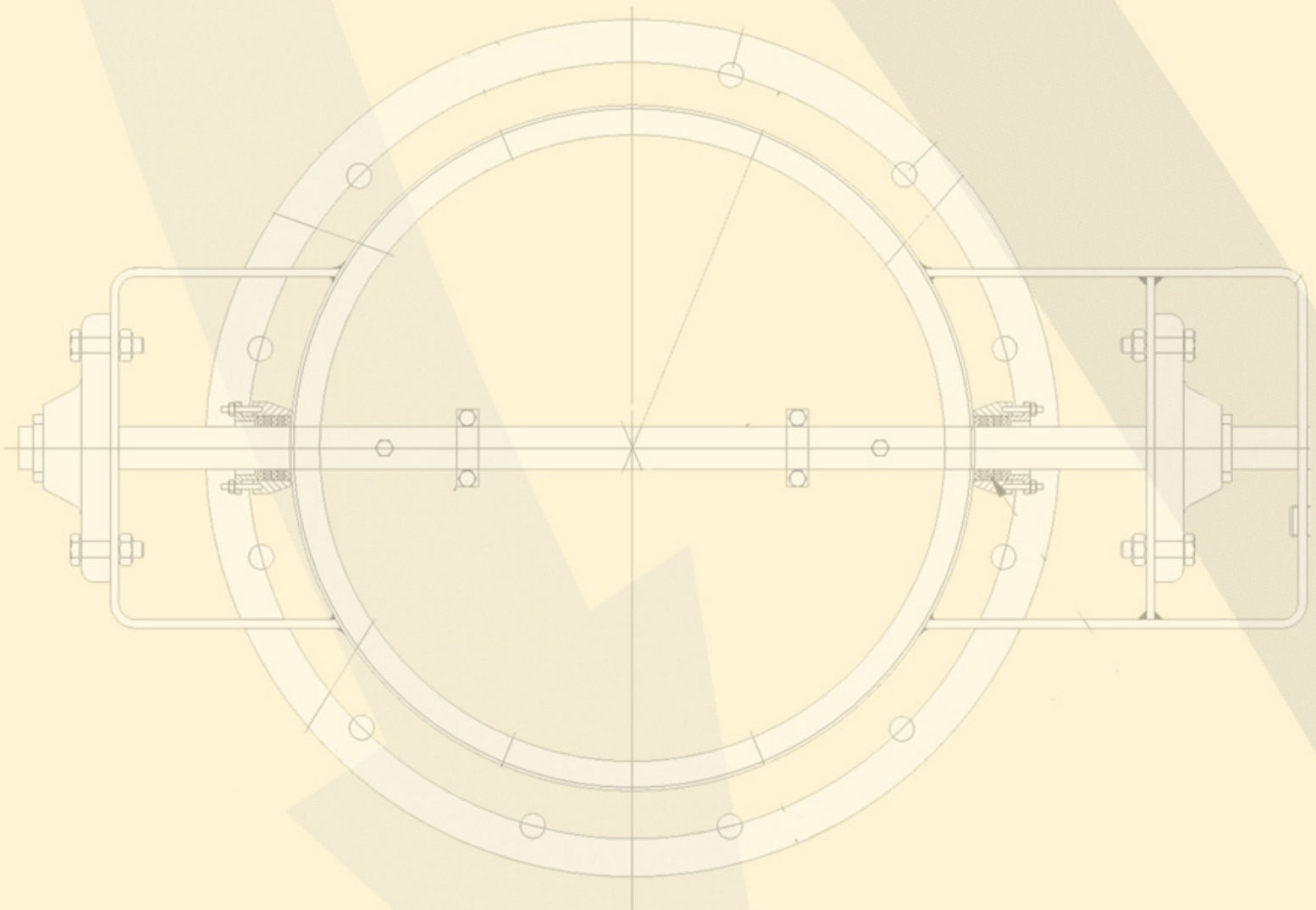


ISOLATION & CONTROL DAMPER



ISOLATION DAMPER BUBBLE TIGHT TO 7.50KPA

Features

- Use of blade seal instead of blade stop seal lowers operating torque
- Low pressure loss due to absence of blade stop seal
- Ultra low internal air leakage due to special design blade seal at 10 kPa
- Air tightness across blade to 7500 Pascal pressure differential
- Zero ambient leakage to 20 kPa due to effective shaft seal
- Teflon shaft seal reduced operating torque
- Operating pressure and velocity to 4.5 kPa and 20 m/s respectively
- Operating temperature to 200 degrees Celcius

Construction

Frame is constructed of heavy gage stainless steel with flanges fully welded to both ends with minimum flange to flange distance of 200 mm. Holes are pre-cut on the flanges with maximum distance of 100 mm.

Blade is constructed of double-skin heavy gage stainless steel with stiffeners as required for larger dampers and higher pressure. However, for balancing function, blade seals may not be required and the blade is constructed of single skin instead. Initial and maintenance cost are lower due to the absence of blade seal.

Blade shaft is constructed of stainless steel continuous through the damper frame. Diameter of blade axle ranges from 12.5 mm to 50 mm depending on size and design pressure. The blade shaft is fastened to the blade by tack weld. Unlike conventional method of fastening with bolts and nuts that requires full penetration through the blade shaft, this method does not weaken the blade shaft.

Blade seal is constructed of silicon and is specially designed to provide tight seal when the blade is closed. The blade seal ensures airtight construction to pressure of 7500 Pa. Blade seal may be replaced without removing the shaft from the damper frame. However, blade seal may not be necessary if the damper is designed for balancing function.

Shaft seal is constructed of compression type packing gland, continuously welded to damper frame; packing is of Teflon material and may be replaced without removal of bearing. Shaft seal ensures zero ambient leakage to pressure of 20 kPa. Teflon is resistant to almost all type chemical and has extremely low coefficient of friction. Hence, operating torque is reduced due to Teflon shaft seal.

Bearing is of the ball bearing type with flange for outboard mounting. Bearing housing is constructed of die-cast iron with epoxy painted finish.

Operator may be manual, electric or pneumatic actuator. Balancing damper may be provided with lever type or handwheel manual gear operator. On/off or shut-off and modulating dampers may be provided with electric, electro-hydraulic and pneumatic actuator. Type of electric and pneumatic actuators needed depends on the required function of the damper. The following electric or actuator options are available:

1. On/off electric actuators rated for 230VAC 50/60 Hz
2. On/off electric actuators with spring return rated for 230VAC 50/60 Hz
3. Modulating electric actuators rated for 230VAC 50/60 Hz
4. Modulating electric actuators with spring return rated for 230VAC 50/60 Hz
5. Double acting pneumatic actuator rated for 10 bars supply pressure
6. Single acting pneumatic actuator rated for 10 bars supply pressure
7. Double acting pneumatic actuator with proportional control rated for 10 bars supply pressure



Performance

The damper has been designed to pressure rating of 2.5, 3, 4.5 and 7.5 kPa with blade deflection criteria of 1/360 of blade dimension during pressure test. The damper is bubble tight with respect to internal and external leakages. Pressure loss is very low as shown in figure 3.

ISOLATION & CONTROL DAMPER

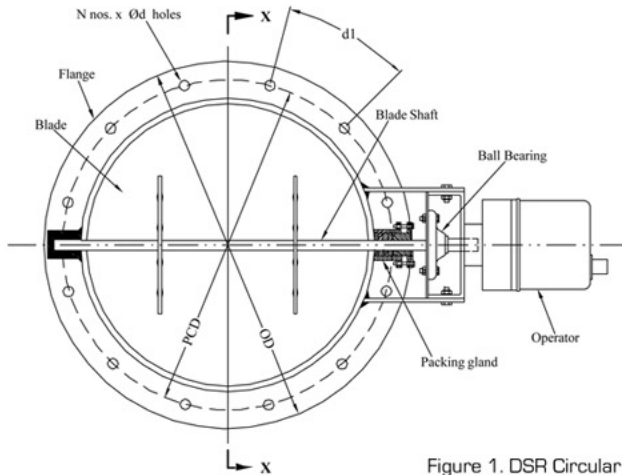


Figure 1. DSR Circular Isolation Damper

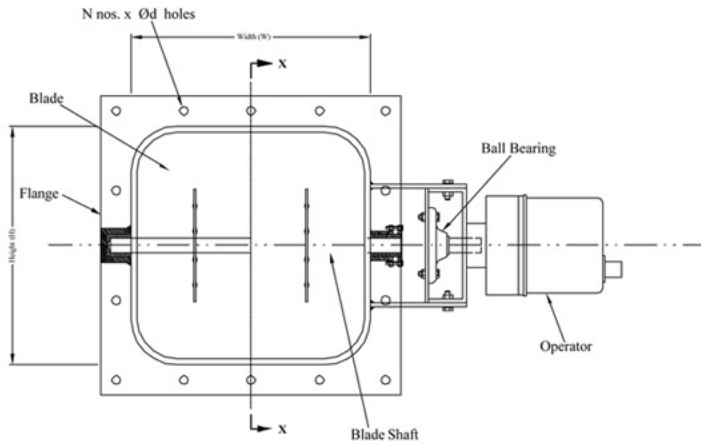
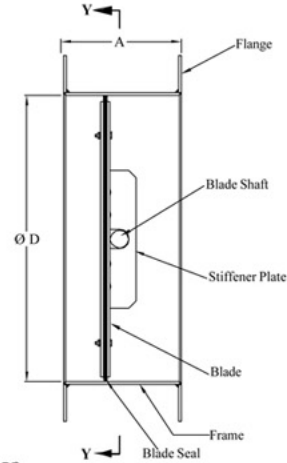


Figure 2. DSS Square/Rectangular Isolation Damper

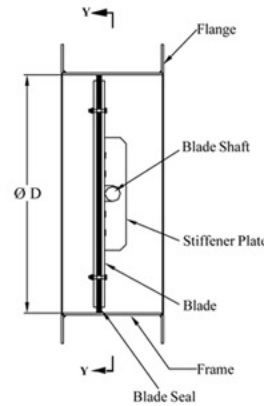
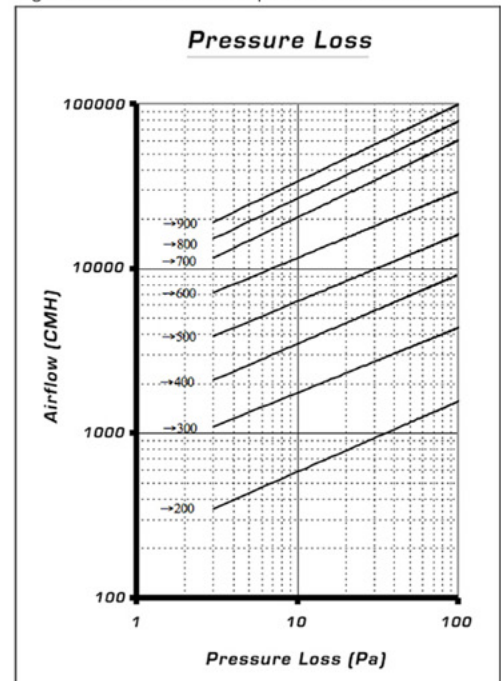


Table 1. DSR Circular Damper Dimensions

ØD	A	PCD	OD	Ød	N	H	t	d1
250	203	288	326	11	12	4	3	75
300	203	338	376	11	12	4	3	88
350	203	388	426	11	12	4	3	101
400	203	450	500	11	16	4	3	88
450	203	500	550	11	16	4	3	98
500	203	550	600	11	16	4	3	108
550	203	600	650	11	20	4	3	95
600	203	650	700	11	20	4	3	102
650	203	700	750	11	20	4	3	110
700	203	750	800	11	24	4	3	98
750	203	800	850	11	24	4	3	105
800	203	850	900	11	24	4	3	112
850	203	900	950	11	28	4	3	101
900	203	950	1000	11	28	4	3	107

Figure 3. DSR Circular Damper Pressure Loss



Application

The isolation damper is designed for sealing off and/or controlling airflow in round ducts and provides airtight seal to a differential pressure of 7500 Pa. In a biohazard environment, the dampers enable the air filter bank to be isolated for decontamination, and/or filter changing. A variety of sizes are available for a wide range of air flows.

Typical Applications

Hospital Isolation Units
Pharmaceutical Facilities
Microelectronic Sites
HVAC Systems

Industrial Process Exhaust Systems
Chemical Process Facilities
Animal Disease Laboratories
Department of Energy Facilities

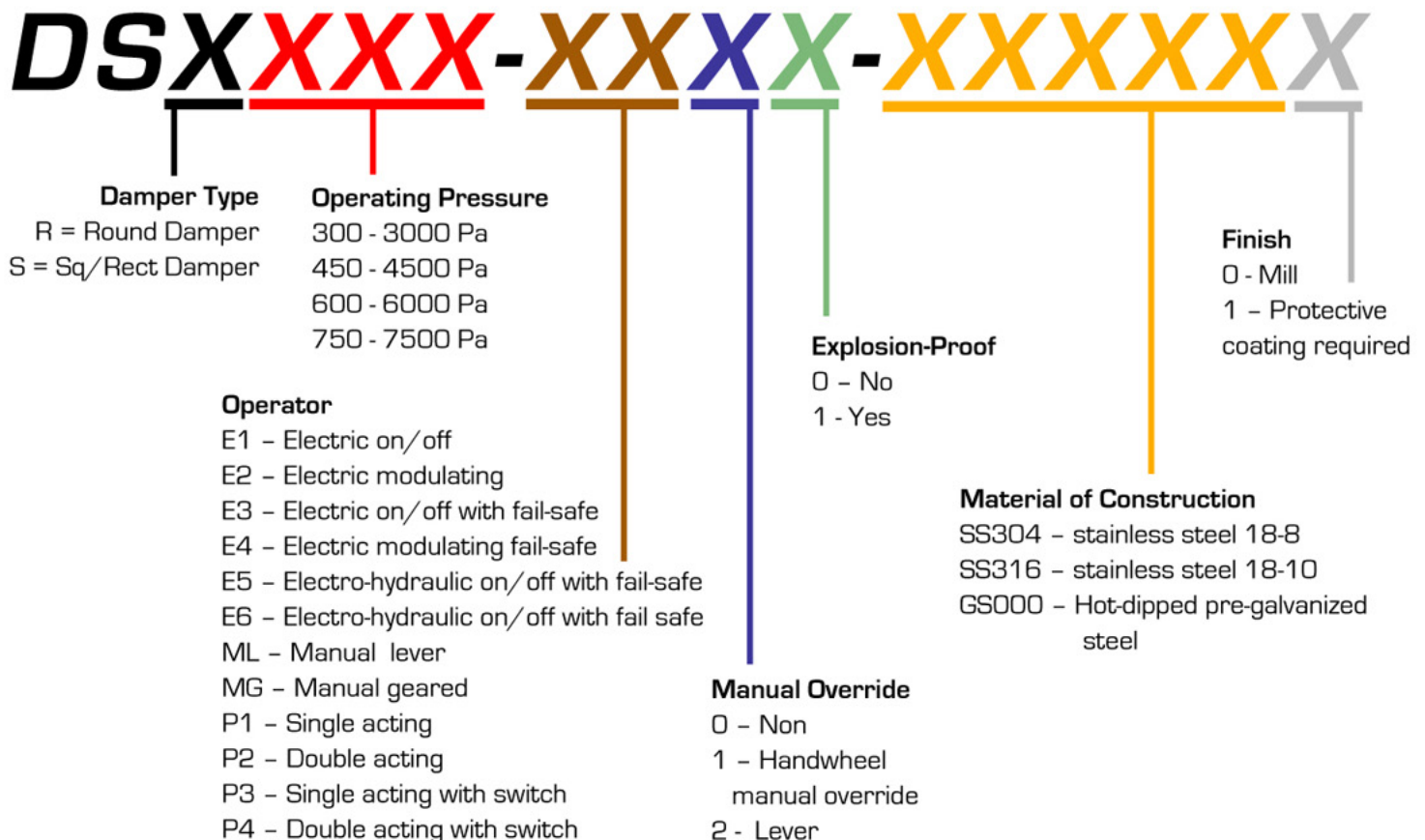
Food Processing
Laboratory Facilities
Military Facilities
Nuclear Power Plants

ISOLATION & CONTROL DAMPER

Specifications

The isolation and control damper shall be of heavy duty construction to [2.5, 3, 4.5, 6 or 7.5] kpa design pressure. Unless otherwise specified damper parts shall be constructed of type [304 or 316] stainless steel material. Flanges shall be minimum 38 mm wide by 3.5 mm thick. Factory pre-cut holes on flanges shall be no more than 100 mm apart. The frame shall be minimum 3 mm thick. Blade shafts are minimum 12.5 mm diameter solid rod with Teflon shaft seals. The dampers shall be positive seal, isolation type which shall be bubble-tight at the differential pressure to 2500 Pa pressure differential. The blade shall consist of two 3.5 mm thick plates with a replaceable solid silicon seal between them. Blade seal shall be replacable without removing the damper from the frame. The seam joint on the damper frame shall be of full welded design. However weld for reinforcement members shall not be continuously welded. All weld joints and seams shall be wire brushed and/or buffed to remove heat discoloration, burrs and sharp edges and passivated.

Ordering Information



1. When ordering, specify the operating pressure and airflow so that the required drive torque can be determined and appropriate actuator selected.
2. Specify operating temperature so that appropriate seal may be selected.
3. Specify type of medium
4. Specify details of protective coating if required.