

INTERNAL LINKAGE DAMPER

D65 RANGE

BALANCE / CONTROL / SHUT OFF DAMPERS

FROM



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CONSTRUCTION

FRAME

All dampers have frames of 'top hat' section (see Fig. 1) 75 mm wide overall by 19 mm deep by 2.5 mm thick. This frame is intended for mounting inside the duct. For flanged connections, an additional 'picture frame' casing is supplied, inside which is bolted the standard damper section or sections. The flanged casing size is 250 mm wide by 50 mm deep by 2 mm thick. All frames are manufactured from zinc coated sheet steel. This gives a finish which is extremely resistant to corrosion due to atmospheric conditions.

BLADES

Blades are made from 1.6 mm zinc coated steel with interlocking edges. Two different blade widths are used, 150 mm and 200 mm, which are combined as required to build up the standard sizes of damper available. (see Specifications). Blade axles and interlinking push rods are zinc plated mild steel. On dampers (or damper sections) up to 900 mm in width interblade linkage is located internally all at one side of the damper. For damper widths of 900 mm and over interblade linkage is fitted at both sides of the damper. Blades may have parallel or opposed action (see Table 2). Parallel blades are recommended for mixing applications and opposed blades for throttling purposes.

BEARINGS

On all dampers the axle bearings and cross connecting bracket bearings are of Nylon which is self lubricating for life and will withstand temperatures of up to 120°C . (248°F)

AIR SEALING FEATURES

Air leakage in the closed position is reduced by two different means.

1. Side seals of spring loaded zero-clearance stainless steel are located between the end of the blades and the frame.
2. Dual hardness synthetic edge seals are located along blade tips to ensure minimum leakage between interlocking blades.

VELOCITY AND PRESSURE RATINGS:

Single section dampers are suitable for differential pressures and velocities up to the ratings shown in Table 1. Special consideration should be given to the strengthening of multi-section dampers which may be required to withstand appreciable differential pressure. The larger the overall size of the damper, and the greater the differential pressure, the more strengthening is needed. For large dampers it is advisable to specify the highest differential pressure it may be required to withstand.

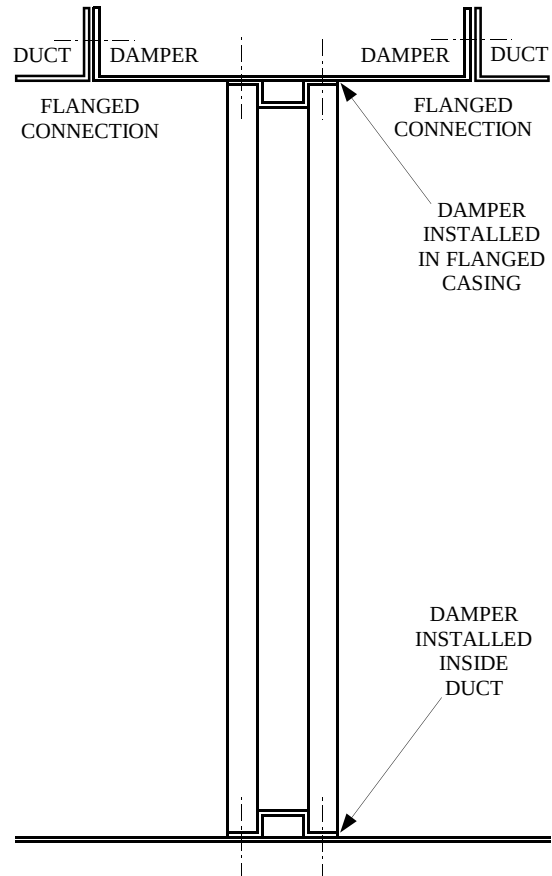


FIGURE 1. ALTERNATIVE METHODS OF MOUNTING D65 DAMPER

TABLE 1. VELOCITY AND PRESSURE RATINGS

Damper Width (mm)	Max. Face Velocity in Open Position (m/min)	Max. Differential Pressure in Closed Position (mm WG)
1200	500	100
800	1,000	200
400	2,000	400

MOTOR MOUNTING

Electric, electronic and pneumatic motors may be mounted inside or outside the duct.

Internally mounted motors are fitted direct to the damper frame by use of a motor mounting bracket and directly linked to the damper blades by push rod and ball joints.

Externally mounted motors may be fixed, directly or by mounting bracket, to the outside of the duct or adjacent wall. The motor is linked by push rod and ball joints to an external damper operating arm. Internal mounting of motors provides a compact and simple installation for application having access to the air duct. In applications where internal access to the duct is restricted, external mounting is recommended for ease of maintenance.

MOTOR MOUNTING: Internal

Pneumatic: The linkage and the mounting bracket are included with the fittings which are ordered and supplied with the motor. The adaptor plate between the motor mounting bracket and the damper frame is included in the damper accessories, which are supplied separately. Blade drive is taken from the bottom cross connecting bracket. For normally open dampers a reversing linkage is required. This is included in the appropriate damper accessories. **Electric and electronic:** In this case the blade drive is again taken from the bottom cross-connecting bracket. The motor mounting bracket is included in the damper accessories which are supplied separately.

MOTOR MOUNTING: External

Dampers are equipped with a drive axle at the right-hand side of the damper, as viewed in the upright position from the connecting rod side. The damper is normally installed with the connecting rod(s) on the downstream side of the damper, but it is permissible to mount it with the connecting rod(s) upstream to suit exhaust damper applications. In the case of low leak dampers, the inflatable blade edging seal only functions properly when correctly oriented with respect to air flow direction. Therefore, if a low leak damper is mounted with connecting rods upstream it is necessary to reverse the edge seals on each blade. The drive axle is set to project 89 mm beyond the frame.

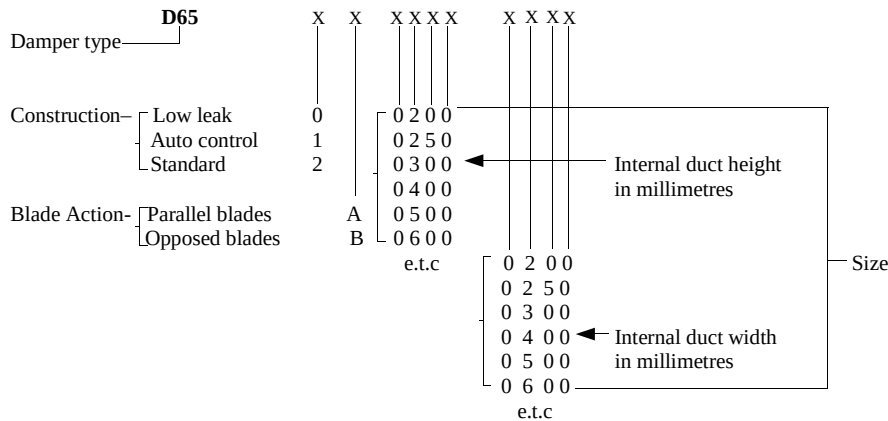
A hand quadrant is available for the 12 mm diameter extended damper axle, and is suitable for use with dampers up to 4 square metres area. It can be used with flanged casing dampers as well as those for internal duct mounting.

IMPORTANT NOTES

1. Standard dampers must always be installed with the blade axles horizontal.
2. For widths less than 900 mm, drive must always be made on the linkage side of the damper. If necessary, turn the complete damper up side down to bring the linkage to the other side of the duct. For widths of 900 mm and greater, linkage is fitted at both side of the damper.
3. Minimum dimensions for internal motor mounting are 300 mm high and 400 mm wide.
4. Dampers with face and v-pass linkage must be driven by external motors.
5. Multi-section dampers assembled horizontally (i.e. side by side) must be driven by an internal motor, if a single motor is to be used. No more than one 'slave' section may be connected horizontally to the drive section.
6. Standard multi-section dampers assembled vertically can have any combination of available heights for the individual sections provided that none of these is 500 mm. If any one section has mm height then all other sections assembled vertically must also have 500 mm height. i.e. it is not feasible to couple 500 mm. high sections with sections of any other height. To meet a non-basic multi-section height, e.g. 750 mm, a 500 mm high plus a 250 mm high combination may be used. This requires a non-standards 500 mm high damper (blade to push rod bracket change). When assembled, the 500 mm damper must not be the top section otherwise the bracket will foul the duct or flange inner surface. It is essential when ordering to state when a 500 mm damper is intended for use in multi-section vertical assemblies.
7. For standard D650A dampers the minimum height is 500 mm.
8. For standard D651B and D652B with external drive, the minimum height is 400 mm. With internal drive the minimum height is 500 mm.
9. For standard D650B dampers the minimum height is 500 mm.
10. Where non-standard applications involve velocities or pressures with multi-section dampers, outside the figures of Tables 1, consideration must be given to the use of bracing members on the down stream side to eliminate possible assembly bowing and consequent damper malfunction.

How to Specify D65 Dampers

Series D65 dampers are specified by an order specification number (O.S.) number, consisting of a sequence of several letters and digits. The O.S. number is built up as shown below, where each X represents a space to be filled in by a selection of one of the alternative digits or letters indicated.



For example, D651B06000500 represents:

Series D65 damper with auto control construction and opposed blades, to fit an internal duct size 600 mm high and 500 mm wide.

AND

D650A09001200 represents:

series D65 damper with low leak construction and parallel blades, to fit an internal duct size 900 mm high and 1200 mm wide.

Note that in specifying the size the height is stated first followed by the width.

If the damper is required with flanged connections then the words 'with flanged casing' should be included.

CONSTRUCTION OPTIONS

1. Flange casing to suit customers requirements.
2. Multi damper assemblies written single flanged casing
3. Can be manufactured in aluminium, 304 st/stl, 316 st/stl, aluzinc
4. Flange casing manufactured in various thickness
5. Blades can be double skin, double skin aerofoil
6. Axles can be continuous ½" diameter or ¾" diameter.
7. Bearings can be brass, sealed for life self aligning or 'oilite'
8. Flange casing can be fully welded.

INSTALLATION

1. Ensure that the flange face is flat
2. Check full free blade movement after installation

MAINTENANCE

1. Remove debris for system
2. Check full & free blade movement
3. Check drive stop-start position & tightness of motor mounting fixing to damper drive
4. Lightly spray St/Stl side seals with WD40.