

# Heavy Duty Airfoil Control Damper – HCD

## Model: HCD-225

The Holyoake HCD-225 is a heavy duty control damper which has been designed for applications that exceed the design parameters of the HCD-150 control damper.

Typically this is in areas of extremely high differential pressure, high turbulence, or velocity, or severe buffeting, which prevent the use of a standard control damper.

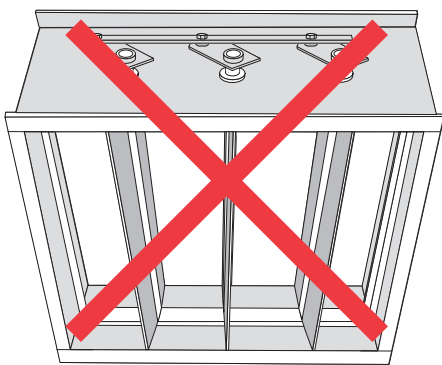
The HCD-225 is a specialised item and consultation with the factory is essential prior to ordering, to ensure that the best solution for each application is determined.

**Please discuss with your local Holyoake branch.**

### Construction

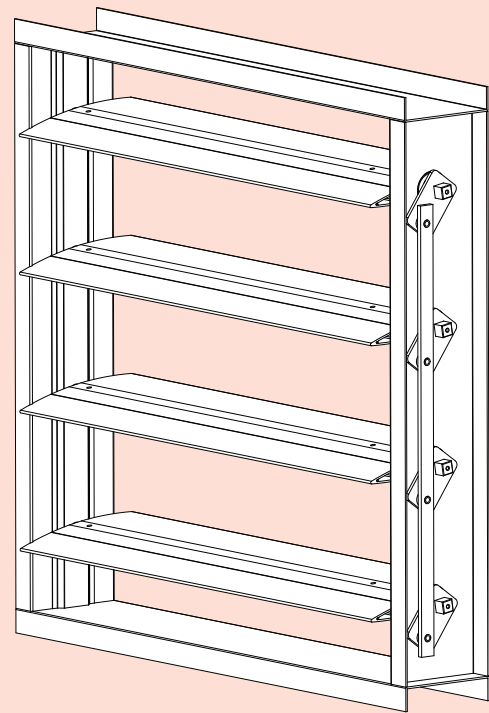
- Frame:** 6065 T5 extruded aluminium, 6mm nominal thickness.
- Blades:** 6063 T5 full aerofoil extrusion 3mm nominal thickness. Positioned at 225 mm centres.
- Linkage:** 60 x 6 mm mild steel plate welded to 20 mm square blade axles. Movable joints assembled with brass bearings.
- Axles:** 20 mm square mild steel solid shaft, inserted into blades and bolted with M8 hardware.
- Bearings:** Heavy duty spherical ball bearings in greased and sealed races, mounted in the aluminium frame.
- Seals:** Anodized extruded aluminium side Seals.
- Controls:** To suit specific requirements.
- Operation:** Parallel blade rotation only.
- Finish:** Mill finish standard, anodized and powdercoat options available.
- Minimum Size:** 400 mm wide x 345 mm high overall flange.
- Maximum Size:** 1500 mm wide x 2360 mm high overall flange (Single Section).
- General:** Dampers are manufactured with Full blades only, (top and bottom weirs are extended to provide intermediate sizes).

**HCD-225 Dampers must not be installed with the axles vertical.**

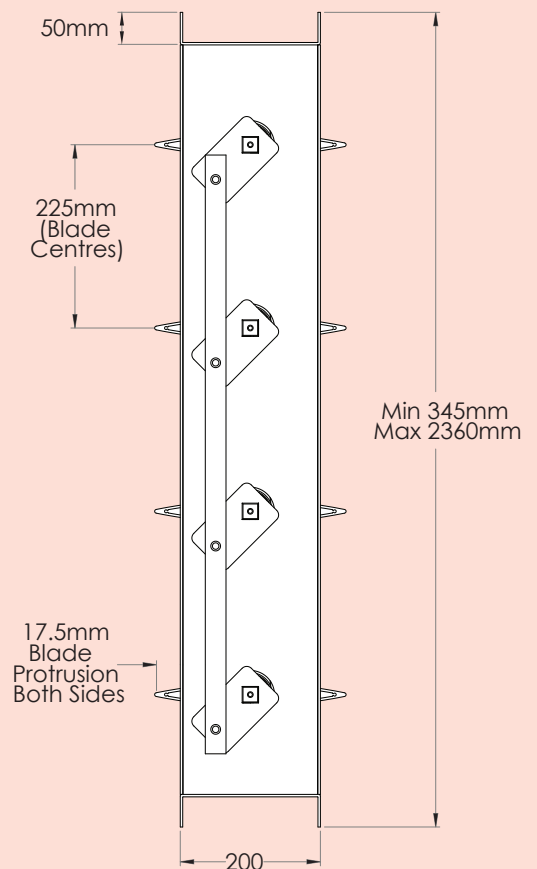


Due to a policy of continuous development and improvement the right is reserved to supply products which may differ slightly from those illustrated and described in this publication.

## Heavy Duty Control Damper



### Dimensions

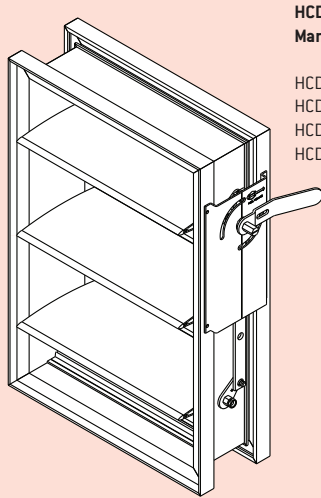


### Guide Product Weights

HCD 225 Heavy Duty Airfoil	Approximate Weight in Kg
1200 x 900	28
1200 x 1400	41

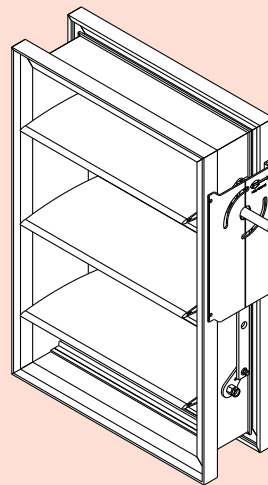
## Standard Drive & Coupling Components

### Standard Hardware



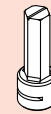
**HCD-31 KIT**  
Manual Quadrant

HCD-02  
HCD-22.36  
HCD24  
HCD16



**HCD-32 KIT**  
Actuator

HCD-02  
HCD-01.120  
HCD-16

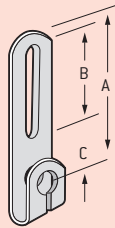


**HCD-22**  
Hex Drive Shaft  
36mm or 90mm



**HCD-01**  
Actuator Drive Shaft  
60mm or 120mm

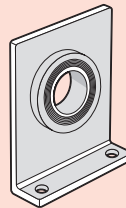
**HCD-18**  
Slotted Crank Arm  
12.5 mm Hole



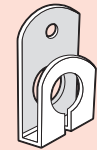
**HCD-19**  
As Above with  
25 mm Hole

	A	B	C
HCD 18	92	67	15
HCD 19	142	79	52

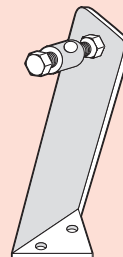
**HCD-09**  
Standard Jackshaft  
Bearing (25.4 mm)



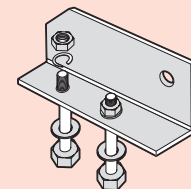
**HCD-07**  
Standard Jackshaft  
Link Arm  
25.4 mm Dia



**HCD-17**  
Control Arm  
& Swivel



**HCD-15**  
Coupler Bracket Assembly



**HCD-20**  
Swivel



Component	Description	Component	Description
HCD31	Manual Quadrant Kit includes HCD02, HCD22.36, HCD24, HCD16	HCD15	Coupler Bracket Assembly
HCD32	Actuator Kit includes HCD02, HCD01, HCD16	HCD16	Two Piece Hex Axle Bearing [-8 - 220°C]
HCD01	Round Actuator Drive Shaft 60, 120mm	HCD1602	Two Piece Round Axle Bearing [-8 - 220°C]
HCD02	Aluminium bracket for manual or actuated operation of damper	HCD17	Control Arm and Swivel
HCD04	Hex Coupler 29, 47mm	HCD18	Slotted Crank Arm 12.7mm Hole
HCD05	Tie Rod Arm	HCD19	Slotted Crank Arm 25.4mm Hole
HCD06	Tie Rod Bearing	HCD20	Swivel
HCD07	Standard Jackshaft Link Arm 25.4mm Dia	HCD21	8mm Stainless Steel Rod
HCD08	Mini Jackshaft Link Arm 12.7mm Dia	HCD22	Hex Manual Quadrant Drive Shaft 36,90mm
HCD09	Standard Jackshaft Bearing 25.4mm	HCD24	Manual Crank Arm
HCD10	Mini Jackshaft Bearing 12.7mm	HCD24EXT	PRD Counter Weight Arm
HCD11	25.4 x 1.8mm Stainless Steel Tubing	HCD34	One Piece Round Linkage Bearing [-8 - 220°C]
HCD11A	12.7 x 1.2mm Stainless Steel Tubing	HCD35	Manual Quadrant for 1/2" Shaft
HCD12	Stainless Steel Split Pin	HCDSSWIRECLIP	HCD Stainless Steel Wire Clip
HCD13E	Stainless Steel Axle & Crank	HCD150LINKARM	Aluminium Link Arm to suit HCD150
HCD13F	Stainless Steel Axle & Crank (Opposite Hand)	HCD75LINKARM	Aluminium Link Arm to suit HCD75
HCD13G	Stainless Steel Plain Hex Axle		

# HBD & HCD

## Product Ordering Key and Suggested Specifications

**HBD-155**

Holyoake  
Balancing  
Dampers with  
155 mm  
Aluminium  
Blades

**OPPOSED  
PARALLEL**

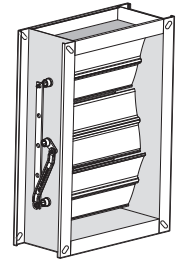
Blade Rotation:  
**Opposed (Standard)**  
Specify Parallel

**W x H**

Nominal  
Duct  
Size

**CONTROL**

Quadrant Arm and Plate.  
Round Drive Shaft 120 mm.  
Hex Ext Shaft,  
(23, 44, 93 or 300 mm).



Balancing Dampers shall be of extruded aluminium construction. Frames shall be suitable for duct flange mounting. Blades shall be fixed to 11 mm hexagonal shafts held by two piece acetal self lubricating bearings, with outer shells fluted to prevent rotation.

Linkages shall be out of the airstream. The damper may be furnished with a manual locking quadrant arm, a round shaft and plate, or a hexagonal shaft and plate, suitable for actuator mounting.

All shall be type HBD-155 as manufactured by Holyoake.

**HCD-75  
HCD-150**

Holyoake  
Control  
Dampers  
with 75 or  
150 mm  
aluminium  
airfoil blades.

**CHANNEL  
LOW PROFILE CHANNEL  
FLANGE SURROUND**

Frame  
Style

**OPPOSED  
PARALLEL**

Blade Rotation:  
**Opposed  
(Standard)** Specify  
Parallel

**W x H**

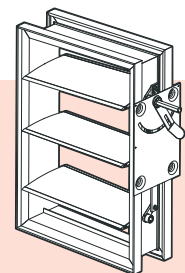
Nominal  
Duct  
Size

**CONTROL**

Quadrant Arm and Plate.  
Round Drive Shaft 120mm.  
Hex Ext Shaft,  
(23, 44, 93, or 300 mm).

**SPECIAL  
CONSTRUCTION  
OPTIONS**

For smoke damper see  
page 328H - 329H



Volume Control Dampers shall be low leakage type extruded aluminium construction, with single piece airfoil blades, fitted with self inflating edge seals. Blades shall be fixed to 11 mm hexagonal shafts, held by two piece acetal self lubricating bearings, with outer shells fluted to prevent rotation. Frames shall be suitable for either internal fixing within ductwork, or external duct flange mounting and shall be fitted with flexible aluminium side seals. Linkages shall be out of the airstream. Leakage shall be no greater than 0.04 m<sup>3</sup>/s/m<sup>2</sup> at 1500 Pa Δp, or typically 0.45 % of full flow (at 5 m/s) with 500 Pa Δp. The damper may be furnished with a manual locking quadrant arm, a round shaft and plate, or a hexagonal shaft and plate, suitable for actuator mounting.

All shall be type HCD-75, or HCD-150, as manufactured by Holyoake.

**HCD-225**

Holyoake  
Heavy Duty  
Control  
Dampers  
with 225 mm  
Airfoil Blades

**PARALLEL**

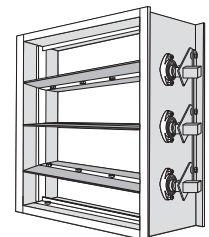
Blade Rotation  
(No Opposed  
Option)

**W x H**

**Nominal  
(Overall Size)**

**CONTROL**

Electric Motor,  
Pneumatic Actuator,  
(Further discussion  
required with local  
Holyoake branch).



Heavy Duty Volume Control Dampers shall be constructed from extruded aluminium. Frames shall be suitable for duct flange mounting and be 6 mm thick. Blades shall be Parallel Airfoil 3 mm thick, with internal strengthening and fitted with externally mounted Heavy Duty Spherical Ball Bearings. Axle crank plates shall be 55 x 6 mm mild steel plate, with brass bearings; mounted outside of the airstream, providing a robust, long lasting operating mechanism, able to handle high turbulence/pressure and velocity. The damper shall be available with a range of control options to suit specialist applications.

All shall be type HCD-225 as manufactured by Holyoake.