

## FDB2 A0(A60) FIRE AND GAS DAMPER

For offshore, marine and navy ventilation systems



### MATERIALS

| PART                      | MATERIAL   | FINISHING             |
|---------------------------|--|-----------------------|
| Frame                     | Carbon steel   | Painted or galvanised |
| Frame                     | Stainless steel<br>EN 1.4301 (AISI304),<br>EN 1.4404 (AISI316L),<br>EN 1.4432 (AISI316L) | -                     |
| Blades                    | Steel  | Galvanised            |
| Blades                    | Stainless steel<br>EN 1.4301 (AISI304),<br>EN 1.4404 (AISI316L),<br>EN 1.4432 (AISI316L) | -                     |
| Maintenance-free bearings | Stainless steel<br>EN 1.4404 (AISI316L)  | -                     |
| Shafts                    | Stainless steel<br>EN 1.4404 (AISI316L)  | -                     |

### FDA PRODUCT OPTIONS

Halton FDB2 is available with following actuators:

- FDB2-EL: Electrical spring return motor; standard actuators being 24 V or 230 V or 120 V. The motor contains built-in open-closed limit switches. Separate junction box included in the EL-model. A wide range of Ex actuators available, including a one second closing time function as an option.
- FDB2-PNR: Pneumatic rotating actuator
- FDB2-SP: Manual spring-actuated damper with fusible link

DOT: manual override function available for PNR and EL models.

HSO: Halton Smart Override function for HVAC damper black-start available for PNR and EL models. With automatic reset function when power and/or pneumatic air supply is reinstated.

A wide range of accessories available.

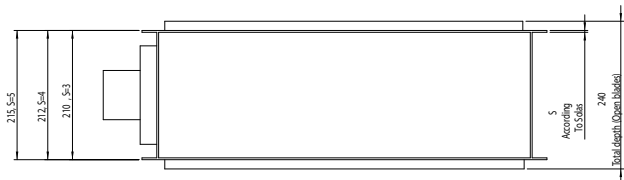
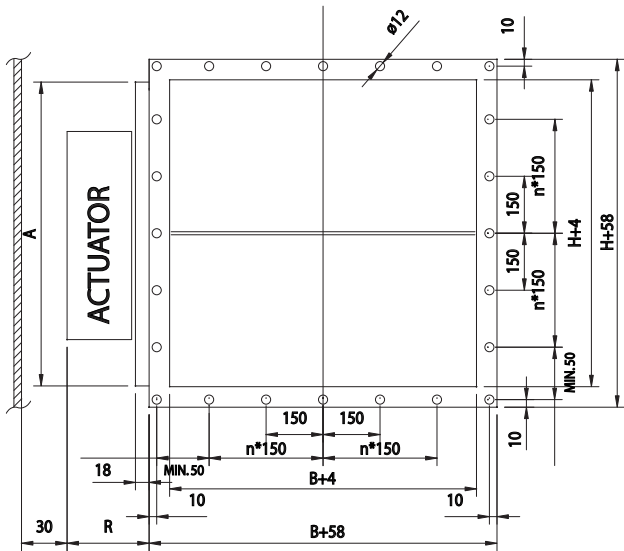
### APPLICATIONS

Halton FDB2 fire dampers are type-approved class A0(A60) fire and gas dampers for use in offshore, marine and navy ventilation systems. The FDB2 can be installed in rectangular or circular ducts. All fire dampers have a fusible link and they prevent the spread of fire and gases within the ventilation ductwork. When the blades are in the open position, the device does not cause significant pressure loss, noise or flow disturbance. Fire dampers are set from outside and can be installed in any position. An open-closed indicator is visible on the outside of the damper. Fire dampers with non-standard dimensions can be supplied on request.

### FEATURES

- Type-approved by the most recognized classification societies: class A0 without insulation, A15-A60 when suitably insulated
- Shock and vibration tested
- Blades contain silicone seals (effective up to 300 °C) for low leakage in normal conditions and thermal expansion graphite seals (effective from 150 °C) to increase tightness even up to 50% in a case of fire
- A closed damper fulfils the requirement of leakage (EN1751:2014) from class 1 to class 3 depending on the size. Details available from Halton
- Casing leakage (EN1751:2014) class B
- The nominal fuse release temperatures are 50 °C, 74 °C or 100 °C. Other temperatures available
- Low weight due to patented double skin blade structure
- Automatic electrical, pneumatic or spring operation system available
- Maximum duct pressure for damper construction 5000 Pa and maximum air velocity 15 m/s
- The normal operating temperature for the damper is between -50 °C to +80 °C. Actuator and component selection can affect this temperature range. Other temperatures available on request
- Available as ATEX certified
- SIL 2 safety assessment certificate available on specific terms

**GENERAL FDB2 DRAWINGS**



| DAMPER HEIGHT     | TOTAL DEPTH WITH BLADES OPEN |
|-------------------|------------------------------|
| < 250 mm          | 210 mm                       |
| ≥ 250 mm < 300 mm | 250 mm                       |
| ≥ 300 mm < 349 mm | 210 mm                       |
| ≥ 350 mm          | 240 mm                       |

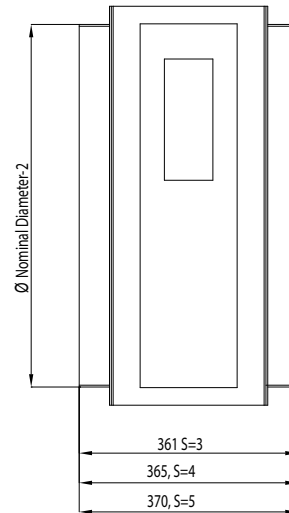
**FDB2 DIMENSIONS AND MATERIAL THICKNESS**

FDB2 fire dampers meet international standards for both rectangular (width B 100-1200 mm and height H 100-1600 mm, 1 mm division) and circular ducts (Ø100-1250 mm). Modular constructions are available for bigger sizes. Non-standard dimensions and flange drilling available on request. Standard flange width 27 mm. Flanges and drilling also available according to ISO 15138 standards. Frame thickness 3 mm or 3-5 mm according to SOLAS. Also 6, 8 and 10 mm frame thicknesses are available on request. Blades are made of two sheets, each of them being 1 mm thick (sandwich design).

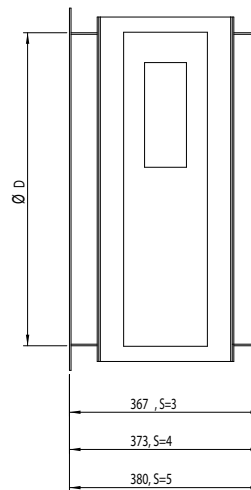
**FRAME THICKNESS ACCORDING TO SOLAS**

| DIMENSIONS                | S |
|---------------------------|---|
| If B or H ≥ 100 and ≤ 449 | 3 |
| If B or H ≥ 450 and ≤ 649 | 4 |
| If B or H ≥ 650           | 5 |

**FDB2 CIRCULAR CONNECTIONS**



**FDB2 CIRCULAR, WITH CONNECTION FLANGES**



**ACTUATOR EFFECT ON DIMENSIONS**

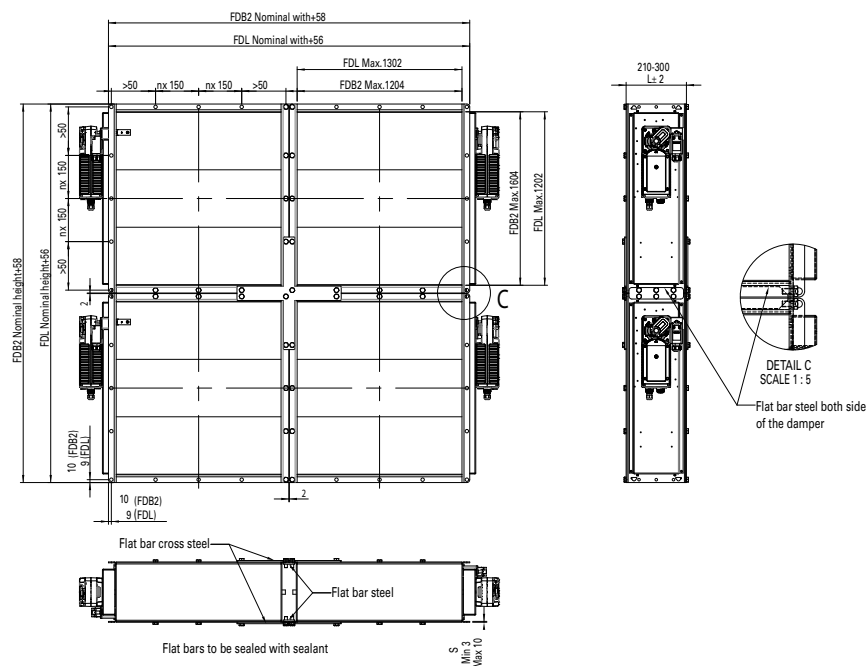
| ACTUATOR      |                                   | DIMENSIONS |                              |
|---------------|-----------------------------------|------------|------------------------------|
|               |                                   | R          | A                            |
| Electrical    | BF230, BF24, BF120                | 100        | H ≤ 300 = 300<br>H > 300 = H |
| Pneumatic PNR | Pneumatic rotating actuator AT100 | 170        | H ≤ 300 = 300<br>H > 300 = H |
| Pneumatic PNR | Pneumatic rotating actuator AT200 | 190        | H ≤ 350 = 350<br>H > 350 = H |
| Spring        | Spring                            | 140        | H                            |

The above table contains only some examples of actuators and their effect on dimensions.

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| DIMENSIONS                   | S |
|------------------------------|---|
| If A < 0.075 m2              | 3 |
| If A ≥ 0.075 and A ≤ 0.45 m2 | 4 |
| If A > 0.45 m2               | 5 |

## GENERAL FDB2 MODULE ASSEMBLY



Size limitation: nominal width 2060 mm x nominal height 3260 mm or nominal width 2460 mm x nominal height 2860 mm

### OPERATION PRINCIPLE

In the event of a temperature rise in ductwork:

- FDB2-EL: fusible link releases and cuts off operating voltage to the spring return motor, allowing the spring to close the damper blades. The fire damper opens automatically when the fuse has been changed and the operating voltage to the motor is re-established.
- FDB2-PNR: fusible link releases and cuts off operating pressure to the spring return actuator, allowing springs to close the damper blades. The fire damper opens automatically when the fuse has been changed and the pneumatic air supply is re-established.
- FDB2-SP: fusible link releases allowing the spring to close the damper blades. When the fuse has been changed, the fire damper must be reset into open position manually.

## WEIGHTS

### STANDARD HALTON FDB2 DAMPERS (KG) WITHOUT AN ACTUATOR

| H /<br>HEIGHT<br>(mm) | B / WIDTH (mm) |         |         |         |         |         |         |         |         |         |          |          | D2 ØD<br>(mm) | WEIGHT<br>(kg) |
|-----------------------|----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|----------|---------------|----------------|
|                       | 100            | 200     | 300     | 400     | 500     | 600     | 700     | 800     | 900     | 1000    | 1100     | 1200     |               |                |
| 100                   | 5 (5)          | 7 (7)   | 9 (9)   | 10 (10) | 12 (13) | 14 (15) | 15 (22) | 17 (25) | 19 (27) | 20 (30) | 22 (32)  | 24 (35)  | 100           | 8 (8)          |
| 200                   | 7 (7)          | 9 (9)   | 11 (11) | 12 (12) | 14 (16) | 16 (18) | 18 (26) | 20 (28) | 22 (31) | 23 (34) | 25 (36)  | 27 (39)  | 125           | 8 (8)          |
| 300                   | 9 (9)          | 11 (11) | 13 (13) | 15 (15) | 17 (19) | 19 (21) | 21 (30) | 23 (32) | 25 (35) | 27 (38) | 29 (41)  | 31 (43)  | 160           | 12 (12)        |
| 400                   | 11 (11)        | 13 (13) | 15 (15) | 17 (17) | 20 (22) | 22 (24) | 24 (33) | 26 (36) | 28 (39) | 30 (42) | 32 (45)  | 34 (48)  | 200           | 13 (13)        |
| 500                   | 13 (16)        | 16 (19) | 18 (22) | 21 (25) | 23 (27) | 25 (30) | 28 (38) | 30 (41) | 32 (44) | 35 (47) | 37 (50)  | 39 (54)  | 250           | 19 (19)        |
| 600                   | 15 (18)        | 18 (21) | 20 (24) | 23 (27) | 25 (30) | 28 (33) | 30 (41) | 33 (45) | 35 (48) | 38 (51) | 40 (55)  | 43 (58)  | 315           | 20 (20)        |
| 700                   | 18 (25)        | 21 (28) | 23 (32) | 26 (35) | 29 (39) | 32 (42) | 34 (46) | 37 (50) | 40 (53) | 42 (57) | 45 (60)  | 48 (64)  | 400           | 27 (27)        |
| 800                   | 20 (27)        | 23 (31) | 25 (35) | 28 (38) | 31 (42) | 34 (46) | 37 (50) | 40 (53) | 43 (57) | 46 (61) | 49 (64)  | 51 (68)  | 500           | 35 (43)        |
| 900                   | 22 (31)        | 25 (35) | 28 (39) | 32 (42) | 35 (46) | 38 (50) | 41 (54) | 44 (58) | 47 (62) | 50 (66) | 53 (70)  | 56 (74)  | 630           | 46 (62)        |
| 1000                  | 24 (33)        | 27 (37) | 31 (41) | 34 (45) | 37 (50) | 40 (54) | 44 (58) | 47 (62) | 50 (66) | 53 (70) | 57 (74)  | 60 (78)  | 800           | 62 (89)        |
| 1100                  | 26 (36)        | 30 (41) | 33 (45) | 37 (49) | 40 (54) | 44 (58) | 47 (62) | 51 (67) | 54 (71) | 58 (75) | 61 (79)  | 65 (84)  | 1000          | 83 (118)       |
| 1200                  | 28 (39)        | 32 (44) | 36 (48) | 39 (52) | 43 (57) | 46 (61) | 50 (66) | 54 (70) | 57 (75) | 61 (79) | 65 (84)  | 68 (88)  | 1250          | 113 (162)      |
| 1300                  | 31 (42)        | 35 (47) | 38 (52) | 42 (56) | 46 (61) | 50 (66) | 54 (70) | 58 (75) | 62 (80) | 65 (84) | 69 (89)  | 73 (94)  |               |                |
| 1400                  | 32 (45)        | 37 (50) | 41 (55) | 45 (59) | 49 (64) | 53 (69) | 57 (74) | 61 (79) | 65 (84) | 69 (88) | 73 (93)  | 77 (98)  |               |                |
| 1500                  | 35 (48)        | 39 (53) | 43 (58) | 48 (63) | 52 (68) | 56 (73) | 60 (78) | 65 (83) | 69 (89) | 73 (94) | 77 (99)  | 82(104)  |               |                |
| 1600                  | 36 (51)        | 41 (56) | 45 (61) | 50 (66) | 54 (72) | 59 (77) | 63 (82) | 67 (87) | 72 (92) | 76 (98) | 81 (103) | 85 (108) |               |                |

(Frame thickness according to SOLAS)

Examples of actuator weights: FDB2-EL GGA 326.1E 2,3 kg, GNA 326.1E 1,3 kg, BF230 +3,2 kg, BLF230 +1,7 kg, ExMax/Redmax +3,5 kg, CSQP +3 kg, FDB2-PNR AT100 +2,1 kg, AT100 as AISI316 4,4 kg, AT200 +3,2 kg, AT200 as AISI316 +6,2 kg, FDB2-SP +1 kg.  
Control enclosure +4 kg.