

FDB2 用于高要求应用的 A0(A60) 防火隔烟阀



概述

- 获得各类著名船级社的型式认可：A0级无绝缘，A15-A60 适当绝缘
- 可进行 ATEX 认证。通过冲击测试。
- 风叶包含硅胶（温度可达 300°C），防止正常环境下泄漏，以及热膨胀石墨密封条（150°C 以上有效），
在起火状况下使风闸紧密度可增加 50%。闭合的阀符合防泄漏等级 3 的要求 (EN1751:1998)。测试尺寸为 1000×1000 mm。
- 标称熔断温度为 50°C、74°C 或 100°C。可选其它温度。
- 专利双层风叶结构，重量轻巧
- 自动、气动或手动执行器可选
- 阀门结构可适应的最大管道压力为 5000 Pa，最大空气流速为 15 m/s
- 特定风闸可提供 SIL 2 安全认证

Dimensions

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 \geq 100, but \leq 449	3
If B or H \geq 450 but \leq 649	4
If B or H \geq 650	5

Frame thickness according to SOLAS, Edition Dec. 2015

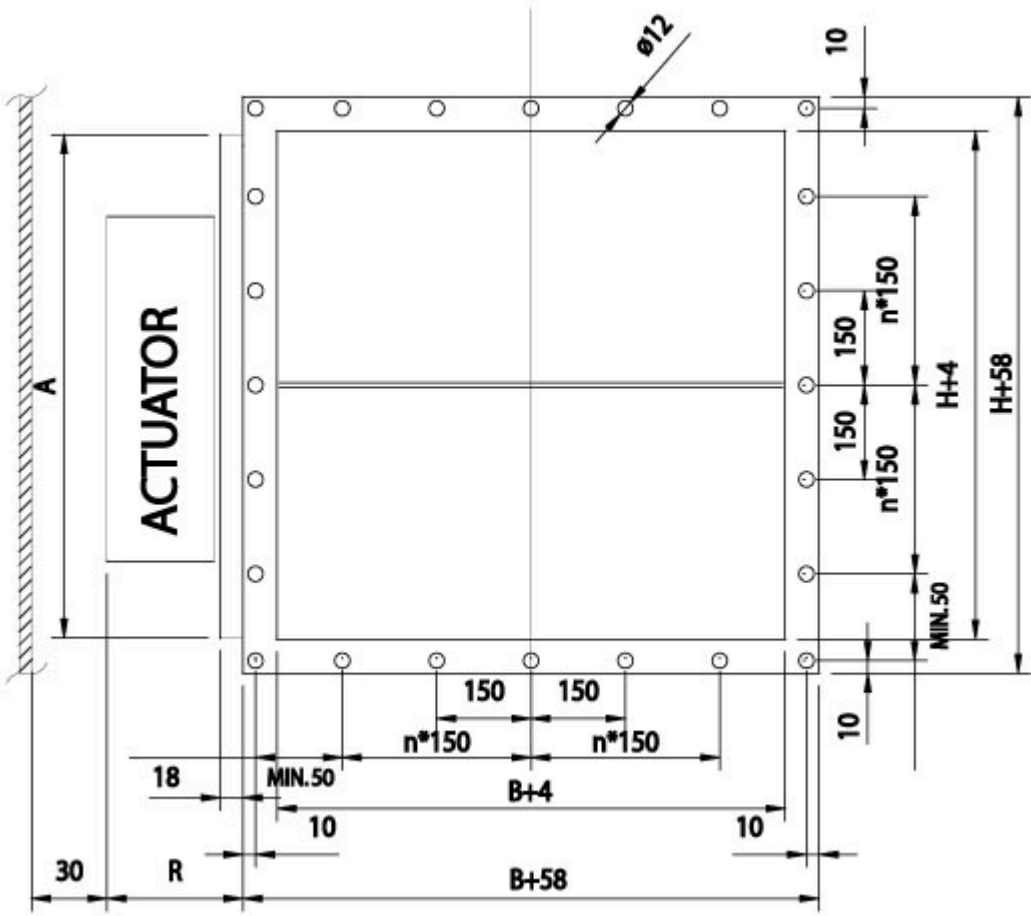
DIMENSIONS	S
If A < 0.075 m ²	3
If A \geq 0.075 and A \leq 0.45 m ²	4
If A > 0.45 m ²	5

Actuator effect in dimensions

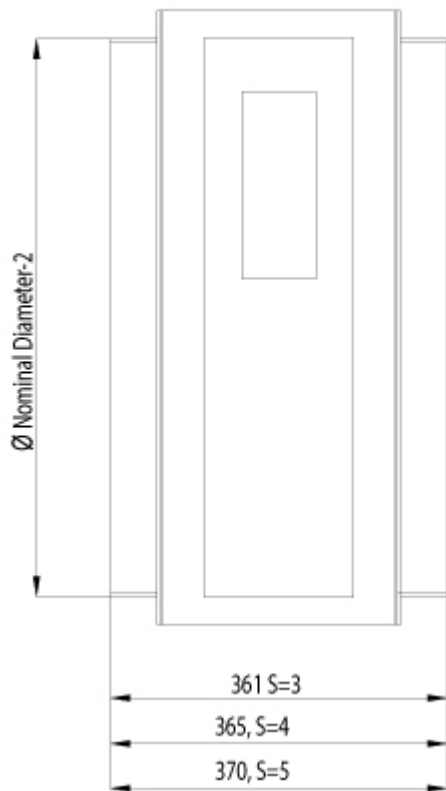
ACTUATOR		R	A
Electrical (EL)	BF230, BF24, BF120	100	H \leq 300 = 300, H>300 =H
Pneumatic (PNR)	Pneumatic rotating actuator AT100	170	H \leq 300 = 300, H>300 =H
Pneumatic (PNR)	Pneumatic rotating actuator AT200	190	H \leq 350 = 350, H>350 =H
Spring (SP)	Spring	140	H

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

FDB2 general drawings



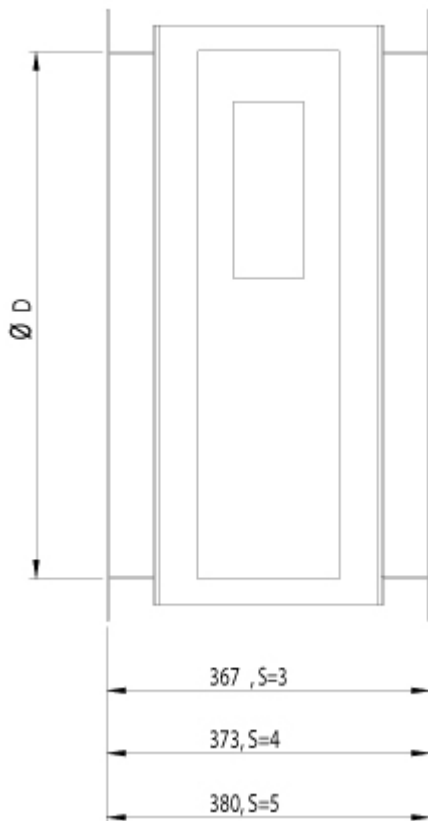
FDB2 circular connections



FDB2 general drawing, top



FDB2 general drawing, circular with connection flanges



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

Material and Finishing

PART	MATERIAL	FINISHING
Frame	Carbon steel	Painted or galvanized
Frame	Stainless steel EN 1.4301 (AISI304), EN 1.4404 (AISI316L), EN 1.4432 (AISI316L)	–
Blades	Steel	Galvanized
Blades	Stainless steel EN 1.4301 (AISI304), EN 1.4404 (AISI316L), EN 1.4432 (AISI316L)	–
Maintenance-free bearings	Stainless steel EN 1.4404 (AISI316L)	–
Shafts	Stainless steel EN 1.4404 (AISI316L)	–

Product Models and Accessories

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.

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

Weights of standard Halton Marine FDB2 dampers without an actuator (kg)

H/ HEIGHT (mm)	B / WIDTH (mm)											
	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(34)
200	7(7)	9(9)	11(11)	12(12)	14(16)	16(18)	18(26)	20(28)	22(31)	23(34)	25(36)	27(38)
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)
400	11(11)	13(13)	15(15)	17(17)	20(22)	22(24)	24(33)	26(36)	28(39)	30(42)	32(45)	34(47)
500	13(16)	16(19)	18(22)	21(25)	23(27)	25(30)	28(38)	30(41)	32(44)	35(47)	37(50)	39(52)
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)
700	18(25)	21(28)	23(32)	26(35)	29(39)	32(42)	34(46)	37(50)	40(53)	42(57)	45(60)	48(63)
800	20(27)	23(31)	25(35)	28(38)	31(42)	34(46)	37(50)	40(53)	43(57)	46(61)	49(64)	51(67)
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)
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)
1100	26(36)	30(41)	33(45)	37(49)	40(54)	44(58)	47(62)	51(67)	54(71)	58(75)	61(79)	65(83)
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)
1300	31(42)	35(47)	38(52)	42(56)	46(61)	50(66)	54(70)	58(75)	62(80)	65(84)	69(89)	73(93)
1400	32(45)	37(50)	41(55)	45(59)	49(64)	53(69)	57(74)	61(79)	65(84)	69(88)	73(93)	77(101)
1500	35(48)	39(53)	43(58)	48(63)	52(68)	53(73)	60(78)	65(83)	69(89)	73(94)	77(99)	82(107)
1600	36(51)	41(56)	45(61)	50(66)	54(72)	59(77)	63(82)	67(87)	72(92)	76(98)	81(103)	85(111)

D2 ØD	WEIGHT
(mm)	kg
100	8 (8)
125	8 (8)
160	12 (12)
200	13 (13)
250	19 (19)
315	20 (20)
400	27 (27)
500	35 (43)
630	46 (62)
800	62 (89)
1000	83 (118)
1250	113 (162)

(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 +3,2kg, AT200 as AISI316 +6,2 kg, FDB2-SP +1 kg. Control enclosure +4 kg.

Installation

Installation and maintenance instructions are with each fire damper delivery. Copies of Operation and Maintenance manuals are available from Halton Marine Sales offices and distributors.

Product Code

(FS)=Frame Dimensioning

(HS) Manual dimensioning

(SO) SOLAS dimensioning

(S1) SOLAS dimensioning (supplement 2015)

(MA)=Material

(AS) Stainless steel 1 mm EN1.4404

(CS) Carbon steel 1 mm

(LS) Stainless steel 1 mm EN1.4432

(SS) Stainless steel 1 mm EN1.4301

(FM)=Frame Material

(A3) Stainless steel 3 mm EN1.4404

(A4) Stainless steel 4 mm EN1.4404

(A5) Stainless steel 5 mm EN1.4404

(C3) Carbon steel 3 mm

(C4) Carbon steel 4 mm

(C5) Carbon steel 5 mm

(L3) Stainless steel 3 mm EN1.4432

(L4) Stainless steel 4 mm EN1.4432

(L5) Stainless steel 5 mm EN1.4432

(S3) Stainless steel 3 mm EN1.4301

(S4) Stainless steel 4 mm EN1.4301

(S5) Stainless steel 5 mm EN1.4301

(FI)=Finishing

(HG) Hot galvanized

(NA) Acid treatment

(PN) Standard painting grey RAL7001

(PX) Special Painting C5-M ISO12944

(IN)=Insulation

(N) No

(Y) A60 insulation on actuator side

(RE)=Actuator					
(E1) Electric – Belimo, BF24-2-HL					
(E3) Electric – Belimo, BF230-2-HL					
(E7) Electric – Belimo, BF120-HL					
(E8) Electric – Belimo, NF24A-SR					
(E9) Electric – Belimo, NF24A-SR-S2					
(E10) Electric – Belimo, SF24A-SR					
(E11) Electric – Belimo, SF24A-SR-S2					
(I1) InMax – Schischek, 15-SF					
(I2) InMax – Schischek, 15-SF VAS					
(I3) InMax – Schischek, 15-SF1 VAS					
(I4) InMax – Schischek, 8-SF-1					
(I6) InMax – Schischek, 15-SF-1					
(I9) InMax – Schischek, 5.10-SF					
(I10) InMax – Schischek, 5.10-SF VAS					
(I11) InMax – Schischek, 8-SF-1 VAS					
(K0) Electric – Belimo, BFN24.1					
(K2) Electric – Belimo, BFN230.1					
(P0) Pneumatic – Air Torque, AT101, Aluminium					
(P3) Pneumatic – Air Torque, AT104, AISI316					
(Q1) Pneumatic – Air Torque, AT201, Aluminium					
(Q2) Pneumatic – Air Torque, AT204, AISI316					
(S1) Spring					
(T1) Electric – Belimo, BF24-T-2.1HL					
(T3) Electric – Belimo, BF230-T-2.1HL					
(Z2) Electric (EX) – Schischek, ExMax 15-SF					
(Z3) Electric (EX) – Schischek, ExMax 5-10SF					
(Z4) Electric (EX), Schischek, ExMax 15-SF VAS					
(Z5) Electric (EX) – Schischek, ExMax 15-SF1 VAS					
(Z6) Electric (EX) – Schischek, ExMax 8-SF1					
(Z7) Electric (EX) – Schischek, ExMax 15-SF1					
(Z10) Electric (EX) – Schischek, ExMax 5.10-SF VAS					

(Z11) Electric (EX) – Schischek, ExMax 8-SF1 VAS				
(C1) Electric – Elodrive, CSQP-05A1E 24V				
(C2) Electric – Elodrive, CSQP-05A2E 120/230V				
(C3) Electric – Elodrive, CSQP-10A1E 24V				
(C4) Electric – Elodrive, CSQP-10A2E 120/230V				
(C5) Electric – Elodrive, CSQP-15A1E 24V – Blocked				
(C6) Electric – Elodrive, CSQP-15A2E 120/230V – Blocked				
(FU)=Fuse				
144 °C				
100 °C				
95 °C				
74 °C				
72 °C				
70 °C				
65 °C				
50 °C				
(AC)=Accessories				
(E1) Junction box – Ensto, Plastic, IP66 & 67				
(E2) EX junction box – Cooper, GRP, IP66, T6				
(E4) Cable connectors – Wieland & Hensel				
(L2) Limit switch 2 pcs – Bernstein, Plastic, IP66, Mechanical				
(L4) EX Limit switch 2 pcs – Bartec, Plastic, IP66, Mechanical				
(L5) EX Limit switch 4 pcs – Bartec, Plastic, IP66, Mechanical				
(L6) EX Magnetic switch 2 pcs – Elobau, AISI6118, Magnetic				
(L7) EX Magnetic switch 4 pcs – Elobau, AISI6118, Magnetic				
(L8) EX Magnetic switch 2 pcs – Pepperl & Fuchs, AISI303, Inductive				
(L9) EX Magnetic switch 4 pcs – Pepperl & Fuchs, AISI303, Inductive				
(M1) Solenoid valve – SMC, Aluminium, 24 VDC				
(M2) Solenoid valve – SMC, Aluminium, 230 VAC				
(M3) EX solenoid valve – ASCO, Brass, 24 VDC				
(M4) EX solenoid valve – ASCO, Brass, 230 VAC				

