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Little Rock, AR 72231
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Date: 07/14/2026
Return Request: 08/11/2026
Project: Highlands Building at Pinnacle Hills
Supplier: Comfort Systems USA
Manufacturer: Various
Submittal: Dampers
Submittal Number: 23 33 00-01
Drawing # and Installation: Mechanical

ARCHITECT

Crafton Tull
Fayetteville, Ar

ENGINEER

IMEG

GENERAL CONTRACTOR

Clark Contractors
Rogers, Ar

MECHANICAL SUBCONTRACTOR

Comfort Systems USA (Arkansas), Inc.
116 Commercial Ave.
Lowell, AR 72745
(479) 770.8992

NOTES:

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CSUSA PROJECT NO.
26-5034

jzuber@comfortar.com

Submittal

JOB NAME	Highlands Building at Pinnacle Hills Rogers
JOB NUMBER	26ADCA0017-1
PRODUCT	Backdraft Damper
MANUFACTURER	Pottorff
LOCATION	Rogers, AR
DATE	June 25, 2026
SPECIFICATION	23 33 00 2.1.A.2
LEAD TIME	3 Weeks
ENGINEER	IMEG
CONTRACTOR	Knight & Wilson
SUBMITTED BY	Chris Atwood

Submittal

Model BD-20R

Backdraft damper, round butterfly blade

General Construction

Dimensions: Nominal (approximately 1/8" (3) undersize)

Frame material: Galvanized steel

Blade material: Aluminum

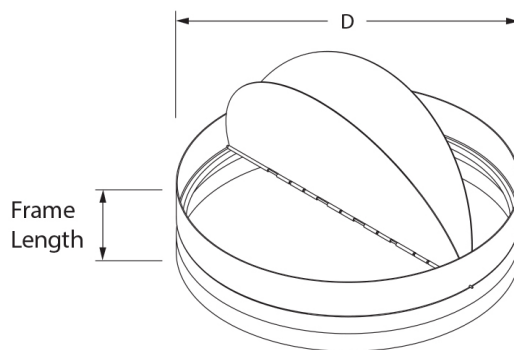
Seals: Rubber blade edge seals

Ratings

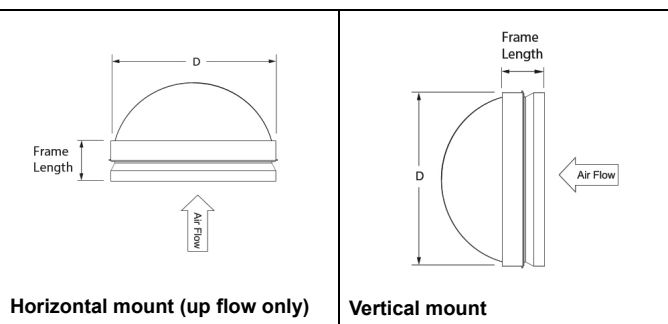
Maximum system velocity (fpm): 1000

Maximum system pressure (in.wg.): 1

Temperature: -20°F to 130°F (-29°C to 54°C)



Model BD-20R



Details

Line Item	Tag	Qty	(in.xxxx)	Frame		Blades
			D	Gauge	L (in)	Gauge
122	BACKDRAFT DAMPER @ LEVEL 2 CHASE STUB-IN	1	8	24	3.125	24

This submittal sheet reflects only the construction and options selected and is not indicative of all constructions and options that are available for the product. For more information, please contact your local representative or visit us at <https://pottorff.com/>.

Information is subject to change without notice or obligation.

Note:Dimensions in parentheses () are in millimeters

POTTORFF®

Limited Product Warranty

Products manufactured by Pottorff are warranted to be free from defects in material and workmanship for a period of 60 months from the date of original shipment by Pottorff. Pottorff warrants only that it will furnish replacement material, or at its option, repair any product of its manufacture that is proven to Pottorff's satisfaction to be defective in material or workmanship during this described warranty period. To determine defects Pottorff may require material claimed defective to be returned freight prepaid to the Pottorff factory that originally shipped the product. If any defects are determined by Pottorff, standard surface freight charges relative to replacement material will be paid by Pottorff, (limited to the 48 contiguous United States).

Products not manufactured by Pottorff will be warranted by Pottorff only to the extent that they are warranted to Pottorff by their manufacturer. Electric motor warranties and claims are administered by the motor manufacturer only. Pottorff shall have no responsibility for the operation or performance of any product in any manner other than that which the product is usually tested and applied under industry standard, nor for any damage to a product from abuse, misapplication, unauthorized repairs, abrasion, erosion, corrosion, or the like due to abnormal temperatures or the influence of foreign matter, nor for the design or operation of any system of which any product may be made a part, or for the suitability of any product for any particular application. Pottorff shall not be liable for any costs or expenses, in connection with removal or replacement of alleged defective equipment or any part or portion thereof nor incidental or consequential damages of any kind, or under any circumstances for any damages beyond prices of the good sold.

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Information is correct at time of printing. However, we reserve the right to make changes without notice.

Submittal

JOB NAME	Highlands Building at Pinnacle Hills Rogers
JOB NUMBER	26ADCA0017-1
PRODUCT	Combination Fire Smoke Dampers
MANUFACTURER	Pottorff
LOCATION	Rogers, AR
DATE	June 25, 2026
SPECIFICATION	23 33 00 2.1.A.3
LEAD TIME	6 Weeks
ENGINEER	IMEG
CONTRACTOR	Knight & Wilson
SUBMITTED BY	Chris Atwood

Submittal

Model FSD-141

Combination fire smoke damper, 1-1/2 hour, UL class 1, triple-V blade

General construction

Dimensions: Nominal (approximately 1/4" (6) undersize, sleeve thickness not included)

Material: Galvanized steel

Frame: 5" x 1" (127x25) hat channel, 13 gauge equivalent

Blade style: 6" x 16 gauge, triple-v

Blade action: Parallel

Sleeve: Type: Sleeve

Axles: 1/2" (13) diameter plated steel hex

Linkage: Concealed in frame

Bearings: Stainless steel oilite, sleeve-type

Seals: Blade: Silicone; Jamb: Flexible stainless steel

Fire closure device: HS-10

Options

Mount: Horizontal

Sleeve style: A

Fire closure temperature (°F): Primary: 165

Burglar bars: Burglar Bars, Mounted

Angles: Type: Picture frame, 16 ga (2 sides)

Remote control panel: Type: RCP-1M (single, momentary switch);
Ship: Mounted

Ratings

UL 555 fire resistance rating: 1-1/2 hour

UL 555S leakage class: 1 [8 cfm/sq.ft. @ 4 in.wg.]
[(0.04m³/s/m²@1.0 kPa)]

UL HNLJ.V-5: Ventilation Duct Assemblies

Dynamic closure velocity (fpm): 2000

UL555S rated pressure (in.wg.): 4

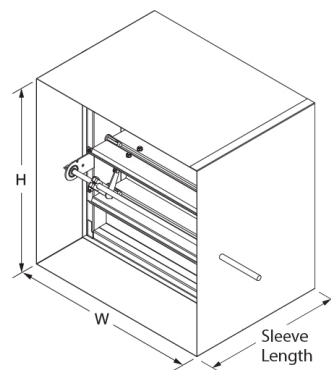
Application temperature (°F): 250

Listings

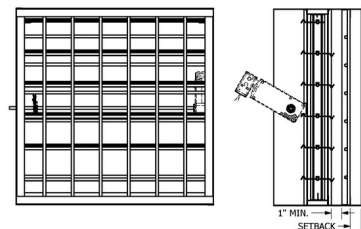
UL 555 and 555S listing: R11767

CAN/ULC S112 and CAN/ULC S112.1 listing: R11767

CSFM listing: 3225-0368:110 and 3230-0368:111



Model FSD-141 with sleeve



Integrated Security Bar



Air Performance

Pottorff certifies that the model FSD-141 shown herein is licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air performance ratings only.

Details

Line item	Tag	Qty	Dimensions (in.xxxx)		Sections	Sleeve or Side Plate			ISB Setback	Actuator								
			W x H	D		Wide x High	L (in)	Gauge	Clr (in)	Qty	Model	Volt	Limiter	Pos	Orien	Loc	Power consumption (per actuator)	Transformer sizing (VA) (per actuator)
1	FSD HORIZ	1	10 x 10		1 x 1	16	16	6	2	1	FSTF120-S	120V	None	PO	Perp	Ext/int	3.5VA	3.5
2	FSD HORIZ	2	24 x 10		1 x 1	16	16	6	2	1	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27
4	FSD HORIZ	1	34 x 10		1 x 1	16	16	6	2	1	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27

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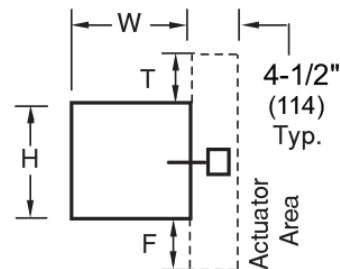
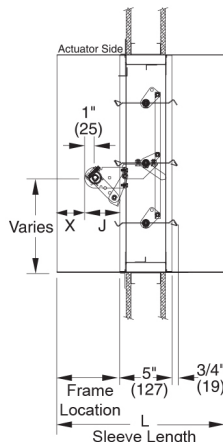
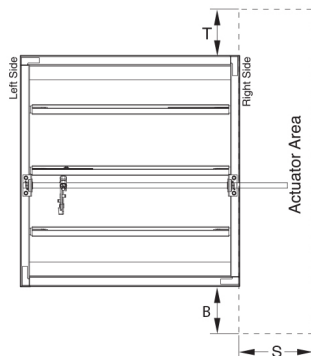
Information is subject to change without notice or obligation.

Note:Dimensions in parentheses () are in millimeters

Submittal

Model FSD-141

Actuator and Sleeve Interference Details



Detail #11-1

Model FSD-141

The drawings and corresponding table illustrate the position of the damper when mounted in a factory sleeve and the relative space required for a given actuator. The standard mounting locations provide enough space for installation of retaining angles and duct connections.

Dimensional Data

Line item	Tag	Qty	Dimensions (in.xxxx)		Sections	Sleeve or Side Plate		Actuator			Dimensional data (in)				
			W x H	D		L (in)	Clr (in)	Qty	Model	Detail	F	T	S	X	J
1	FSD HORIZ	1	10 x 10		1 x 1	16	6	1	FSTF120-S	#11-1	1	3	4.5	2.625	3.375
2	FSD HORIZ	2	24 x 10		1 x 1	16	6	1	FSNF120-S	#11-1	4	3	4.5	2.625	3.375
4	FSD HORIZ	1	34 x 10		1 x 1	16	6	1	FSNF120-S	#11-1	4	3	4.5	2.625	3.375

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Note: Dimensions in parentheses () are in millimeters

Submittal

Model FSD-141

Combination fire smoke damper, 1-1/2 hour, UL class 1, triple-V blade

General construction

Dimensions: Nominal (approximately 1/4" (6) undersize, sleeve thickness not included)

Material: Galvanized steel

Mount: Vertical

Frame: 5" x 1" (127x25) hat channel, 13 gauge equivalent

Blade style: 6" x 16 gauge, triple-v

Blade action: Parallel

Sleeve: Type: Sleeve

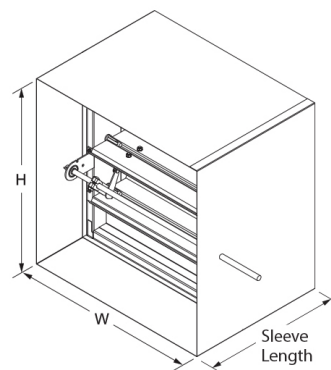
Axles: 1/2" (13) diameter plated steel hex

Linkage: Concealed in frame

Bearings: Stainless steel oilite, sleeve-type

Seals: Blade: Silicone; Jamb: Flexible stainless steel

Fire closure device: HS-10



Options

Sleeve style: A

Fire closure temperature (°F): Primary: 165

Burglar bars: Burglar Bars, Mounted

Angles: Type: Picture frame, 16 ga (2 sides)

Remote control panel: Type: RCP-1M (single, momentary switch);
 Ship: Mounted

Ratings

UL 555 fire resistance rating: 1-1/2 hour

UL 555S leakage class: 1 [8 cfm/sq.ft. @ 4 in.wg.]
 [(0.04m³/s/m²@1.0 kPa)]

UL HNLJ.V-5: Ventilation Duct Assemblies

Dynamic closure velocity (fpm): 2000

UL555S rated pressure (in.wg.): 4

Application temperature (°F): 250

Listings

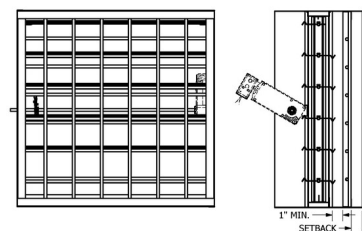
UL 555 and 555S listing: R11767

CAN/ULC S112 and CAN/ULC S112.1 listing: R11767

CSFM listing: 3225-0368:110 and 3230-0368:111



Model FSD-141 with sleeve



Integrated Security Bar



Air Performance

Pottorff certifies that the model FSD-141 shown herein is licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air performance ratings only.

Details

Line item	Tag	Qty	Dimensions (in.xxxx)		Sections	Sleeve or Side Plate			ISB Setback	Actuator								
			W x H	D	Wide x High	L (in)	Gauge	Clr (in)		Qty	Model	Volt	Limiter	Pos	Orien	Loc	Power consumption (per actuator)	Transformer sizing (VA) (per actuator)
5	FSD VERT	1	20 x 18		1 x 1	16	14	6	2	1	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27
6	FSD VERT	1	24 x 14		1 x 1	16	14	6	2	1	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27
7	FSD VERT	1	28 x 18		1 x 1	16	14	6	2	1	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27
10	FSD VERT	1	30 x 12		1 x 1	16	14	6	2	1	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27
11	FSD VERT	1	36 x 16		1 x 1	16	14	6	2	1	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27

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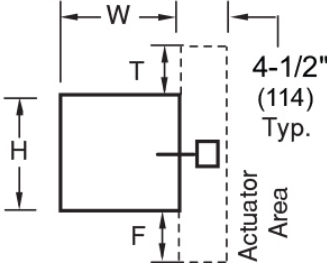
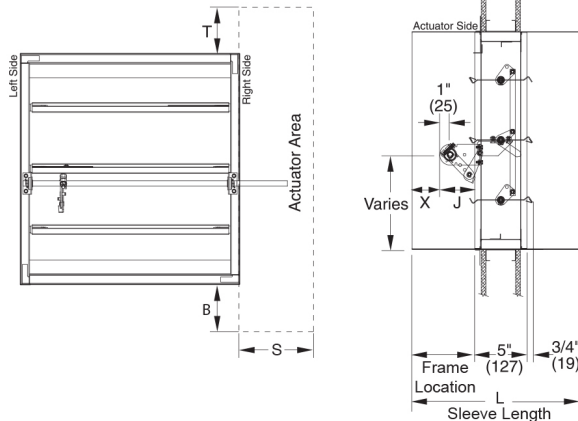
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Note:Dimensions in parentheses () are in millimeters

Submittal

Model FSD-141

Actuator and Sleeve Interference Details



Detail #11-1

Model FSD-141
The drawings and corresponding table illustrate the position of the damper when mounted in a factory sleeve and the relative space required for a given actuator. The standard mounting locations provide enough space for installation of retaining angles and duct connections.

Dimensional Data

Line item	Tag	Qty	Dimensions (in.xxxx)		Sections	Sleeve or Side Plate		Actuator			Dimensional data (in)				
			W x H	D		L (in)	Clr (in)	Qty	Model	Detail	F	T	S	X	J
5	FSD VERT	1	20 x 18		1 x 1	16	6	1	FSNF120-S	#11-1	0	1	4.5	2.625	3.375
6	FSD VERT	1	24 x 14		1 x 1	16	6	1	FSNF120-S	#11-1	2	1	4.5	2.625	3.375
7	FSD VERT	1	28 x 18		1 x 1	16	6	1	FSNF120-S	#11-1	0	1	4.5	2.625	3.375
10	FSD VERT	1	30 x 12		1 x 1	16	6	1	FSNF120-S	#11-1	3	2	4.5	2.625	3.375
11	FSD VERT	1	36 x 16		1 x 1	16	6	1	FSNF120-S	#11-1	1	0	4.5	2.625	3.375

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Note:Dimensions in parentheses () are in millimeters

Submittal

Model FSD-141

Combination fire smoke damper, 1-1/2 hour, UL class 1, triple-V blade

General construction

Dimensions: Nominal (approximately 1/4" (6) undersize, sleeve thickness not included)

Material: Galvanized steel

Mount: Vertical

Frame: 5" x 1" (127x25) hat channel, 13 gauge equivalent

Blade style: 6" x 16 gauge, triple-v

Blade action: Parallel

Sleeve: Type: Sleeve

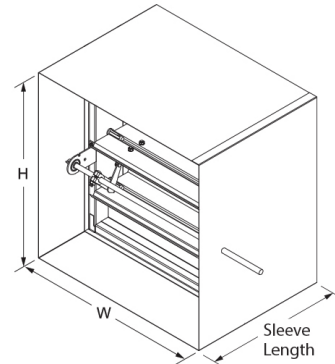
Axles: 1/2" (13) diameter plated steel hex

Linkage: Concealed in frame

Bearings: Stainless steel oilite, sleeve-type

Seals: Blade: Silicone; Jamb: Flexible stainless steel

Fire closure device: HS-10



Options

Sleeve style: A

Fire closure temperature (°F): Primary: 165

Burglar bars: None,

Angles: Type: Picture frame, 16 ga (2 sides)

Remote control panel: Type: RCP-1M (single, momentary switch);
Ship: Mounted

Ratings

UL 555 fire resistance rating: 1-1/2 hour

UL 555S leakage class: 1 [8 cfm/sq.ft. @ 4 in.wg.]
[(0.04m³/s/m²@1.0 kPa)]

UL HNLJ.V-5: Ventilation Duct Assemblies

Dynamic closure velocity (fpm): 2000

UL555S rated pressure (in.wg.): 4

Application temperature (°F): 250

Listings

UL 555 and 555S listing: R11767

CAN/ULC S112 and CAN/ULC S112.1 listing: R11767

CSFM listing: 3225-0368:110 and 3230-0368:111



Model FSD-141 with sleeve



Air Performance

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Details

Line item	Tag	Qty	Dimensions (in.xxxx)		Sections	Sleeve or Side Plate			Actuator								
			W x H	D	Wide x High	L (in)	Gauge	Clr (in)	Qty	Model	Volt	Limiter	Pos	Orien	Loc	Power consumption (per actuator)	Transformer sizing (VA) (per actuator)
12	FSD VERT - MULT SECT	1	38 x 18		2 x 1	16	16	6	1	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27
Notes: BURGLAR BARS TO BE FACTORY MTD																	
14	FSD VERT - MULT SECT	1	38 x 26		2 x 1	16	16	6	1	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27
Notes: BURGLAR BARS TO BE FACTORY MTD																	
15	FSD VERT - MULT SECT	1	38 x 32		2 x 1	16	16	6	1	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27
Notes: BURGLAR BARS TO BE FACTORY MTD																	

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Note: Dimensions in parentheses () are in millimeters

Submittal

Model FSD-141

Combination fire smoke damper, 1-1/2 hour, UL class 1, triple-V blade

Details

Line item	Tag	Qty	Dimensions (in.xxxx)		Sections	Sleeve or Side Plate			Actuator								
			W x H	D		Wide x High	L (in)	Gauge	Clr (in)	Qty	Model	Volt	Limiter	Pos	Orien	Loc	Power consumption (per actuator)
16	FSD VERT - MULT SECT	1	42 x 28		2 x 1	16	16	6	1	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27
Notes: BURGLAR BARS TO BE FACTORY MTD																	
17	FSD VERT - MULT SECT	1	66 x 22		2 x 1	16	16	6	1	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27
Notes: BURGLAR BARS TO BE FACTORY MTD																	
18	FSD VERT - MULT SECT	1	70 x 36		2 x 1	16	16	6	2	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27
Notes: BURGLAR BARS TO BE FACTORY MTD																	
19	FSD VERT - MULT SECT	1	78 x 36		3 x 1	16	16	6	3	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27
Notes: BURGLAR BARS TO BE FACTORY MTD																	
20	FSD VERT - MULT SECT	1	84 x 20		3 x 1	16	16	6	2	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27
Notes: BURGLAR BARS TO BE FACTORY MTD																	
68	FSD VERT - MULT SECT	1	84 x 20		3 x 1	16	16	6	2	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27
Notes: BURGLAR BARS TO BE FACTORY MTD																	
69	FSD VERT - MULT SECT	2	92 x 26		3 x 1	16	16	6	2	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27
Notes: BURGLAR BARS TO BE FACTORY MTD																	

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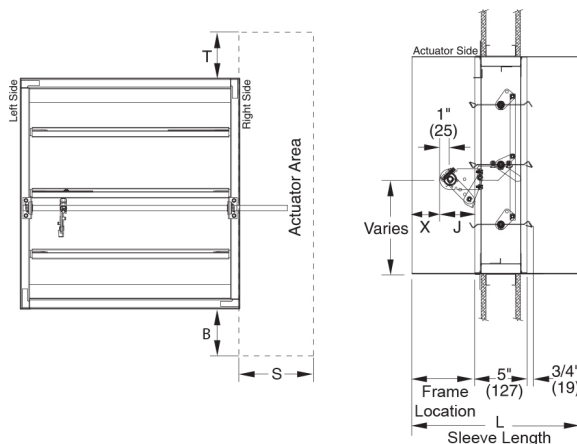
Information is subject to change without notice or obligation.

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Submittal

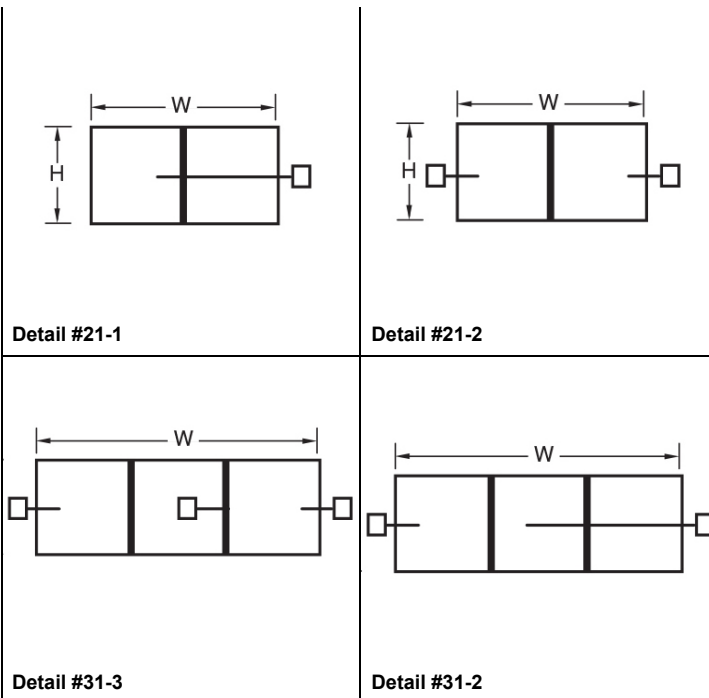
Model FSD-141

Actuator and Sleeve Interference Details



Model FSD-141

The drawings and corresponding table illustrate the position of the damper when mounted in a factory sleeve and the relative space required for a given actuator. The standard mounting locations provide enough space for installation of retaining angles and duct connections.



Dimensional Data

Line item	Tag	Qty	Dimensions (in.xxxx)		Sections	Sleeve or Side Plate		Actuator			Dimensional data (in)				
			W x H	D		L (in)	Clr (in)	Qty	Model	Detail	F	T	S	X	J
12	FSD VERT - MULT SECT	1	38 x 18		2 x 1	16	6	1	FSNF120-S	#21-1	0	1	4.5	2.625	3.375
Notes: BURGLAR BARS TO BE FACTORY MTD															
14	FSD VERT - MULT SECT	1	38 x 26		2 x 1	16	6	1	FSNF120-S	#21-1	0	0	4.5	2.625	3.375
Notes: BURGLAR BARS TO BE FACTORY MTD															
15	FSD VERT - MULT SECT	1	38 x 32		2 x 1	16	6	1	FSNF120-S	#21-1	0	0	4.5	2.625	3.375
Notes: BURGLAR BARS TO BE FACTORY MTD															
16	FSD VERT - MULT SECT	1	42 x 28		2 x 1	16	6	1	FSNF120-S	#21-1	0	0	4.5	2.625	3.375
Notes: BURGLAR BARS TO BE FACTORY MTD															
17	FSD VERT - MULT SECT	1	66 x 22		2 x 1	16	6	1	FSNF120-S	#21-1	0	0	4.5	2.625	3.375
Notes: BURGLAR BARS TO BE FACTORY MTD															
18	FSD VERT - MULT SECT	1	70 x 36		2 x 1	16	6	2	FSNF120-S	#21-2	0	0	4.5	2.625	3.375
Notes: BURGLAR BARS TO BE FACTORY MTD															
19	FSD VERT - MULT SECT	1	78 x 36		3 x 1	16	6	3	FSNF120-S	#31-3	0	0	4.5	2.625	3.375
Notes: BURGLAR BARS TO BE FACTORY MTD															
20	FSD VERT - MULT SECT	1	84 x 20		3 x 1	16	6	2	FSNF120-S	#31-2	0	0	4.5	2.625	3.375

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Submittal

Model FSD-141

Actuator and Sleeve Interference Details

Dimensional Data

Line item	Tag	Qty	Dimensions (in.xxxx)		Sections	Sleeve or Side Plate		Actuator			Dimensional data (in)				
			W x H	D	Wide x High	L (in)	Clr (in)	Qty	Model	Detail	F	T	S	X	J
Notes: BURGLAR BARS TO BE FACTORY MTD															
68	FSD VERT - MULT SECT	1	84 x 20		3 x 1	16	6	2	FSNF120-S	#31-2	0	0	4.5	2.625	3.375
Notes: BURGLAR BARS TO BE FACTORY MTD															
69	FSD VERT - MULT SECT	2	92 x 26		3 x 1	16	6	2	FSNF120-S	#31-2	0	0	4.5	2.625	3.375
Notes: BURGLAR BARS TO BE FACTORY MTD															

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Submittal

Model FSD-141

Combination fire smoke damper, 1-1/2 hour, UL class 1, triple-V blade

General construction

Dimensions: Nominal (approximately 1/4" (6) undersize, sleeve thickness not included)

Material: Galvanized steel

Mount: Vertical

Frame: 5" x 1" (127x25) hat channel, 13 gauge equivalent

Blade style: 6" x 16 gauge, triple-v

Blade action: Parallel

Sleeve: Type: Sleeve

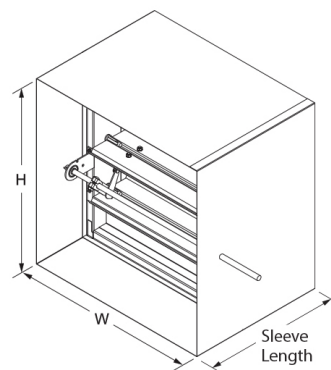
Axles: 1/2" (13) diameter plated steel hex

Linkage: Concealed in frame

Bearings: Stainless steel oilite, sleeve-type

Seals: Blade: Silicone; Jamb: Flexible stainless steel

Fire closure device: HS-10



Options

Sleeve style: A

Fire closure temperature (°F): Primary: 165

Burglar bars: Burglar Bars, Mounted

Transition: Jackshaft side: Type: Round; Ship: Mounted

Transition: Non jackshaft side: Type: Round; Ship: Mounted

Angles: Type: Picture frame, 16 ga (2 sides)

Remote control panel: Type: RCP-1M (single, momentary switch); Ship: Mounted

Ratings

UL 555 fire resistance rating: 1-1/2 hour

UL 555S leakage class: 1 [8 cfm/sq.ft. @ 4 in.wg.]
 [(0.04m³/s/m²@1.0 kPa)]

UL HNLJ.V-5: Ventilation Duct Assemblies

Dynamic closure velocity (fpm): 2000

UL555S rated pressure (in.wg.): 4

Application temperature (°F): 250

Listings

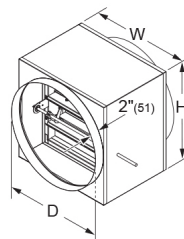
UL 555 and 555S listing: R11767

CAN/ULC S112 and CAN/ULC S112.1 listing: R11767

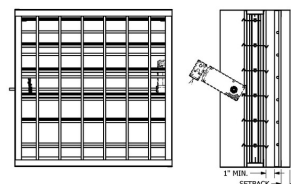
CSFM listing: 3225-0368:110 and 3230-0368:111



Model FSD-141 with sleeve



Round transition (both sides)



Integrated Security Bar



Air Performance

Pottorff certifies that the model FSD-141 shown herein is licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air performance ratings only.

Details

Line item	Tag	Qty	Dimensions (in.xxxx)		Sections	Sleeve or Side Plate			ISB Setback	Actuator								
			W x H	D		Wide x High	L (in)	Gauge		Clr (in)	Qty	Model	Volt	Limiter	Pos	Orien	Loc	Power consumption (per actuator)
21	FSD RND VERT	1	8 x 8	6	1 x 1	16	16	6	2	1	FSTF120-S	120V	None	PO	Perp	Ext/int	3.5VA	3.5
112	FSD RND VERT	1	10 x 10	8	1 x 1	16	16	6	2	1	FSTF120-S	120V	None	PO	Perp	Ext/int	3.5VA	3.5

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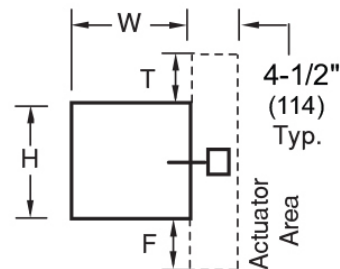
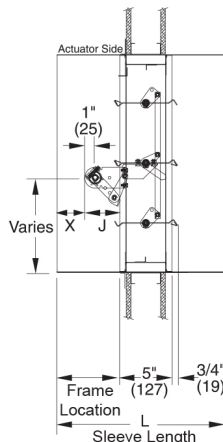
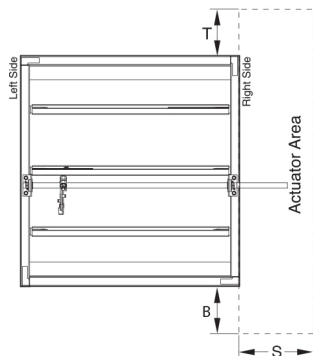
Information is subject to change without notice or obligation.

Note:Dimensions in parentheses () are in millimeters

Submittal

Model FSD-141

Actuator and Sleeve Interference Details



Detail #11-1

Model FSD-141

The drawings and corresponding table illustrate the position of the damper when mounted in a factory sleeve and the relative space required for a given actuator. The standard mounting locations provide enough space for installation of retaining angles and duct connections.

Dimensional Data

Line item	Tag	Qty	Dimensions (in.xxxx)		Sections	Sleeve or Side Plate		Actuator			Dimensional data (in)				
			W x H	D		L (in)	Clr (in)	Qty	Model	Detail	F	T	S	X	J
21	FSD RND VERT	1	8 x 8	6	1 x 1	16	6	1	FSTF120-S	#11-1	4	1	4.5	2.625	3.375
112	FSD RND VERT	1	10 x 10	8	1 x 1	16	6	1	FSTF120-S	#11-1	1	3	4.5	2.625	3.375

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Note: Dimensions in parentheses () are in millimeters

Submittal

Model FSD-141

Combination fire smoke damper, 1-1/2 hour, UL class 1, triple-V blade

General construction

Dimensions: Nominal (approximately 1/4" (6) undersize, sleeve thickness not included)

Material: Galvanized steel

Frame: 5" x 1" (127x25) hat channel, 13 gauge equivalent

Blade style: 6" x 16 gauge, triple-v

Blade action: Parallel

Sleeve: Type: Sleeve

Axles: 1/2" (13) diameter plated steel hex

Linkage: Concealed in frame

Bearings: Stainless steel oilite, sleeve-type

Seals: Blade: Silicone; Jamb: Flexible stainless steel

Fire closure device: HS-10

Options

Mount: Horizontal

Sleeve style: A

Fire closure temperature (°F): Primary: 165

Burglar bars: Burglar Bars, Mounted

Transition: Jackshaft side: Type: Round; Ship: Mounted

Transition: Non jackshaft side: Type: Round; Ship: Mounted

Angles: Type: Picture frame, 16 ga (2 sides)

Remote control panel: Type: RCP-1M (single, momentary switch); Ship: Mounted

Ratings

UL 555 fire resistance rating: 1-1/2 hour

UL 555S leakage class: 1 [8 cfm/sq.ft. @ 4 in.wg.]
 [(0.04m³/s/m²@1.0 kPa)]

UL HNLJ.V-5: Ventilation Duct Assemblies

Dynamic closure velocity (fpm): 2000

UL555S rated pressure (in.wg.): 4

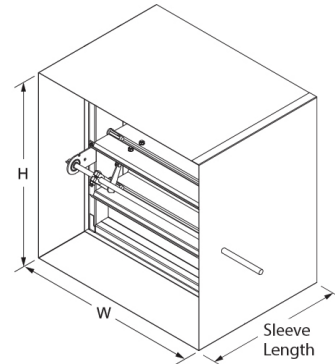
Application temperature (°F): 250

Listings

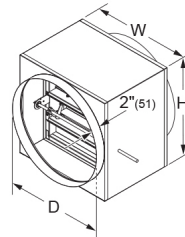
UL 555 and 555S listing: R11767

CAN/ULC S112 and CAN/ULC S112.1 listing: R11767

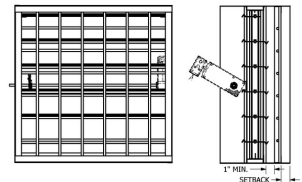
CSFM listing: 3225-0368:110 and 3230-0368:111



Model FSD-141 with sleeve



Round transition (both sides)



Integrated Security Bar



Air Performance

Pottorff certifies that the model FSD-141 shown herein is licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air performance ratings only.

Details

Line item	Tag	Qty	Dimensions (in.xxxx)		Sections	Sleeve or Side Plate			ISB Setback	Actuator								
			W x H	D		Wide x High	L (in)	Gauge	Clr (in)	Qty	Model	Volt	Limiter	Pos	Orien	Loc	Power consumption (per actuator)	Transformer sizing (VA) (per actuator)
22	FSD RND HORIZ	1	10 x 10	8	1 x 1	16	16	6	2	1	FSTF120-S	120V	None	PO	Perp	Ext/int	3.5VA	3.5

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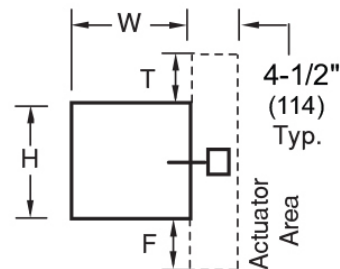
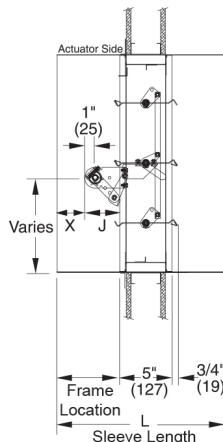
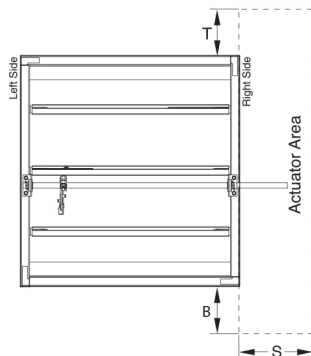
Information is subject to change without notice or obligation.

Note:Dimensions in parentheses () are in millimeters

Submittal

Model FSD-141

Actuator and Sleeve Interference Details



Detail #11-1

Model FSD-141

The drawings and corresponding table illustrate the position of the damper when mounted in a factory sleeve and the relative space required for a given actuator. The standard mounting locations provide enough space for installation of retaining angles and duct connections.

Dimensional Data

Line item	Tag	Qty	Dimensions (in.xxxx)		Sections	Sleeve or Side Plate		Actuator			Dimensional data (in)				
			W x H	D		L (in)	Clr (in)	Qty	Model	Detail	F	T	S	X	J
22	FSD RND HORIZ	1	10 x 10	8	1 x 1	16	6	1	FSTF120-S	#11-1	1	3	4.5	2.625	3.375

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Information is subject to change without notice or obligation.

Note: Dimensions in parentheses () are in millimeters

Submittal

Model FSD-141

Combination fire smoke damper, 1-1/2 hour, UL class 1, triple-V blade

General construction

Dimensions: Nominal (approximately 1/4" (6) undersize, sleeve thickness not included)

Material: Galvanized steel

Frame: 5" x 1" (127x25) hat channel, 13 gauge equivalent

Blade style: 6" x 16 gauge, triple-v

Blade action: Parallel

Sleeve: Type: Sleeve

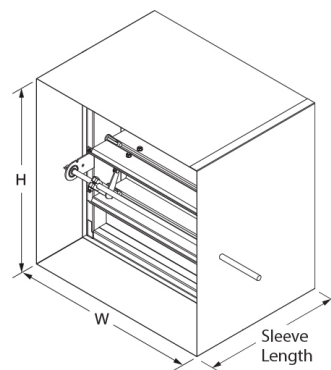
Axles: 1/2" (13) diameter plated steel hex

Linkage: Concealed in frame

Bearings: Stainless steel oilite, sleeve-type

Seals: Blade: Silicone; Jamb: Flexible stainless steel

Fire closure device: HS-10



Options

Mount: Horizontal

Sleeve style: A

Fire closure temperature (°F): Primary: 165

Burglar bars: None,

Angles: Type: Picture frame, 16 ga (2 sides)

Remote control panel: Type: RCP-1M (single, momentary switch);
 Ship: Mounted

Model FSD-141 with sleeve

Ratings

UL 555 fire resistance rating: 1-1/2 hour

UL 555S leakage class: 1 [8 cfm/sq.ft. @ 4 in.wg.]
 [(0.04m³/s/m²@1.0 kPa)]

UL HNLJ.V-5: Ventilation Duct Assemblies

Dynamic closure velocity (fpm): 2000

UL555S rated pressure (in.wg.): 4

Application temperature (°F): 250



Air Performance

Pottorff certifies that the model FSD-141 shown herein is licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air performance ratings only.

Listings

UL 555 and 555S listing: R11767

CAN/ULC S112 and CAN/ULC S112.1 listing: R11767

CSFM listing: 3225-0368:110 and 3230-0368:111



Details

Line item	Tag	Qty	Dimensions (in.xxxx)		Sections	Sleeve or Side Plate			Actuator									Transformer sizing (VA) (per actuator)
			W x H	D		Wide x High	L (in)	Gauge	Clr (in)	Qty	Model	Volt	Limiter	Pos	Orien	Loc	Power consumption (per actuator)	
106	FSD HORIZ - MULT SECT	1	42 x 20		2 x 1	16	16	6	1	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27	
Notes: BURGLAR BARS TO BE FACTORY MTD																		
109	FSD HORIZ - MULT SECT	1	74 x 24		3 x 1	16	16	6	2	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27	
Notes: BURGLAR BARS TO BE FACTORY MTD																		
110	FSD HORIZ - MULT SECT	1	76 x 38		3 x 1	16	16	6	3	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27	
Notes: BURGLAR BARS TO BE FACTORY MTD																		

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Information is subject to change without notice or obligation.

Note:Dimensions in parentheses () are in millimeters

Submittal

Model FSD-141

Combination fire smoke damper, 1-1/2 hour, UL class 1, triple-V blade

Details

Line item	Tag	Qty	Dimensions (in.xxxx)		Sections	Sleeve or Side Plate			Actuator								
			W x H	D		L (in)	Gauge	Clr (in)	Qty	Model	Volt	Limiter	Pos	Orien	Loc	Power consumption (per actuator)	Transformer sizing (VA) (per actuator)
111	FSD HORIZ - MULT SECT	1	84 x 24		3 x 1	16	16	6	2	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27
Notes: BURGLAR BARS TO BE FACTORY MTD																	
120	FSD HORIZ - MULT SECT	1	70 x 18		2 x 1	16	16	6	1	FSNF120-S	120V	None	PO	Perp	Ext/int	23VA	27
Notes: BURGLAR BARS TO BE FACTORY MTD																	

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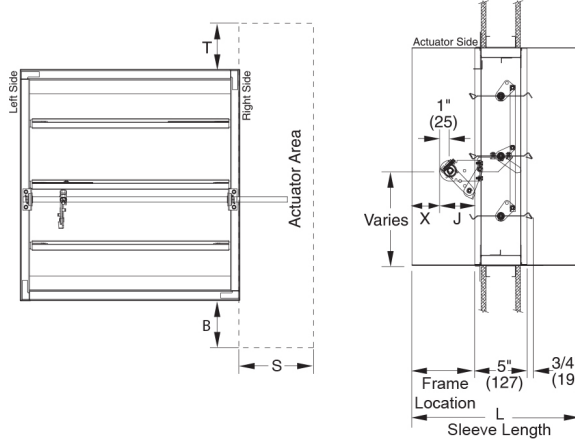
Information is subject to change without notice or obligation.

Note:Dimensions in parentheses () are in millimeters

Submittal

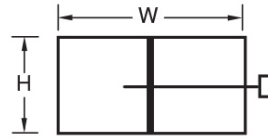
Model FSD-141

Actuator and Sleeve Interference Details

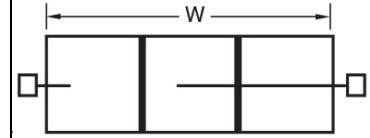


Model FSD-141

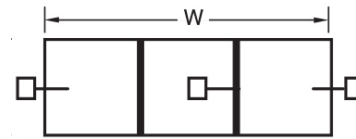
The drawings and corresponding table illustrate the position of the damper when mounted in a factory sleeve and the relative space required for a given actuator. The standard mounting locations provide enough space for installation of retaining angles and duct connections.



Detail #21-1



Detail #31-2



Detail #31-3

Dimensional Data

Line item	Tag	Qty	Dimensions (in.xxxx)		Sections	Sleeve or Side Plate		Actuator			Dimensional data (in)				
			W x H	D		L (in)	Clr (in)	Qty	Model	Detail	F	T	S	X	J
106	FSD HORIZ - MULT SECT	1	42 x 20		2 x 1	16	6	1	FSNF120-S	#21-1	0	0	4.5	2.625	3.375
Notes: BURGLAR BARS TO BE FACTORY MTD															
109	FSD HORIZ - MULT SECT	1	74 x 24		3 x 1	16	6	2	FSNF120-S	#31-2	0	0	4.5	2.625	3.375
Notes: BURGLAR BARS TO BE FACTORY MTD															
110	FSD HORIZ - MULT SECT	1	76 x 38		3 x 1	16	6	3	FSNF120-S	#31-3	0	0	4.5	2.625	3.375
Notes: BURGLAR BARS TO BE FACTORY MTD															
111	FSD HORIZ - MULT SECT	1	84 x 24		3 x 1	16	6	2	FSNF120-S	#31-2	0	0	4.5	2.625	3.375
Notes: BURGLAR BARS TO BE FACTORY MTD															
120	FSD HORIZ - MULT SECT	1	70 x 18		2 x 1	16	6	1	FSNF120-S	#21-1	0	1	4.5	2.625	3.375
Notes: BURGLAR BARS TO BE FACTORY MTD															

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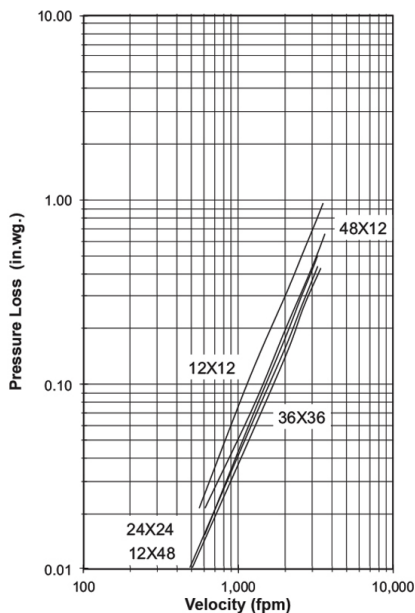
Note: Dimensions in parentheses () are in millimeters

Submittal

Model FSD-141 Performance

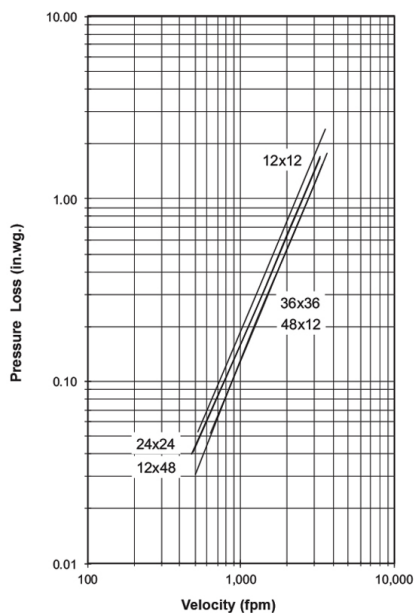
Pressure drop testing

Pressure drop testing was performed in accordance with AMCA Standard 500-D using the three configurations shown. All data has been corrected to represent air density of 0.075 lb/ft. Actual pressure drop in any ducted HVAC system is a combination of many elements. This information, along with analysis of other system influences, should be used to estimate actual pressure losses for a damper installed in a given HVAC system.



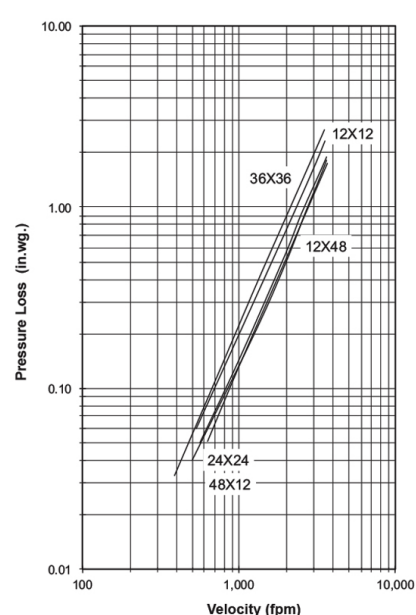
Ducted inlet and outlet

AMCA Figure 5.3 illustrates a fully ducted damper. This configuration represents the lowest pressure drop of the three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.



Ducted inlet

AMCA Figure 5.2 illustrates a ducted damper exhausting air into an open area. This configuration has a lower pressure drop than Figure 5.5 because entrance losses are minimized by a straight duct run upstream of the damper.



Plenum mount

AMCA Figure 5.5 illustrates a plenum mounted damper. This configuration has the highest pressure drop because of extremely high entrance and exit losses due to the sudden changes of area in the system.

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Note: Dimensions in parentheses () are in millimeters



Technical Data		FSTF120(-S) US
Power supply	nominal	120 VAC, 60 Hz
	tolerance	108 to 132 VAC, 60 Hz
Power consumption	running	2 W, 3.5 VA
	holding	1.5 W, 2.5 VA
max. inrush current		2.1 A
Electrical connection		3 ft, 18 GA appliance cable
	(-S models have 2 cables)	1/2" conduit connector
Overload protection		electronic throughout 0 to 95° rotation
Electrical protection		actuators are double insulated
Angle of rotation		max 95°, adjust. with mechanical stop
Torque		min. 18 in-lb [2 Nm]
Direction of rotation		reversible with cw/ccw mounting
Position indication		visual indicator, 0° to 95°
		(0° spring return position)
Running time	motor	< 75 sec (0 to 18 in-lb)
	spring	< 25 sec @32°F to 122°F [0°C to 50°C]
Humidity		5 to 95% RH non-condensing
Ambient temperature		32°F to 122°F [0°C to 50°C]
Operating temperature		Up to 250°F for 1/2 hour per UL555S test
Housing		NEMA type 2 / IP42, UL enclosure type 2
Housing material		UL94-5VA, UL2043 Listed for plenum use
Agency listings†		cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, UL2043 smoke rated
Noise level (max)	running	< 50 db (A)
	spring return	62 db (A)
	holding	inaudible
Servicing		maintenance free
Quality standard		ISO 9001
Weight	FSTF120 US	1.26 lbs (0.57 kg)
	FSTF120-S US	1.5 lbs (0.68 kg)

† Rated Impulse Voltage 4kV, Type of action 1AA (1.AA.B for -S version), Control Pollution Degree 3.

FSTF120-S US

Auxiliary switch	2 x SPST 3A (0.5A) @ 120 VAC, UL approved One fixed at 10° and one fixed at 80°
------------------	--

Torque min. 18 in-lb, for control of fire and smoke dampers

Application

The type FSTF spring-return actuator is intended for the operation of smoke and combination fire and smoke dampers in ventilation and air-conditioning systems. The actuator will meet requirements of UL555 and UL555S when tested as an assembly with the damper Square footage of damper operated will depend on make and model.

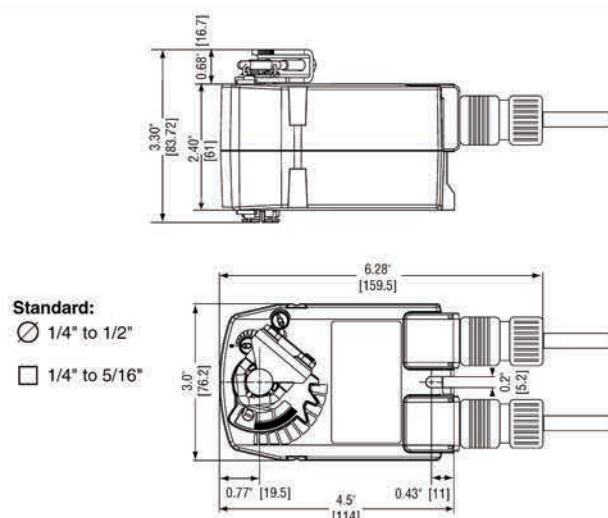
Operation

Mounting of the actuator to the damper axle shaft or jackshaft is via a cold-weld clamp. Teeth in the clamp and V-bolt dig into the metal of both solid and hollow shafts maintaining a perfect connection. The specially designed clamp will not crush hollow shafts. The bottom end of the actuator is held by an anti-rotation strap or by a stud provided by the damper manufacturer.

The actuator is mounted in its fail safe position with the damper blade(s) typically closed. Upon applying power, the actuator drives the damper to the open position. The internal spring is tensioned at the same time. If the power supply is interrupted, the spring moves the damper back to its fail-safe position.

SAFETY NOTE

Screw a conduit fitting into the actuator's bushing. Jacket the actuator's input and output wiring with suitable flexible conduit. Properly terminate the conduit in a suitable junction box.

Dimensions (Inches [mm])


FSTF120(-S) US
On/Off, Spring Return, 120 VAC



Table with 2 columns: Accessory Name, Description. Rows include Tool-06, KH-TF, ZG-TF2, ZG-TF112, ZS-100, ZS-150, 10379-00001.

NOTE: When using FSTF120 US and FSTF120-S US actuators, only use accessories listed on this page or those provided by damper manufacturers.
For actuator wiring information and diagrams, refer to Belimo Wiring Guide.

Typical Specification

On/Off fire and smoke spring return damper actuators shall be direct coupled type which require no crank arm and linkage and be capable of direct mounting to a shaft up to a 1/2" diameter and center a 1/2" shaft. The actuators must be designed so that they may be used for either clockwise or counterclockwise fail-safe operation. Actuators shall be protected from overload at all angles of rotation. If required, two SPDT auxiliary switches shall be provided. Actuators shall be cULus listed and have a 5 year warranty, and be manufactured under ISO 9001 International Quality Control Standards. Actuators shall be as manufactured by Belimo.

Wiring Diagrams

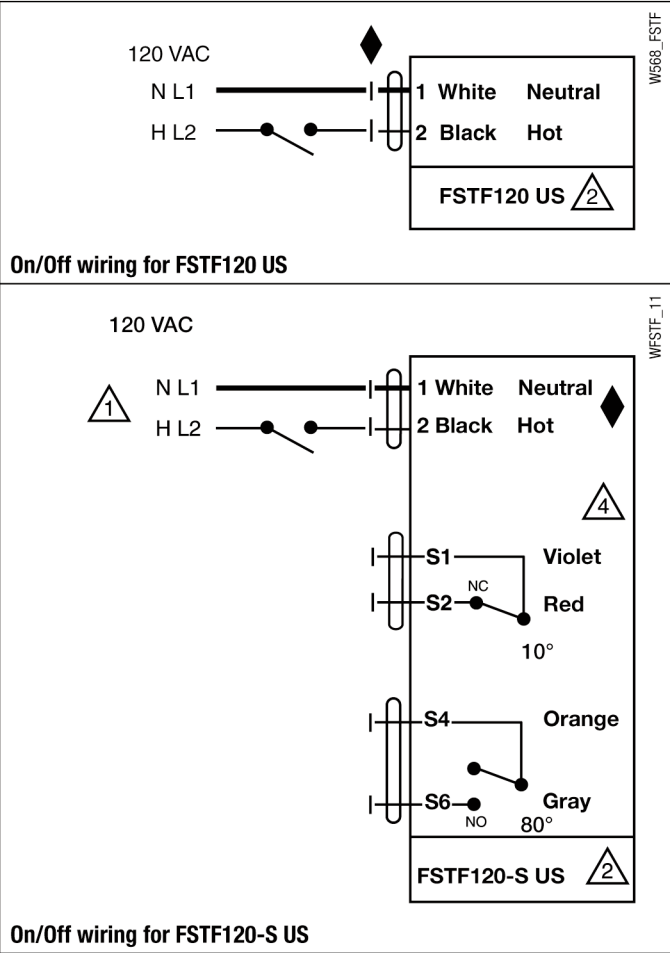
INSTALLATION NOTES

- 1 Provide overload protection and disconnect as required.
2 CAUTION Equipment Damage! Actuators may be connected in parallel. Power consumption must be observed.
4 Two SPST auxiliary switches for position indication. NC switch opens at 10° and NO switch closes at 80°

APPLICATION NOTES

- Meets cULus requirements without the need of an electrical ground connection.

WARNING Live Electrical Components! During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.



Application

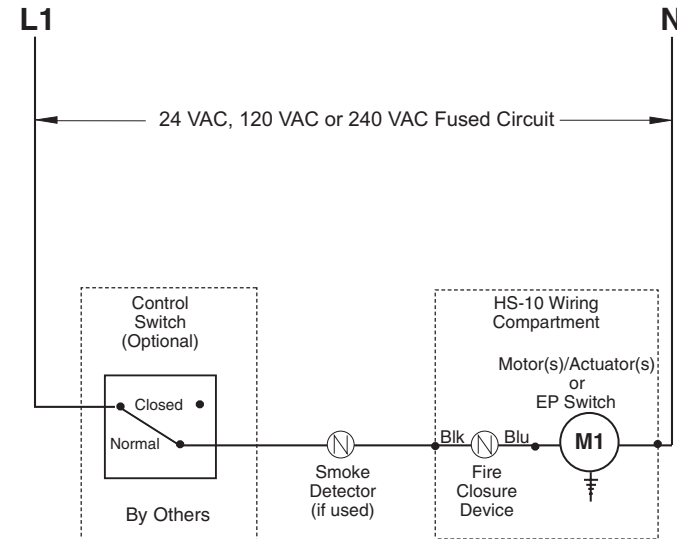
The HS-10 fire closure device employs a one-temperature, manually resettable, electric thermostat sensor to interrupt the electrical power to actuators used on fire/smoke dampers to permit the controlled closure of the dampers. The HS-10 is designed to replace the fusible link. The HS-10 allows for damper testing per all NFPA specifications. The damper will close once power is removed from the HS-10 and will automatically reopen once power is restored.

Wiring Diagram

Control Switch Function

Normal

Hot



The damper remains open except in either of the following situations:

- 1 - The smoke detector cuts the power to the "Power-Open" motor/actuator.
 - 2 - An elevated duct temperature causes the fire closure device to cut power to the "Power-Open" motor/operator.
- The damper will remain closed until the duct temperature has returned to a safe level. At that point the fire closure device can be manually reset, allowing the damper to be reopened.

Closed

The damper closes and remains closed regardless of any sensor signal.

Listings

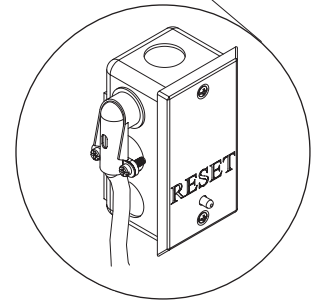
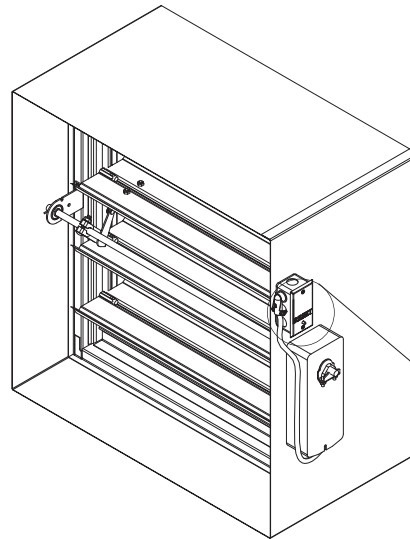
UL 555 listing: R11767

CSFM listing: 3225-0368:110, 3225-0368:111, 3225-0368:112, 3225-0368:113, 3225-0368:115, and 3225-0368:116.

New York City MEA listing: 295-98-E

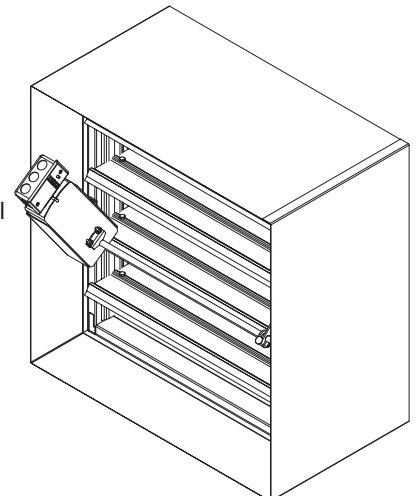
Meets NFPA Standards: 80, 90A, 92A, 92B, 101, and 105

Meets Building Code Standards: IBC, NBC, NFPA, SBC and UBC



Model **HS-10** external

Model **HS-10** internal



POTTORFF®

Limited Product Warranty

Products manufactured by Pottorff are warranted to be free from defects in material and workmanship for a period of 60 months from the date of original shipment by Pottorff. Pottorff warrants only that it will furnish replacement material, or at its option, repair any product of its manufacture that is proven to Pottorff's satisfaction to be defective in material or workmanship during this described warranty period. To determine defects Pottorff may require material claimed defective to be returned freight prepaid to the Pottorff factory that originally shipped the product. If any defects are determined by Pottorff, standard surface freight charges relative to replacement material will be paid by Pottorff, (limited to the 48 contiguous United States).

Products not manufactured by Pottorff will be warranted by Pottorff only to the extent that they are warranted to Pottorff by their manufacturer. Electric motor warranties and claims are administered by the motor manufacturer only. Pottorff shall have no responsibility for the operation or performance of any product in any manner other than that which the product is usually tested and applied under industry standard, nor for any damage to a product from abuse, misapplication, unauthorized repairs, abrasion, erosion, corrosion, or the like due to abnormal temperatures or the influence of foreign matter, nor for the design or operation of any system of which any product may be made a part, or for the suitability of any product for any particular application. Pottorff shall not be liable for any costs or expenses, in connection with removal or replacement of alleged defective equipment or any part or portion thereof nor incidental or consequential damages of any kind, or under any circumstances for any damages beyond prices of the good sold.

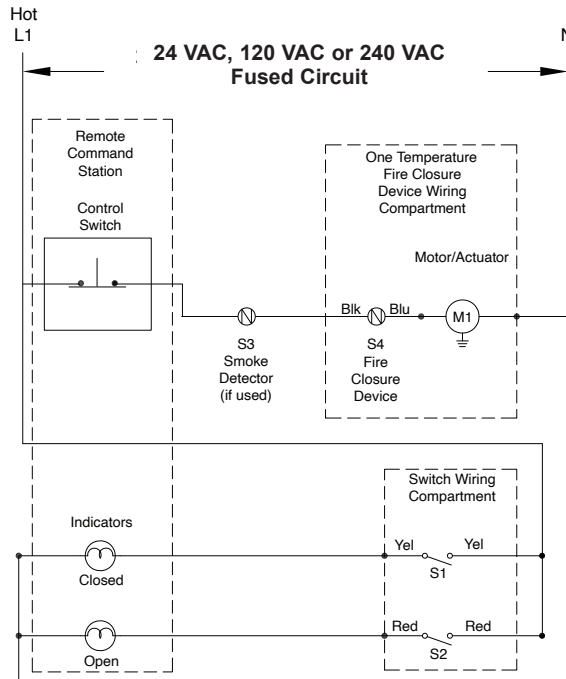
The foregoing warranty is in lieu of all other warranties of any kind express or implied and of all other obligations or liabilities, on the part of Pottorff. Other warranties may be issued by Pottorff from time to time with respect to a particular product or a particular sale. In the absence of other written warranties of the specific nature the above warranty is the only warranty offered by Pottorff covering its products. Pottorff neither assumes, nor does it authorize any other person to assume on its behalf, any other liability in connection with the sale of its products.

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Application

The RCP-1M remote control panel device employs a momentary push button switch that permits cycle testing at the damper location for dampers installed in static or dynamic smoke control systems. The RCP-1M remote control panel is equipped so that it can be integrated with two position indicator switches to signal the full-open or full-closed position of a damper. A red indicator light signals that the damper is in the full-closed position. A green indicator light signals that the damper is fully open.

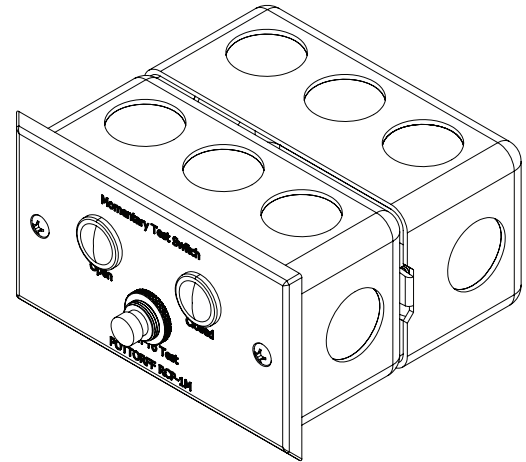
Wiring Diagram



- S1 & S2** - Damper position indicator switches.
S1 - Closes when damper is closed.
S2 - Closes when damper is open.
S3 - Smoke detector or fan interlock.
S4 - Single temperature fire closure device.

Ratings

115 VAC, 16A
250 VAC, 10A



Model RCP-1M

RCP Control Switch Function

Normal

The damper remains open except in either of the following situations:

1. The smoke detector cuts the power to the "Power-Open" motor/actuator.
2. An elevated duct temperature causes the fire closure device to cut power to the "Power-Open" motor/operator.

The damper will remain closed until the duct temperature has returned to a safe level. At that point the fire closure device can be manually reset, allowing the damper to be reopened.

Closed

The damper closes and remains closed regardless of any sensor signal.

Test

The damper closes by pushing and holding the switch button down. Upon releasing the button the damper returns to its full-open position.



Technical Data		FSNF24(-S)(-FC) US, FSNF120(-S)(-FC) US
Power supply		
FSNF24(-S)(-FC) US		24 VAC $\pm$ 20%, 50/60 Hz
FSNF120(-S)(-FC) US		120 VAC $\pm$ 10%, 50/60 Hz
Power consumption		
running		17 W, 24 VA
24 VAC	holding	4 W, 6.5 VA
120 VAC	running	19 W, 23 VA, 0.19 A
	holding	6 W, 8.5 VA, 0.07 A
Fusing*		
FSNF24		2.5 amp slow blow
FSNF120		0.5 amp slow blow
Transformer sizing		40 VA per 24 VAC actuator
Electrical connection		
FSNF24 US		3 ft, 18 ga, 2 color coded leads
FSNF120 US		3 ft, 18 ga, 3 color coded leads
FSNF...-S US		3 ft, 18 ga, appliance cable
Overload protection		electronic throughout 0 to 95° rotation grounded enclosure, 120V
Control		microprocessor
Angle of rotation		95°
Torque		70 in-lb [7.9 Nm] minimum from 32°F to 350°F [0°C to 177°C]
Direction of rotation		spring can be selected by CCW/CW mounting
Position indication		visual indicator, 0° to 95°
Running time		between 32°F and 350°F [0°C to 177°C] <15 seconds at rated voltage and torque
Humidity		5 to 95% RH non-condensing
Ambient temperature		32°F to 122°F [0°C to 50°C]
Storage temperature		-40°F to 176°F [-40°C to 80°C]
Housing		NEMA type 1
Housing material		zinc coated steel
Gears		steel, permanently lubricated
Agency listings		cULus listed to UL873 and CAN/CSA C22.2 No. 24 NYC Department of Buildings Materials and Equipment Acceptance Division MEA 197-07-M California State Fire Marshal Listing 3210-1593:101
Servicing		maintenance free
Quality standard		ISO 9001
Weight		
FSNF24(-S) US		6.0 lbs [2.75 kg], (+ 0.5 lbs [+ .23 kg])
FSNF120(-S) US		6.7 lbs [3.0 kg], (+ 0.5 lbs [+ .23 kg])

FSNF24-S US, FSNF120-S US, FSNF24-S-FC, FSNF120-S-FC

Auxiliary switch	2xSPST 7A resistive, 2.5A inductive at 120V or 250V, UL Approved, double-insulated, one switch at 10°, one at 85°
------------------	---

FSNF24(-S)(-FC) US, FSNF120(-S)(-FC) US
On/Off, Spring Return, 350°F for Half Hour, 15 Seconds Cycle Time**Application**

The type FSNF spring-return actuator is intended for the operation of smoke and combination fire and smoke dampers in ventilation and air-conditioning systems. The actuator will meet requirements of UL555 and UL555S when tested as an assembly with the damper and will open and close in 15 seconds at 350°F. Square footage of damper operated will depend on make and model of damper and the temperature 250°F or 350°F.

Operation

Mounting of the actuator to the damper axle shaft or jackshaft (3/8" to 1.05") is via a cold-weld clamp. Teeth in the clamp and V-bolt dig into the metal of both solid and hollow shafts maintaining a perfect connection. The specially designed clamp will not crush hollow shafts. The bottom end of the actuator is held by an anti-rotation strap or by a stud provided by the damper manufacturer.

The actuator is mounted in its fail safe position with the damper blade(s) closed. Upon applying power, the actuator drives the damper to the open position. The internal spring is tensioned at the same time. If the power supply is interrupted, the spring moves the damper back to its fail-safe position.

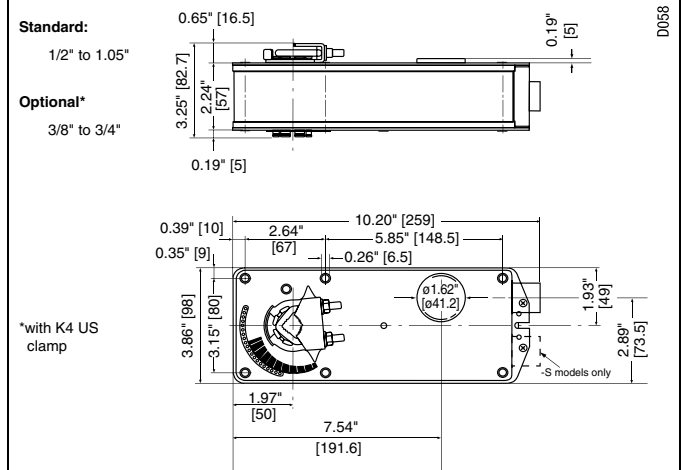
-FC Models have the same electrical and mechanical characteristics except instead of a 1/2" conduit connector a 3/8" screw flex connector is supplied.

SAFETY NOTES

The actuator contains no components which the user can replace or repair.

1/2" Threaded Connector – Screw a conduit fitting into the actuator's metal bushing. Jacket the actuator's input wiring with suitable flexible conduit. Properly terminate the conduit in a suitable junction box.

3/8" Flexible Connector Models (-FC Screw Connector) – Mount the flexible conduit into the actuator's metal bushing by means of the provided screw with a torque of 0.9 ft-lb. Jacket the actuator's input wiring with suitable flexible conduit. Properly terminate the conduit in a suitable junction box.

Dimensions (Inches [mm])**Accessories**

All AF/NF linkages and parts except ZG-102 may be employed.

*** Individual Fusing or Breakers are not required by Belimo.**

The FSNF24 draws higher peak current when driving against any type of stop. Given the technology of fuses & breakers, this requires the value of fuse or breaker to be increased to avoid nuisance opening or tripping. A 2.5 amp slow blow should be used for 24VAC. A 0.5 amp slow blow should be used for 120VAC.

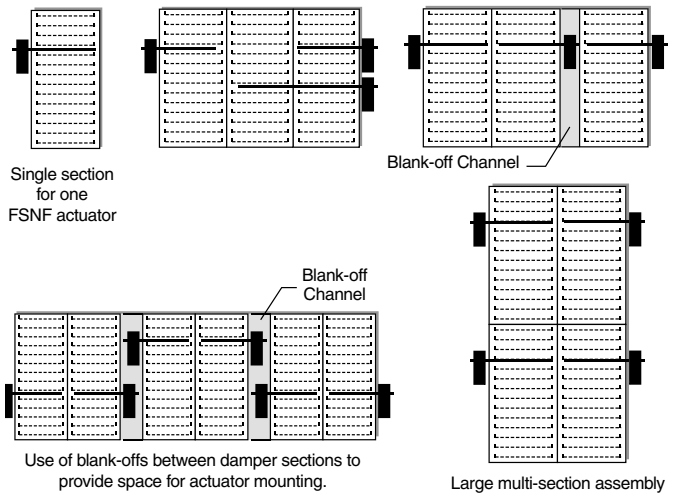
Transformers

Note that while a 100VA transformer would handle 2 actuators, a 4A breaker is insufficient.

Typical Applications
Multi-section Damper Assemblies

The typical fire and smoke damper requires from 5-15 in-lb of torque per square foot at 250°F – 350°F under dynamic load (2400 fpm velocity). The FSNF will operate multi-section dampers using multiple actuators for multiple sections. Some of the methods used are shown below.

This is a direct coupled actuator. If linkages are needed use those for the FSAF series. Do not use the ZG-102 as close coupled actuators have a shortened life due to the high speed of the FSNF. Mounting at opposite ends of a jackshaft is OK.



Typical Specification
Smoke Control and Combination Fire and Smoke Control Damper Actuators

All smoke and combination fire and smoke dampers shall be provided with Belimo FSTF, FSLF, FSNF, or FSAF actuators. No substitutions allowed.

Damper and actuator shall have UL555S Listing for 250°F (350°F) and shall comply with UBC if required by local codes.

Where proof of closure switches are required, blade switches, actuator auxiliary switches, or proximity switches are allowed if permitted by local codes.

Replacement Applications

The number one "equal or better" requirement for use as a replacement for obsolete defective motors is the UL555S listing of the Belimo actuator with the damper for the application. The local authority having jurisdiction sets the requirements. In some cases a permit and inspection may be required.

Go to www.belimo.us/firesmoke for a Cross Reference from old damper actuators to Belimo. Extensive retrofit installation instructions are available, along with technical training information.

CAUTION

Caution must be used when replacing failed motors with new Belimo actuators. Many old motors did not have internal springs and depended on external springs on the side of the damper or wrapped around the damper shaft to close the damper. Old motor springs must be removed or disabled. Do not remove fusible link springs if they had only fire and no smoke functions

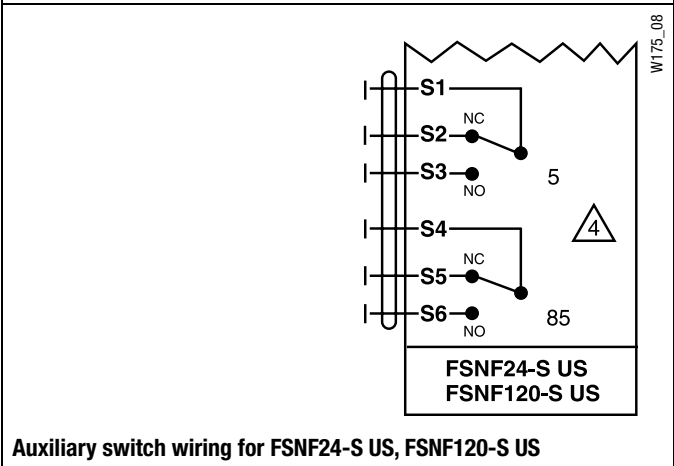
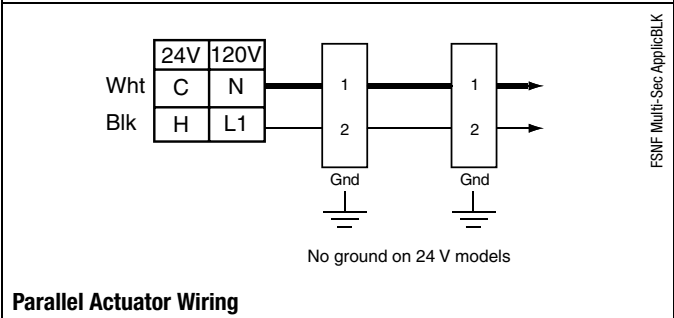
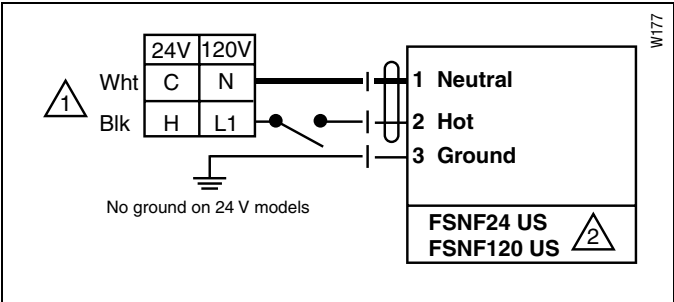
In some cases, a BAE 165 or equal thermal sensor must be installed.

Wiring Diagrams

✂ INSTALLATION NOTES

- 1 Provide overload protection and disconnect as required.
- 2 **CAUTION Equipment Damage!**
Actuators may be connected in parallel.
Power consumption and input impedance must be observed.
- 4 For end position indication, interlock control, fan startup, etc., FSNF24-S US and FSNF120-S US incorporate two built-in auxiliary switches:
2 x SPDT, 7A (2.5A inductive)@125/250 VAC, UL Approved, 10° and 85°.
Switch rating is for 250°F 1/2 hour only.

WARNING Live Electrical Components!
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.



Subject to change. © Belimo Aircontrols (USA), Inc.

Submittal

JOB NAME	Highlands Building at Pinnacle Hills Rogers
JOB NUMBER	26ADCA0017-1
PRODUCT	Duct Access Doors
MANUFACTURER	Pottorff
LOCATION	Rogers, AR
DATE	June 25, 2026
SPECIFICATION	23 33 00 2.1.A.5
LEAD TIME	2 Weeks
ENGINEER	IMEG
CONTRACTOR	Knight & Wilson
SUBMITTED BY	Chris Atwood

Submittal

Model DMR

Duct access door, round sandwich panel

General construction

Material: Galvanized steel

Door panel: 22 gauge - precision stamped

Gasket: Compressible closed cell neoprene - door panel to duct

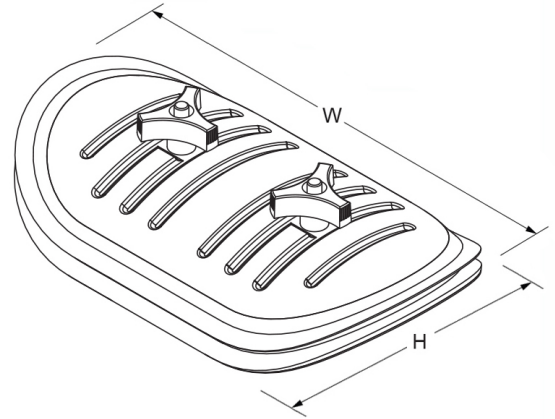
Knobs: Molded polypropylene with metal threaded inserts - hand adjustable

Ratings

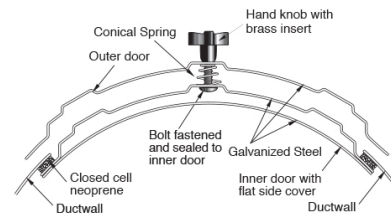
UL 94 flammability rating: HF1

Maximum system pressure: +20 in.wg. to -10 in.wg.

Operating temperature range: -20°F to 200°F



Model DMR



Side view

Details

Line Item	Tag	Qty	Door Panel	Duct Size (in.xxxx)	Door Size (in.xxxx)
			Gauge	D	W x H
23	ACC DOORS RND	1	22	6	8 x 4
24	ACC DOORS RND	2	22	8	8 x 4

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Information is subject to change without notice or obligation.

Note:Dimensions in parentheses () are in millimeters

Submittal

Model HAD

Duct access door, insulated panel

General construction

Material: Galvanized steel

Door panel: 24 gauge - double wall, insulated

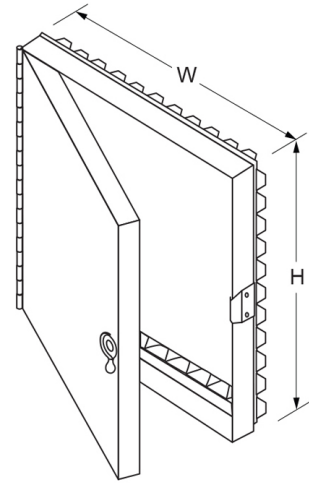
Insulation: 1" thick fiberglass

Gasket: Compressible closed cell neoprene - door to frame and frame to duct

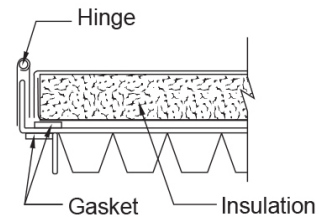
Latches: Cam

Ratings

Operating temperature range: -20°F to 200°F



Model HAD



Side view

Details

Line Item	Tag	Qty	Frame gauge	Door Size (in.xxxx)	Duct Opening Size	Qty Latches	Ratings
				W x H	W x H (in)	W x H	Press (in.w.g.)
113	ACCESS DOORS	11	22	18 x 18	17 x 17	0 x 2	2
114	ACCESS DOORS	11	24	12 x 12	11 x 11	0 x 1	3
115	ACCESS DOOR	1	24	8 x 8	7 x 7	0 x 1	3

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Note:Dimensions in parentheses () are in millimeters

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Submittal

JOB NAME	Highlands Building at Pinnacle Hills Rogers
JOB NUMBER	26ADCA0017-1
PRODUCT	Volume Control Dampers
MANUFACTURER	Pottorff
LOCATION	Rogers, AR
DATE	June 25, 2026
SPECIFICATION	23 33 00 2.1.A.11
LEAD TIME	3 Weeks
ENGINEER	IMEG
CONTRACTOR	Knight & Wilson
SUBMITTED BY	Chris Atwood

Submittal

Model CD-10

Manual balancing damper, single blade

General construction

Dimensions: Nominal (approximately 1/4" (6) undersize)

Material: Galvanized steel

Frame: 2" x 22 gauge

Blades: 22 gauge - single square/rectangular

Axles: 3/8" (10) square plated steel

Bearings: Synthetic

Control shaft: 3/8" x 3" (10 X 76) square drive axle with manual locking quadrant

Options

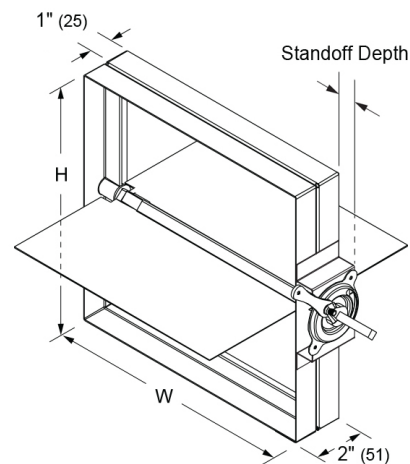
Standoff: 2" quadrant standoff bracket - for insulated duct

Ratings

Maximum system velocity (fpm): 1500

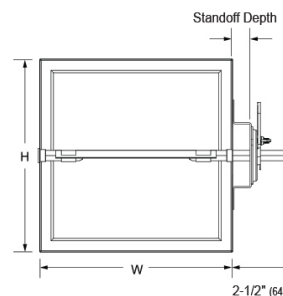
Maximum system pressure (in.wg.): 1

Operating temperature range: -25°F to 180°F



Model CD-10 with standoff

Manual locking quadrant supplied loose for field installation.



Front view with standoff bracket

Details

Line Item	Tag	Qty	Dimensions (in.xxxx)	Sections
			W x H	Wide x High
29	MVD SMALL	3	10 x 10	1 x 1
117	MVD SMALL	10	10 x 6	1 x 1
118	MVD SMALL	1	12 x 6	1 x 1
119	MVD SMALL	1	12 x 8	1 x 1

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Submittal

Model MD-42

Manual balancing damper, triple-V opposed blade

General construction

Dimensions: Nominal (approximately 1/4" (6) undersize)

Material: Galvanized steel

Frame: 5" x 1" (127 x 25) hat channel

Blade style: 6" x 16 gauge, triple-v

BladeAction: Opposed

Axles: 1/2" (13) diameter plated steel hex

Linkage: Concealed in frame

Control shaft: 1/2" x 6" (13 x 152) round drive axle

Bearings: Synthetic

Top and bottom stops: Yes

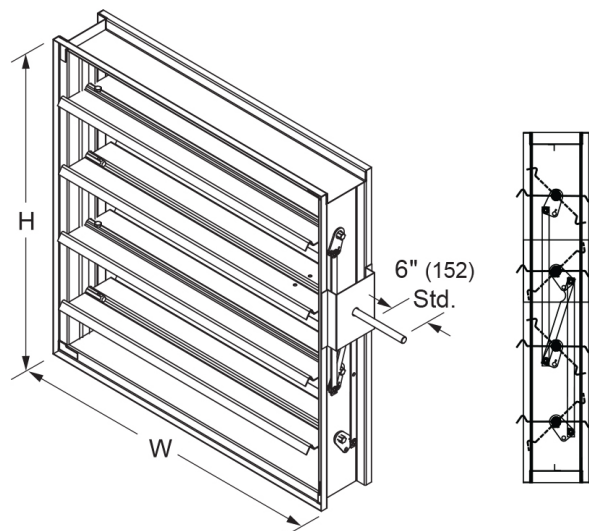
Options

Locking quadrant: Manual locking quadrant, loose

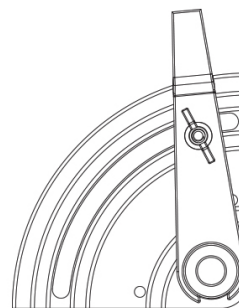
Standoff: Actuator/quadrant standoff bracket

Ratings

Operating temperature range: -25°F to 180°F



Model MD-42



Manual locking quadrant

Details

Line item	Tag	Qty	Dimensions (in.xxxx)	Sections	Ratings		J (in)
			W x H	Wide x High	Vel (fpm)	Press (in.w.g.)	
32	MVD	1	14 x 10	1 x 1	2000	4	
33	MVD	1	14 x 14	1 x 1	2000	4	
34	MVD	2	18 x 12	1 x 1	2000	4	
35	MVD	3	20 x 14	1 x 1	2000	4	
36	MVD	1	20 x 12	1 x 1	2000	4	
37	MVD	1	22 x 10	1 x 1	2000	4	
38	MVD	1	22 x 14	1 x 1	2000	4	
39	MVD	1	24 x 18	1 x 1	2000	4	
42	MVD	3	24 x 14	1 x 1	2000	4	
43	MVD	3	26 x 14	1 x 1	2000	3	
44	MVD	1	34 x 10	1 x 1	2000	3	
45	MVD	1	34 x 12	1 x 1	2000	3	

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Note:Dimensions in parentheses () are in millimeters

Submittal

Model MD-42

Manual balancing damper, triple-V opposed blade

General construction

Dimensions: Nominal (approximately 1/4" (6) undersize)

Material: Galvanized steel

Frame: 5" x 1" (127 x 25) hat channel

Blade style: 6" x 16 gauge, triple-v

BladeAction: Opposed

Axles: 1/2" (13) diameter plated steel hex

Linkage: Concealed in frame

Control shaft: 1/2" x 6" (13 x 152) round drive axle

Bearings: Synthetic

Top and bottom stops: Yes

Options

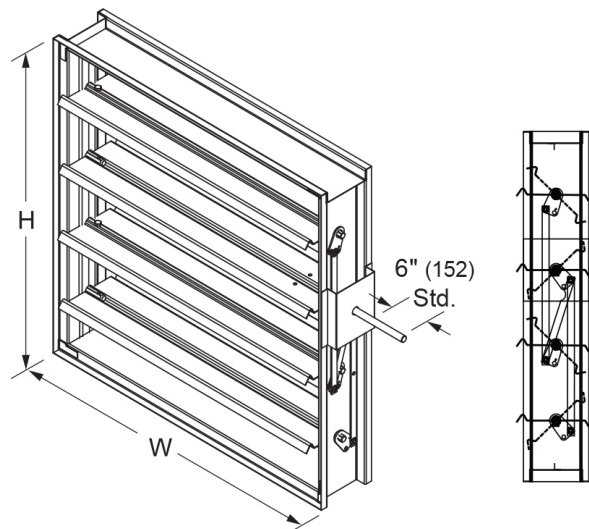
Locking quadrant: Manual locking quadrant, loose

Standoff: Actuator/quadrant standoff bracket

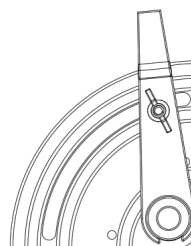
Jackshaft: Yes

Ratings

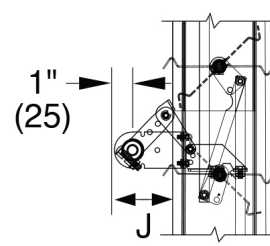
Operating temperature range: -25°F to 180°F



Model MD-42



Manual locking quadrant



Dimensional details

Details

Line item	Tag	Qty	Dimensions (in.xxxx)	Sections	Ratings		J (in)
			W x H	Wide x High	Vel (fpm)	Press (in.w.g.)	
46	MVD	1	50 x 24	2 x 1	2000	3	3.375
60	MVD	1	60 x 20	2 x 1	2000	3	3.375
61	MVD	1	70 x 36	2 x 1	2000	3	3.375
62	MVD	1	78 x 36	2 x 1	1500	2.5	3.375

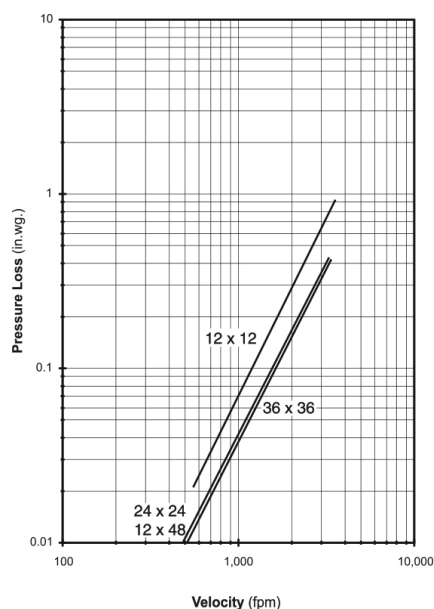
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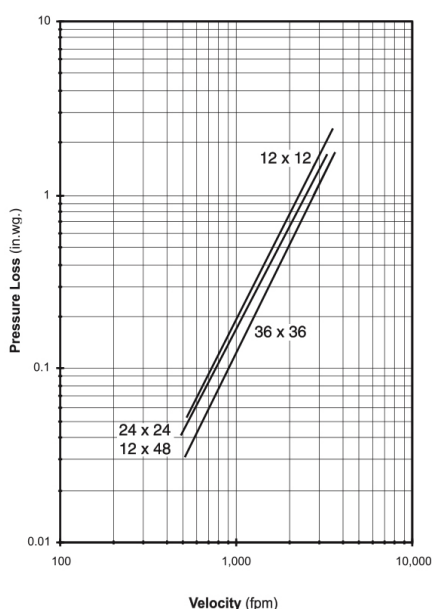
Submittal

Model MD-42 Performance



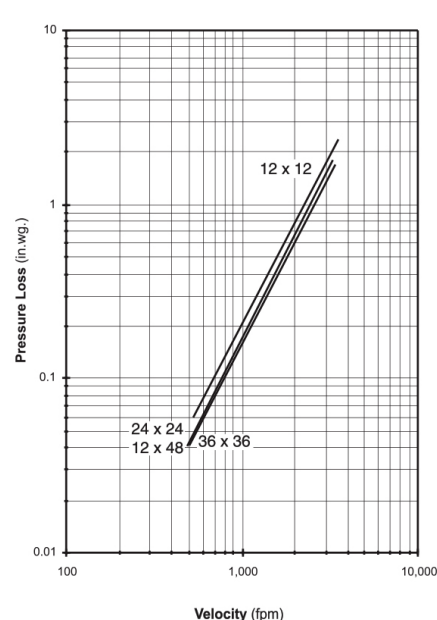
Ducted inlet and outlet

AMCA Figure 5.3 illustrates a fully ducted damper. This configuration represents the lowest pressure drop of the three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.



Ducted inlet

AMCA Figure 5.2 illustrates a ducted damper exhausting air into an open area. This configuration has a lower pressure drop than Figure 5.5 because entrance losses are minimized by a straight duct run upstream of the damper.



Plenum mount

AMCA Figure 5.5 illustrates a plenum mounted damper. This configuration has the highest pressure drop because of extremely high entrance and exit losses due to the sudden changes of area in the system.

Pressure drop testing

in accordance with AMCA Standard 500-D using the three configurations shown. All data has been corrected to represent air density of 0.075 lb/ft. Actual pressure drop in any ducted HVAC system is a combination of many elements. This information, along with analysis of other system influences, should be used to estimate actual pressure losses for a damper installed in a given HVAC system.

This submittal sheet reflects only the construction and options selected and is not indicative of all constructions and options that are available for the product. For more information, please contact your local representative or visit us at <https://pottorff.com/>.

Information is subject to change without notice or obligation.

Note: Dimensions in parentheses () are in millimeters

POTTORFF®

Limited Product Warranty

Products manufactured by Pottorff are warranted to be free from defects in material and workmanship for a period of 60 months from the date of original shipment by Pottorff. Pottorff warrants only that it will furnish replacement material, or at its option, repair any product of its manufacture that is proven to Pottorff's satisfaction to be defective in material or workmanship during this described warranty period. To determine defects Pottorff may require material claimed defective to be returned freight prepaid to the Pottorff factory that originally shipped the product. If any defects are determined by Pottorff, standard surface freight charges relative to replacement material will be paid by Pottorff, (limited to the 48 contiguous United States).

Products not manufactured by Pottorff will be warranted by Pottorff only to the extent that they are warranted to Pottorff by their manufacturer. Electric motor warranties and claims are administered by the motor manufacturer only. Pottorff shall have no responsibility for the operation or performance of any product in any manner other than that which the product is usually tested and applied under industry standard, nor for any damage to a product from abuse, misapplication, unauthorized repairs, abrasion, erosion, corrosion, or the like due to abnormal temperatures or the influence of foreign matter, nor for the design or operation of any system of which any product may be made a part, or for the suitability of any product for any particular application. Pottorff shall not be liable for any costs or expenses, in connection with removal or replacement of alleged defective equipment or any part or portion thereof nor incidental or consequential damages of any kind, or under any circumstances for any damages beyond prices of the good sold.

The foregoing warranty is in lieu of all other warranties of any kind express or implied and of all other obligations or liabilities, on the part of Pottorff. Other warranties may be issued by Pottorff from time to time with respect to a particular product or a particular sale. In the absence of other written warranties of the specific nature the above warranty is the only warranty offered by Pottorff covering its products. Pottorff neither assumes, nor does it authorize any other person to assume on its behalf, any other liability in connection with the sale of its products.

Information is correct at time of printing. However, we reserve the right to make changes without notice.