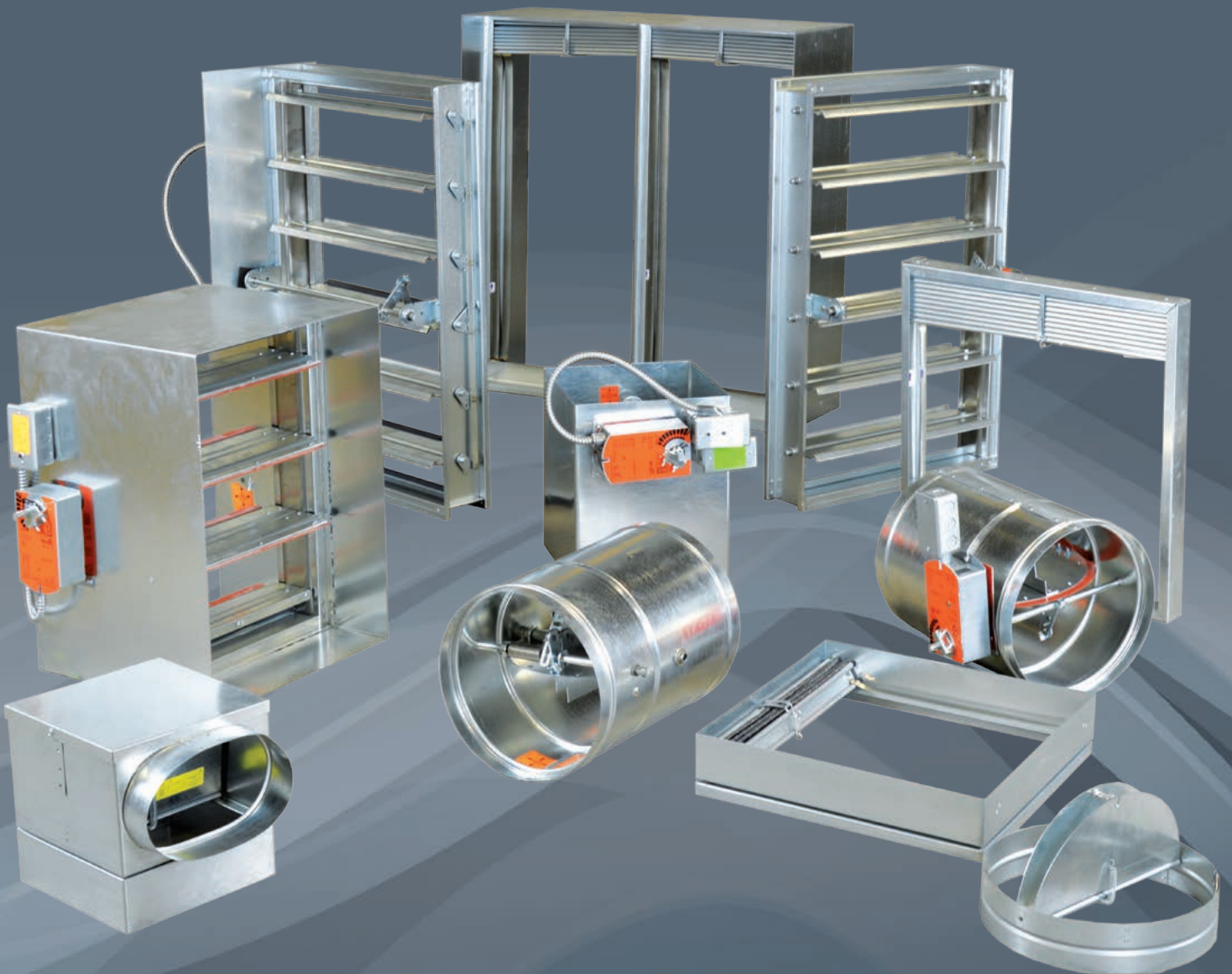




C&S Air Products

LIFE SAFETY

**COMBINATION FIRE/SMOKE DAMPERS • SMOKE DAMPERS
FIRE DAMPERS • CEILING RADIATION DAMPERS**



SELECTION GUIDE

CEILING RADIATION DAMPERS

MODEL	UL HOUR RATING	BLADE TYPE	MATERIAL	PG
STANDARD				
RD2	3	BUTTERFLY	GALV	3
RD4	3	LOW PROFILE BUTTERFLY	GALV	3
RD2-SB	3	SINGLE BLADE BUTTERFLY	GALV	3
RD8	3	FOLDED CURTAIN	GALV	3
TRUE ROUND				
RD2-R	3	ROUND BUTTERFLY	GALV	3
WOOD TRUSS SYSTEMS				
RD-521	1	BUTTERFLY	GALV	3
RD-521-BT	1	BUTTERFLY – R-6.3 OR 8.0 INSULATED OUTLET BOX	GALV	3
RD-521-IP	1	BUTTERFLY – R-6.5 OR 8.7 INSULATED DUCT BOARD OUTLET BOX	GALV	3
RD-521-NP	1	BUTTERFLY – FIELD INSTALLED INSULATED DUCT BOARD OUTLET BOX	GALV	3

FIRE DAMPERS

MODEL	STATIC DYNAMIC	UL HOUR RATING	CLASS	BLADE TYPE	MATERIAL	MAX DYNAMIC CLOSURE VELOCITY (FPM)		MAX PRESSURE (in.wg)	PG
						VERT WALLS	HORIZ FLOORS		
STANDARD									
FD-120	DYNAMIC	1½	–	TRIPLE-V	GALV/SS	4000*	4000*	6	11
FD-180	DYNAMIC	1½	–	AIRFOIL	GALV	4000*	4000*	6***	11
FD-320	DYNAMIC	3	–	TRIPLE-V	GALV/SS	4000*	–	6	11
FD-380	DYNAMIC	3	–	AIRFOIL	GALV	4000*	4000*	6**	11
CURTAIN STYLE BLADES									
FD-4-A	STATIC	1½	A	CURTAIN	GALV/SS	–	–	–	12
FD-4-B	STATIC	1½	B	CURTAIN	GALV/SS	–	–	–	12
FD-4-C	STATIC	1½	C	CURTAIN	GALV/SS	–	–	–	12
FD-4D-A	DYNAMIC	1½	A	CURTAIN	GALV/SS	4000	4000	4	12
FD-4D-B	DYNAMIC	1½	B	CURTAIN	GALV/SS	4000	4000	4	12
FD-4D-C	DYNAMIC	1½	C	CURTAIN	GALV/SS	4000	4000	4	12
FD-4-3A	STATIC	3	A	CURTAIN	GALV/SS	–	–	–	12
FD-4-3B	STATIC	3	B	CURTAIN	GALV/SS	–	–	–	12
FD-4-3C	STATIC	3	C	CURTAIN	GALV/SS	–	–	–	12
FD-4D-3A	DYNAMIC	3	A	CURTAIN	GALV/SS	4000	–	4	12
FD-4D-3B	DYNAMIC	3	B	CURTAIN	GALV/SS	4000	–	4	12
FD-4D-3C	DYNAMIC	3	C	CURTAIN	GALV/SS	4000	–	4	12
CURTAIN-INTEGRAL MOUNTING ANGLE									
FD-4-IMA	STATIC	1½	A	CURTAIN	GALV	–	–	–	12
FD-4-IMB	STATIC	1½	B	CURTAIN	GALV	–	–	–	12
FD-4D-IMA	DYNAMIC	1½	A	CURTAIN	GALV	4000	–	4	12
FD-4D-IMB	DYNAMIC	1½	B	CURTAIN	GALV	4000	–	4	12
OUT-OF-PARTITION									
FD-120-OP	DYNAMIC	1½	–	TRIPLE-V	GALV/SS	4000	4000	6	11
FD-180-OP	DYNAMIC	1½	–	AIRFOIL	GALV	4000	4000	6**	11
FD-4-OP	STATIC	1½	–	CURTAIN	GALV	–	–	–	12
FD-4D-OP	DYNAMIC	1½	–	CURTAIN	GALV	4000	4000	4	12
TRUE ROUND									
FD-125R	DYNAMIC	1½	–	ROUND	GALV/SS	2000	2000	4	11
FD-15R	STATIC	1½	–	ROUND	GALV	–	–	–	11
FD-35R	STATIC	3	–	ROUND	GALV	–	–	–	11
THINLINE									
FD-2-A	STATIC	1½	A	THINLINE CURTAIN	GALV	–	–	–	12
FD-2-B	STATIC	1½	B	THINLINE CURTAIN	GALV	–	–	–	12
FD-2D-A	DYNAMIC	1½	A	THINLINE CURTAIN	GALV	4000*	–	4	12
FD-2D-B	DYNAMIC	1½	B	THINLINE CURTAIN	GALV	4000*	–	4	12

*2000 FPM on multi-section | **4 in.wg. below 8" in height | ***4 in.wg. when sizes exceed 64"x48" or 32"x96"

SELECTION GUIDE CONT.

SMOKE DAMPERS

MODEL	UL555S LEAKAGE CLASS	BLADE TYPE	UL HOUR RATING		MATERIAL	MAX DYNAMIC CLOSURE VELOCITY (FPM)		MAX PRESSURE (in.wg)	MAX TEMP (°F)	PG
			CEILING	FIRE		VERT WALLS	HORIZ FLOORS			
STANDARD										
SD-121	1	TRIPLE-V	–	–	GALV	2000	2000	4	350	4
SD-122	2	TRIPLE-V	–	–	GALV/SS	2000	2000	4	350	4
SD-123	3	TRIPLE-V	–	–	GALV/SS	2000	2000	4	350	4
SD-181	1	AIRFOIL	–	–	GALV	4000	4000	6**	350	4
SD-182	2	AIRFOIL	–	–	GALV	4000	4000	6**	350	4
SD-181-V	1	VERT AIRFOIL	–	–	GALV	2000	–	4	250	4
SD-182-V	2	VERT AIRFOIL	–	–	GALV	4000	–	4	250	4
TRUE ROUND										
SD-25R	1	ROUND	–	–	GALV/SS	3000	3000	4	350	4
CEILING RADIATION/SMOKE										
CFS-131	1	TRIPLE-V	3	1½	GALV	–	2000	4	350	3
CFS-132	2	TRIPLE-V	3	1½	GALV	–	2000	4	350	3

**4 in.wg. below 8" in height

COMBINATION FIRE/SMOKE DAMPERS

MODEL	UL HOUR RATING	LEAKAGE CLASS	BLADE TYPE	MATERIAL	MAX VELOCITY (FPM)	MAX PRESSURE (in.wg)	MAX ASSEMBLY TEMP(°F)	PG
STANDARD								
FSD-121	1½	1	TRIPLE-V	GALV	2000	4	350	5
FSD-122	1½	2	TRIPLE-V	GALV/SS	2000	4	350	5
FSD-123	1½	3	TRIPLE-V	GALV/SS	2000	4	350	5
FSD-181	1½	1	AIRFOIL	GALV	4000	6**	350	6
FSD-182	1½	2	AIRFOIL	GALV	4000	6**	350	6
FSD-181-V	1½	1	VERT AIRFOIL	GALV	2000	4	250	6
FSD-182-V	1½	2	VERT AIRFOIL	GALV	4000	4	250	6
FSD-321	3	1	TRIPLE-V	GALV	2000	4	350	5
FSD-322	3	2	TRIPLE-V	GALV/SS	2000	4	350	5
FSD-323	3	3	TRIPLE-V	GALV/SS	2000	4	350	5
FSD-381	3	1	AIRFOIL	GALV	4000	6**	350	6
FSD-382	3	2	AIRFOIL	GALV	4000	6**	350	6
ACTUATOR IN THE AIRSTREAM – OUT-OF-PARTITION								
FSD-121-OP	1½	1	TRIPLE-V	GALV	2000	4	350	7
FSD-122-OP	1½	2	TRIPLE-V	GALV	2000	4	350	7
FSD-123-OP	1½	3	TRIPLE-V	GALV	2000	4	350	7
FSD-181-OP	1½	1	AIRFOIL	GALV	4000	6**	350	7
FSD-182-OP	1½	2	AIRFOIL	GALV	4000	6**	350	7
FSD-131-OP	1½	1	TRIPLE-V	GALV	2000	4	350	7
FSD-132-OP	1½	2	TRIPLE-V	GALV	2000	4	350	7
SIDE PANEL – FRONT/ACCESS								
FSD-121-SP	1½	1	TRIPLE-V	GALV	2000	4	350	7
FSD-122-SP	1½	2	TRIPLE-V	GALV	2000	4	350	7
FSD-181-SP	1½	1	AIRFOIL	GALV	4000	6**	350	7
FSD-182-SP	1½	2	AIRFOIL	GALV	4000	6**	350	7
TRUE ROUND								
FSD-125R	1½	1	ROUND	GALV/SS	3000	4	350	8
TUNNEL TYPE CORRIDOR CEILING								
FSD-131	1½*	1	TRIPLE-V	GALV	2000	4	350	8
FSD-132	1½*	2	TRIPLE-V	GALV	2000	4	350	8
FSD-131-OP	1½*	1	TRIPLE-V	GALV	2000	4	350	7
FSD-132-OP	1½*	2	TRIPLE-V	GALV	2000	4	350	7

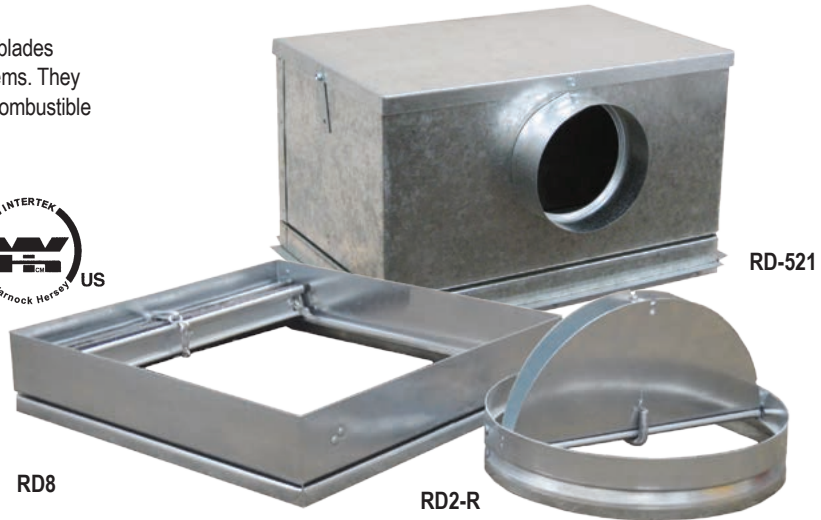
* Tunnel Type Corridor ceiling installation has 1 hr rating | **4 in.wg. below 8" in height

CEILING RADIATION DAMPERS

CEILING RADIATION DAMPERS

C&S ceiling radiation dampers employ butterfly style blades for the creation of radiant heat barriers in HVAC systems. They are installed horizontally in the ceiling membrane of combustible floor-ceiling or roof-ceiling assemblies.

- UL 555C Rating up to 3 hours
- Meets NFPA Standards
- Warnock Hersey Listing
- Galvanized Steel Construction
- CSFM Listing



CEILING RADIATION SMOKE DAMPERS



A ceiling radiation smoke damper is utilized to protect penetrations in fire rated ceilings or floors in HVAC systems. C&S CFS-130 series passes UL's stringent testing for fire resistance and leakage control.

- UL 555C 3 Hour Rating
- Class I and II UL 555S Classified
- Meets NFPA Standards
- CSFM Listing
- Maximum Temperature: 350°



ECONOMICAL ROLL-FORMED TRIPLE-V GROOVED BLADES

MODEL	UL555 FIRE RESISTANCE (hr)	BLADE TYPE	MIN SIZE (in)	MAXIMUM SIZE (in)		SLEEVE OUTLET BOX	DUCT CONNECTION		OUTLET BOX R VALUE
				ROOF/FLOOR CEILING ASSEMBLIES	UL RATED WOOD-TRUSS ASSEMBLIES		TOP	SIDE	
STANDARD									
RD2	3	BTRFLY	4×6	24×24	–	○	●	○	–
RD4	3	LP BTRFLY	6×12	24×24	–	○	●	○	–
RD2-SB	3	SB BTRFLY	4×4	24×12	–	●	●	○	–
RD8	3	CURTAIN	4×4	24×24	–	○	●	○	–
TRUE ROUND									
RD2-R	3	RND BTRFLY	4	24	–	○	●	–	–
WOOD TRUSS SYSTEMS									
RD-521	1	BTRFLY	4×4	–	18×18 24w or 20h ≤ 324in ²	●	–	●	–
RD-521-BT	1	BTRFLY	4×4	–	12×12 24w or 24h ≤ 144in ²	●	●	–	R-6.3 or 8.0
RD-521-IP	1	BTRFLY	4×4	–	16×16 24w or 20h ≤ 256in ²	●	–	●	R-6.5 or 8.7
RD-521-NP	1	BTRFLY	4×4	–	16×16 24w or 20h ≤ 256in ²	●	–	●	–
CEILING RADIATION/SMOKE									
CFS-131	3*	3V	6×6	12×12 24w or 12h ≤ 144in ²	–	●	●	○	–
CFS-132	3*	3V	6×6	12×12 24w or 12h ≤ 144in ²	–	●	●	○	–

* Tunnel Type Corridor ceiling installation has 1 hr rating

○ OPTIONAL ● STANDARD

SMOKE DAMPERS

SD-120 AND SD-180 SERIES SMOKE DAMPERS



SD-121 WITH SMOKE DETECTOR

A smoke damper provides a positive shutoff of HVAC ducts to help prevent the spread of smoke through an air control system. C&S smoke dampers pass UL's 555S stringent leakage testing requirements and are available in Class I, II, and III.

- Meets NFPA Standards
- Stainless Steel Construction Available
- CSFM Listing
- Maximum Temperature: 350°



ECONOMICAL ROLL-FORMED TRIPLE-V GROOVED BLADES



LOW PROFILE AIRFOIL BLADES FOR HIGH PERFORMANCE

SD-25R TRUE ROUND

The SD-25R is a round duct smoke damper that installs precisely within round ducted systems.

- Class I UL 555S Leakage Class
- Stainless Steel Construction Available
- Square Mounting Plates are standard.
- CSFM Listing
- Meets NFPA Standards



SD-25R

MODEL	UL555S LEAKAGE CLASS	BLADE TYPE	MIN SIZE (in)	DAMPER MAXIMUM SIZE (in)		MAXIMUM DYNAMIC CLOSURE RATING		STAINLESS OPTION
				WALL	FLOOR	VELOCITY (fpm)	PRESSURE (in. wg.)	
SD-121	1	3V	6×6	144×96 288×48	144×96 288×48	2000	4	–
SD-122	2	3V	6×6	144×96 288×48	144×96 288×48	2000	4	●
SD-123	3	3V	6×6	144×96 288×48	144×96 288×48	2000	4	●
SD-181	1	AF	8×6	144×96 288×48	144×96 288×48	4000	6*	–
SD-182	2	AF	8×6	144×96 288×48	144×96 288×48	4000	6*	–
SD-181-V	1	VERT AF	8×8	96×36	–	2000	4	–
SD-182-V	2	VERT AF	8×8	96×36	–	4000	4	–
TRUE ROUND								
SD-25R	1	RND	6	24	24	3000	4	●

*4 in. wa. below 8" in height

FIRE/SMOKE DAMPERS

FSD-120 AND FSD-320 SERIES

TRIPLE-V BLADE – COMBINATION FIRE/SMOKE DAMPER

Combination fire/smoke dampers combine the fire barrier protection of a fire damper and smoke control of a smoke damper. C&S tests all of our combination fire/smoke dampers to UL's stringent requirements for fire resistance and leakage control. The FSD-120 and FSD-320 series dampers are equipped with triple-V interlocking blades that perform to standards when velocities are 2000 fpm or less. These dampers are an economical solution to fire and smoke control in HVAC systems.

- 1½ to 3 Hour UL 555 Rating
- Class I, II, and III UL 555S Ratings
- Meets NFPA Standards
- Stainless steel option available on certain models
- CSFM Listing
- Maximum Temperature: 350°



FSD-122 WITH SLEEVE



FSD-121 WITH SIDEPLATE



ECONOMICAL ROLL-FORMED TRIPLE-V GROOVED BLADES

MODEL	UL555 FIRE RESISTANCE (hr)	UL555S LEAKAGE CLASS	MIN SIZE (in)	DAMPER MAXIMUM SIZE (in)		MAXIMUM DYNAMIC CLOSURE RATING		STAINLESS OPTION
				WALL	FLOOR	VELOCITY (fpm)	PRESSURE (in.wg.)	
FSD-121	1½	1	6×6	144×96	108×48	2000	4	–
FSD-122	1½	2	6×6	144×96	108×48	2000	4	●
FSD-123	1½	3	6×6	144×96	108×48	2000	4	●
FSD-321	3	1	6×6	108×96	–	2000	4	–
FSD-322	3	2	6×6	108×96	–	2000	4	●
FSD-323	3	3	6×6	108×96	–	2000	4	●

FIRE/SMOKE DAMPERS

FSD-180 AND FSD-380 SERIES

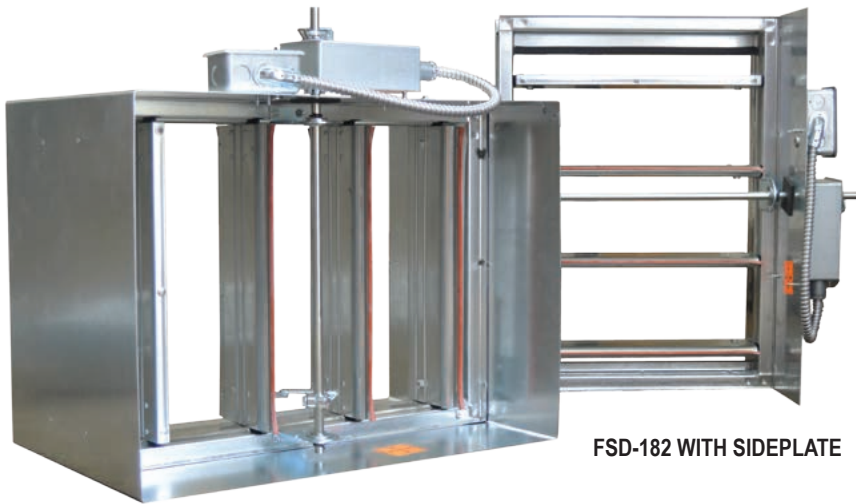
AIRFOIL BLADE – COMBINATION FIRE/SMOKE DAMPER

C&S's FSD-180 and FSD-380 series are our high performance combination fire/smoke dampers. The low-profile airfoil blade allows for lower pressure drop, airflow velocities up to 4000 fpm and pressures up to 6 in.wg.

- 1½ to 3 Hour UL 555 Rating
- Class I and II UL 555S Ratings
- Horizontal and vertical blade models
- Meets NFPA Standards
- CSFM Listing
- Maximum Temperature: 350°



FSD-181 WITH SLEEVE



FSD-182 WITH SIDEPLATE



LOW PROFILE AIRFOIL BLADES
FOR HIGH PERFORMANCE

FSD-181-V VERTICAL BLADE OPTION

MODEL	UL555 FIRE RESISTANCE (hr)	UL555S LEAKAGE CLASS	MIN SIZE (in)	DAMPER MAXIMUM SIZE (in)		MAXIMUM DYNAMIC CLOSURE RATING	
				WALL	FLOOR	VELOCITY (fpm)	PRESSURE (in.wg.)
FSD-181	1½	1	8×6	144×48 128×96	120×96	4000	6**
FSD-182	1½	2	8×6	144×48 128×96	120×96	4000	6**
FSD-181-V	1½	1	8×8	96×32	–	2000	4
FSD-182-V	1½	2	8×8	96×32	–	4000	4
FSD-381	3	1	8×6	120×96	64×96	4000	6**
FSD-382	3	2	8×6	120×96	64×96	4000	6**

**4 in.wg. below 8" in height

FIRE/SMOKE DAMPERS

OUT-OF-PARTITION AND SIDE PANEL

Out-of-Partition dampers feature the actuator within the airstream. This allows direct service through the face of the HVAC grille.

- 1½ hour UL 555 Rating
- Class I, II and III UL 555S Ratings
- Meets NFPA Standards
- CSFM Listing
- Maximum Temperature: 350°



FSD-181-OP

Side Panel dampers are specifically designed to have an out of the airstream actuator with direct access from the face of the damper through the HVAC grille.

- UL 555 1½ Hour Rating
- Class I, and II UL 555S Ratings
- Meets NFPA Standards
- CSFM Listing
- Maximum Temperature: 350°



FSD-181-SP



ECONOMICAL ROLL-FORMED TRIPLE-V GROOVED BLADES



LOW PROFILE AIRFOIL BLADES FOR HIGH PERFORMANCE

MODEL	UL555 FIRE RESISTANCE (hr)	UL555S LEAKAGE CLASS	BLADE TYPE	MIN SIZE (in)	DAMPER MAXIMUM SIZE (in)			MAXIMUM DYNAMIC CLOSURE RATING		
					WALL	FLOOR	CORRIDOR CEILING	VELOCITY (fpm)	PRESSURE (in. wg.)	
OUT-OF-PARTITION										
FSD-121-OP	1½	1	3V	10×6	36×48	36×48	—	2000	4	
FSD-122-OP	1½	2	3V	10×6	36×48	36×48	—	2000	4	
FSD-123-OP	1½	3	3V	10×6	36×48	36×48	—	2000	4	
FSD-181-OP	1½	1	AF	10×6	36×36	36×36	—	4000	6**	
FSD-182-OP	1½	2	AF	10×6	36×36	36×36	—	4000	6**	
FSD-131-OP	1½*	1	3V	10×6	24×24	24×24	24×24	2000	4	
FSD-132-OP	1½*	2	3V	10×6	24×24	24×24	24×24	2000	4	
SIDE PANEL										
FSD-121-SP	1½	1	3V	14×8	44×48	44×48	—	2000	4	
FSD-122-SP	1½	2	3V	14×8	44×48	44×48	—	2000	4	
FSD-181-SP	1½	1	AF	16×6	44×36	44×36	—	4000	6**	
FSD-182-SP	1½	2	AF	16×6	44×36	44×36	—	4000	6**	

* Tunnel Type Corridor ceiling installation has 1 hr rating | **4 in.wg. below 8" in height

FIRE/SMOKE DAMPERS

FSD-130 SERIES

TUNNEL CORRIDOR DAMPERS



FSD-131

Tunnel corridor dampers are efficient for installation in horizontal openings of metal stud or wood stud tunnel-type corridor ceilings. These combination fire/smoke dampers feature economical triple-V blades.

- 1½ Hour UL 555 Rating
- Class I, II and III UL 555S Classified
- Meets NFPA Standards
- Out-of-Partition models available
- CSFM Listing
- Maximum Temperature: 350°



ECONOMICAL ROLL-FORMED TRIPLE-V GROOVED BLADES

FSD-125R

TRUE ROUND

The FSD-125R is a combination fire/smoke damper that installs precisely within round ducted systems. They are UL 555 rated to 1½ hours and perform to 3000 fpm.

- Class I and II UL 555S Ratings
- Square Mounting Plates are standard
- Meets NFPA Standards
- Stainless Steel Construction Available
- CSFM Listing



FSD-125R

MODEL	UL555 FIRE RESISTANCE (hr)	UL555S LEAKAGE CLASS	MIN SIZE (in)	DAMPER MAXIMUM SIZE (in)			MAXIMUM DYNAMIC CLOSURE RATING		STAINLESS OPTION
				WALL	FLOOR	CORRIDOR CEILING	VELOCITY (fpm)	PRESSURE (in. wg.)	
TUNNEL CORRIDOR									
FSD-131	1½*	1	6×6	24×24	24×24	24×24	2000	4	–
FSD-132	1½*	2	6×6	24×24	24×24	24×24	2000	4	–
FSD-131-OP	1½*	1	10×6	24×24	24×24	24×24	2000	4	–
FSD-132-OP	1½*	2	10×6	24×24	24×24	24×24	2000	4	–
TRUE ROUND									
FSD-125R	1½	1	6	24	24	–	3000	4	●

* Tunnel Type Corridor ceiling installation has 1 hr rating

ELEVATED TEMPERATURE/AIRFLOW LABORATORY

C&S's commitment to accurate and credible performance data is highlighted by our state-of-the-art elevated temperature test lab. Features include:

- 5000 fpm maximum velocity
- 500° F maximum temperature
- 20 in.wg. maximum static pressure
- UL-555 and UL-555S compliance testing
- AMCA 500D performance testing

The lab features a 4375 cu.ft. chamber with 25 nozzles, 8 settling screens and a 35 million BTU burner. The system has three fans capable of generating up to 97,000 CFM. All equipment has been designed per AMCA 500D and is currently in the process of getting UL and AMCA certification. This lab allows C&S to streamline product development efforts, as well as enhance current product offerings.

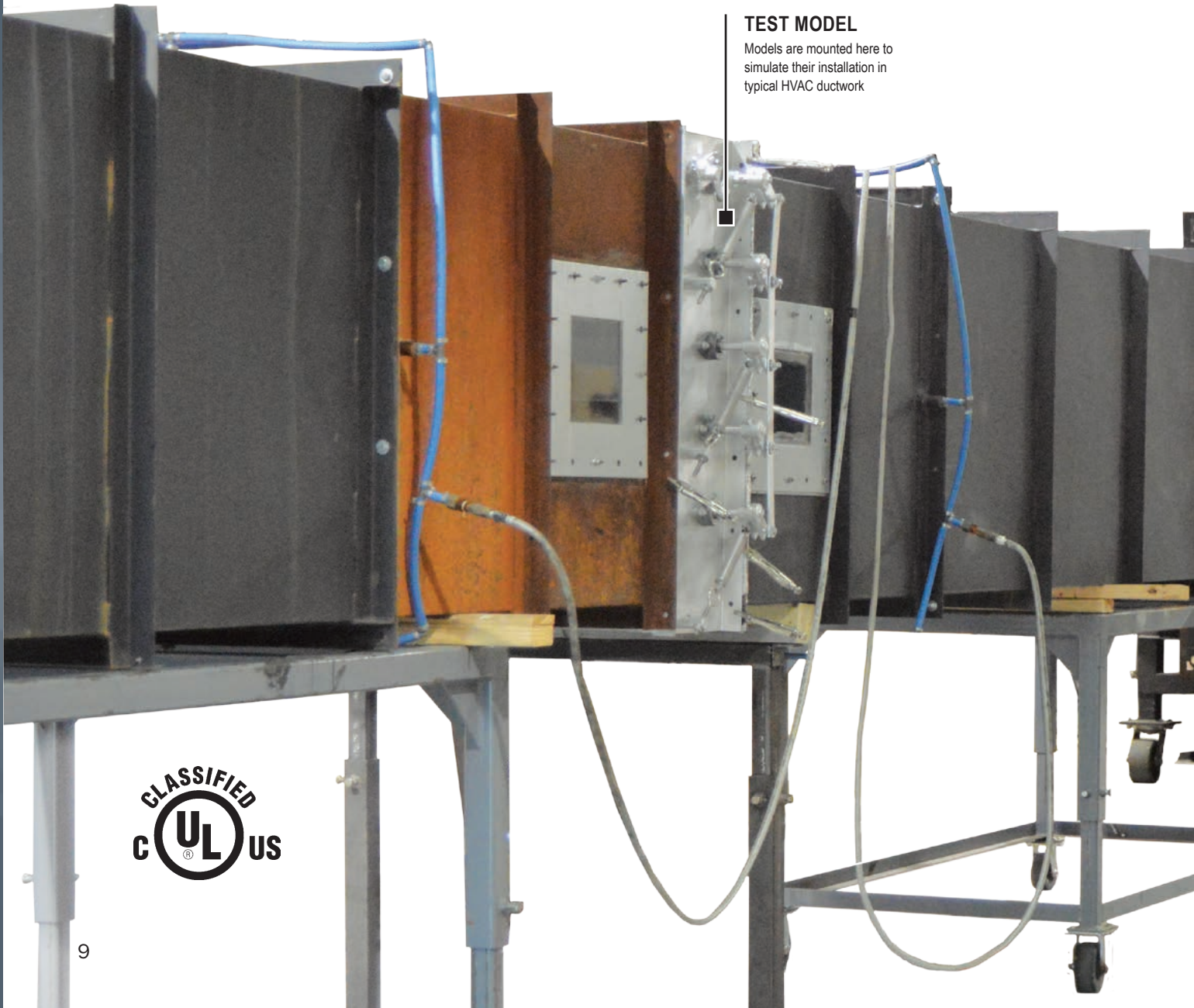


CONTROL CENTER

Our staff can control testing parameters at this computer integrated control station.

TEST MODEL

Models are mounted here to simulate their installation in typical HVAC ductwork

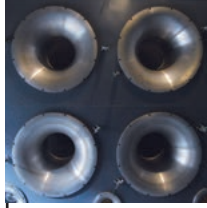


4375 CUBIC FOOT CHAMBER



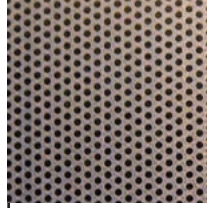
35 MILLION BTU

This burner can generate up to 35 million BTU, giving it the ability to perform elevated temperature testing and meet most requirements defined by life safety needs.



NOZZLES

25 - 10 in. cast and machined aluminum nozzles that help control amount of airflow through the system.



SETTLING SCREENS

Eight Individual settling screens to produce the most laminar air possible.



THREE FANS

Two Twin Loren Cook centrifugal paddle blade fans producing a total of 90,000 cfm and up to 10 in.wg. of static pressure, and a Loren Cook centrifugal paddle blade fan capable of 9,000 cfm and 30in.wg. of static pressure.



DUCT WORK

This duct work meets AMCA 500D requirements in sizes from 6"×6" to 72"×48"

PLENUM

This gives us the ability to adjust to the ductwork and test products in many sizes up to 125"×125"

5
year
warranty
all products

FIRE DAMPERS

1½ AND 3HR RATED FIRE DAMPERS



FD-120

Fire dampers are fire protection products used in heating, ventilation, and air conditioning ducts to prevent the spread of fire inside the ductwork through fire-resistance rated walls and floors. Fire dampers are UL555 tested and designed to close upon the detection of elevated heat.

- 1½ and 3 Hour UL 555 Rating
- System pressures up to 6 in.wg.
- Meets NFPA Standards
- Stainless Steel Construction Available
- CSFM Listing



ECONOMICAL ROLL-FORMED TRIPLE-V GROOVED BLADES



LOW PROFILE AIRFOIL BLADES FOR HIGH PERFORMANCE

TRUE ROUND

Our round fire dampers are designed for use in fire rated walls and floors and are the perfect, economical, choice for round ducted systems. They are UL555 tested and designed to close upon the detection of elevated heat.

- 1½ and 3 Hour Rating
- Meets NFPA Standards
- Stainless Steel Construction Available
- CSFM Listing



FD-125R

FD-15R

MODEL	UL555 FIRE RESISTANCE (hr)	BLADE TYPE	MIN SIZE (in)	DAMPER MAXIMUM SIZE (in)		MAXIMUM DYNAMIC CLOSURE RATING		STAINLESS OPTION
				WALL	FLOOR	VELOCITY (fpm)	PRESSURE (in.wg.)	
STANDARD								
FD-120	1½	3V	6×6	72×48 36×96	72×48	4000*	6	●
FD-180	1½	AF	8×6	128×96	120×96	4000*	6***	—
FD-320	3	3V	6×6	72×48 36×96	—	4000*	6	●
FD-380	3	AF	8×6	120×96	64×96	4000*	6**	—
OUT-OF-PARTITION								
FD-120-OP	1½	3V	6×6	36×48	36×48	4000	6	●
FD-180-OP	1½	AF	8×6	36×36	36×36	4000	6**	—
TRUE ROUND								
FD-125R	1½	RND	8	24	24	2000	4	●
FD-15R	1½	RND BTRFLY	6	20	20	—	—	—
FD-35R	3	RND BTRFLY	6	20	—	—	—	—

*2000 FPM on multi-section | **4 in.wg. below 8" in height | ***4 in.wg. when sizes exceed 64"×48" or 32"×96"

FIRE DAMPERS

CURTAIN BLADE FIRE DAMPERS

STATIC AND DYNAMIC



Fire dampers with curtain style blades are a cost savings solution to dynamic and static fire control. **Our FD-4D is the largest single section curtain fire damper on the market today.**

- 1½ and 3 Hour UL 555 Rating
- Meets NFPA Standards
- Stainless Steel Construction Available
- CSFM Listing



MODEL	UL555 FIRE RESISTANCE (hr)	STATIC DYNAMIC	MIN SIZE (in)		DAMPER MAXIMUM SIZE (in)		MAXIMUM DYNAMIC CLOSURE RATING		STAINLESS OPTION
			WALL	FLOOR	WALL	FLOOR	VELOCITY (fpm)	PRESSURE (in. wg.)	
CURTAIN STYLE BLADES									
FD-4-A	1½	STATIC	4×4	6×6	120×80 80×120	80×80	–	–	●
FD-4-B	1½	STATIC	4×2	6×4	120×76 80×116	80×76	–	–	●
FD-4-C	1½	STATIC	4×2	4×3	118×75 78×115	78×75	–	–	●
FD-4D-A	1½	DYNAMIC	6×6	6×6	72×120 120×72	36×36 72×18	4000	4	●
FD-4D-B	1½	DYNAMIC	6×4	6×4	120×69 72×117	36×34 72×16	4000	4	●
FD-4D-C	1½	DYNAMIC	4×3	4×3	118×68 70×116	34×33 70×15	4000	4	●
FD-4-3A	3	STATIC	4×4	6×10	108×24	76×96	–	–	●
FD-4-3B	3	STATIC	4×2	6×8	108×21	76×93	–	–	●
FD-4-3C	3	STATIC	4×2	4×7	106×20	74×91	–	–	●
FD-4D-3A	3	DYNAMIC	6×6	–	108×24	–	4000	4	●
FD-4D-3B	3	DYNAMIC	6×4	–	108×21	–	4000	4	●
FD-4D-3C	3	DYNAMIC	4×3	–	106×20	–	4000	4	●
CURTAIN INTEGRAL MOUNTED ANGLE									
FD-4-IMA	1½	STATIC	4×4	–	48×48	–	–	–	–
FD-4-IMB	1½	STATIC	4×2	–	48×44	–	–	–	–
FD-4D-IMA	1½	DYNAMIC	6×6	–	36×48	–	4000	4	–
FD-4D-IMB	1½	DYNAMIC	6×4	–	36×44	–	4000	4	–
OUT-OF-PARTITION									
FD-4-OP	1½	STATIC	6×6	6×6	36×36	36×36	–	–	–
FD-4D-OP	1½	DYNAMIC	6×6	6×6	36×36	36×36	4000	4	–
THINLINE									
FD-2-A	1½	THINLINE STATIC	4×4	–	36×72 72×36	–	–	–	–
FD-2-B	1½	THINLINE STATIC	4×2	–	36×65 72×29	–	–	–	–
FD-2D-A	1½	THINLINE DYNAMIC	6×6	–	72×36 36×72	–	4000*	4	–
FD-2D-B	1	THINLINE DYNAMIC	6×4	–	72×29 36×65	–	4000*	4	–

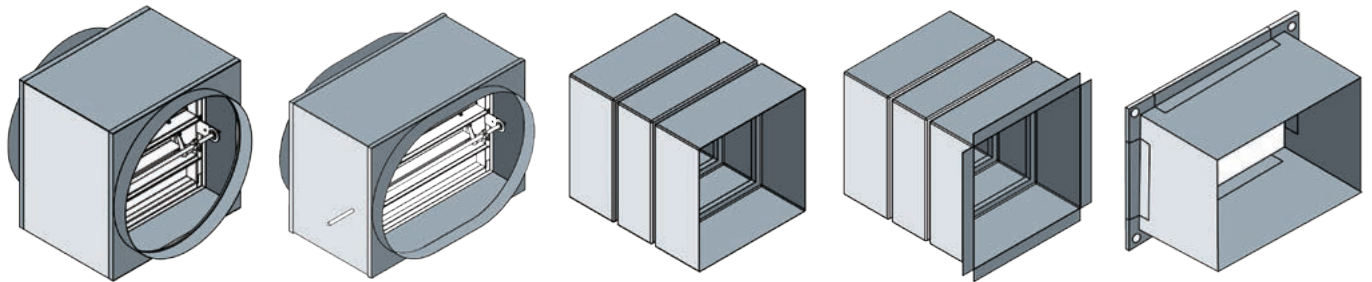
*2000 FPM on multi-section

OPTIONS/INSTALLATION

CONNECTION FLEXIBILITY

TRANSITION DUCT CONNECTIONS

When duct connections are not the same shape or size as the damper, optional factory transitions include:



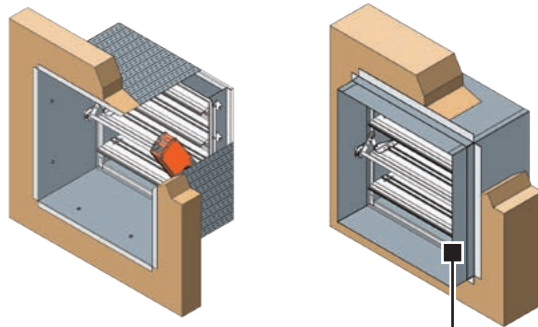
ROUND

OVAL

SQUARE

FLANGE
CONNECTION

FLANGE DUCT
CONNECTION



OUT-OF-PARTITION
INSTALLATION

SINGLE SIDE
MOUNTING ANGLES

SINGLE SIDE MOUNTING ANGLES

This labor saving system requires mounting angles on only one side of the partition.

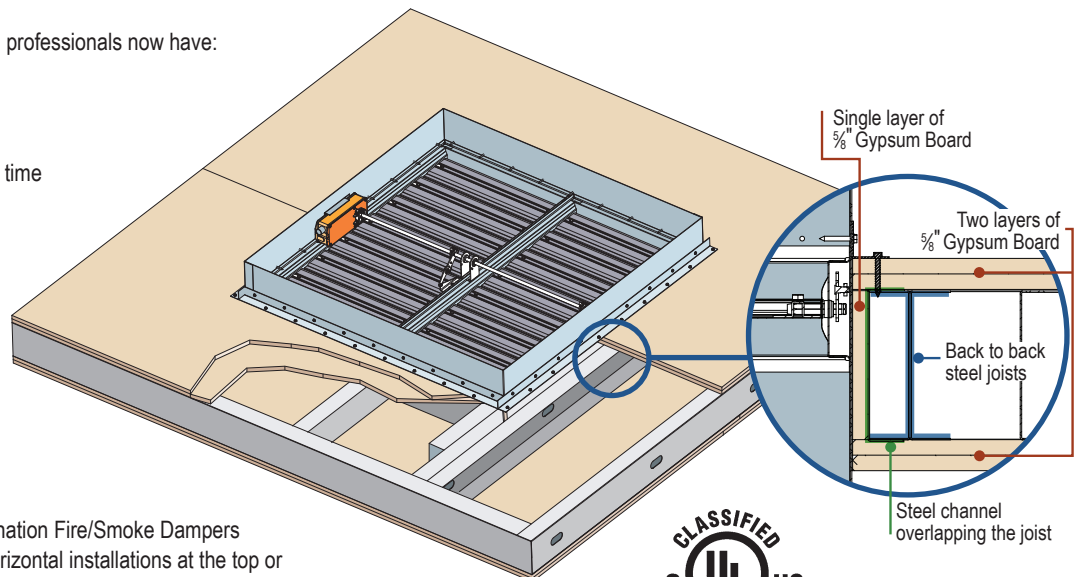
- UL 555 tested for vertical and horizontal dampers
- Installs in masonry, wood stud and metal stud walls
- Can be concealed underneath the drywall on metal stud walls

UL 1503 – INSTALLATION

HORIZONTAL MOUNT DAMPERS IN NON-CONCRETE BARRIERS FOR FIRE AND COMBINATION FIRE/SMOKE DAMPERS

With this installation, design professionals now have:

- Increased flexibility
- More usable space
- Reduced installation time



C&S offers Fire and Combination Fire/Smoke Dampers that are UL approved for horizontal installations at the top or bottom of gypsum and steel stud shafts.



ACCESSORIES

ACTUATORS/SMOKE DETECTORS

ACTUATORS

Electric actuators and pneumatic actuators ensure top quality actuation for smoke and combination fire/smoke dampers.

- Compact
- Maintenance free
- 5 Year warranty

Standard model is 120 VAC, power-open, spring-close, external mount electric actuator. 24 VAC, 230 VAC, and modulating control options are also available.



ELECTRIC ACTUATOR



PNEUMATIC ACTUATOR

FIRE CLOSURE AND POSITION INDICATIONS

Our fire dampers are held open using a UL listed fusible link which melts at a predetermined temperature to permit the damper to close for protection. Our fire/smoke dampers typically utilize a thermostat sensor that interrupts the power to the damper actuator and closes the damper.

- The HS-10: Single temperature fire closure with manual test/reset buttons
- The DRS-30: Dual temperature fire closure with manual test/reset buttons and integral PI-50
- The PI-50: Positive open and closed blade position signal
- Compact
- Maintenance free
- 5 Year warranty



HS-10

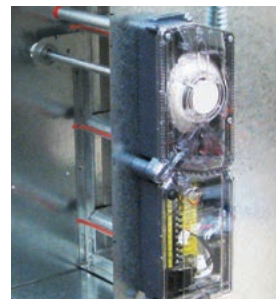


DRS-30

FACTORY MOUNTED SMOKE DETECTORS

Smoke detector features fully integrated electrical wiring with a single point connection. A C&S innovation, this detector eliminates costly installation, wiring and interface coordination.

- UL and NFPA approved
- Standard external mount with duct velocity of 100-4000 fpm
- Optional internal mount system is ideal when detection is required under zero-flow conditions



D4120

ACTUATOR ENCLOSURES	MANUFACTURER
ZS-100 – GALVANIZED	BELIMO
ZS-260 – EXPLOSION PROOF	BELIMO
ZS-300 – STAINLESS STEEL	BELIMO
DUCT SMOKE DETECTORS	
2151 – 0-3000 FPM	SYSTEM SENSOR
D4120 – 100-4000 FPM	SYSTEM SENSOR
FIRE RELEASING DEVICE	
DRS-30 – TWO TEMPERATURE	POTTORFF
HS-10 – ONE TEMPERATURE	POTTORFF

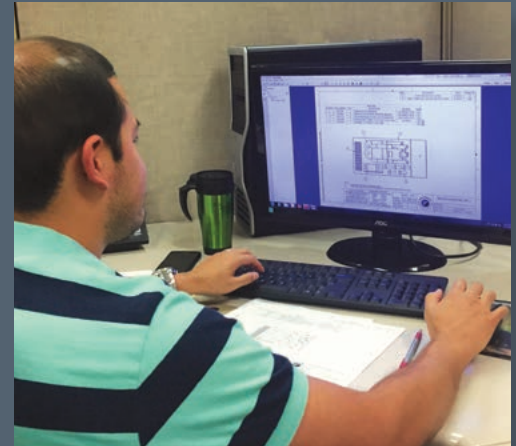
INDICATOR SWITCH PACKAGE	MANUFACTURER
PI-50 – DUAL POSITION INDICATOR	POTTORFF
REMOTE CONTROL PANELS	
RCP-1 – SINGLE POSITION	POTTORFF
RCP-1K – SINGLE STATION W/KEY	POTTORFF
RCP-1M – MOMENTARY TEST SWITCH	POTTORFF
RCP-1M-NL – MOMENTARY TEST SWITCH	POTTORFF
REMOTE LIGHT PANELS	
RLP-1 – 1-POSITION INDICATOR SWITCH	POTTORFF
RLP-2 – 2-POSITION INDICATOR SWITCH	POTTORFF

WHY SPECIFY C&S?

HOW WE ARE DIFFERENT FROM THE COMPETITION:

Innovation, quality, performance and service are what differentiate C&S Air Products from the competition. It is our experience, versatility, and ability to react quickly to our customer's needs which makes us the choice for architects and engineers.

- Ongoing commitment to personal and technical service
- Wide range of quality products
- Products delivered on time and on budget
- Innovative solutions for your design requirements
- Industry leading 5-year warranty



THE COMPANY WE KEEP

C&S associates are active members of Underwriters Laboratories (UL) Committees and Advisory Council.

As members of the United States Green Building Council, C&S takes its role in helping to conserve the Earth's resources very seriously.

All products manufactured by C&S comply with the Buy American Act as described in the American Recovery and Reinvestment Act (ARRA). All fabrication of our products takes place in Fort Worth, Texas and Montebello, California.

QUICK SHIP PROGRAM

Whether your project requires delivery in 1 week or the next day, C&S Air Products' industry leading Quick-Ship performance is guaranteed.

C&S Air Products

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