

FUA

FUA-1300/1800/2100/3000/4700

The FUA is an extraction fan that is specially designed to remove welding and other harmful fumes as dust, oil mist and exhaust gases.

The fan is intended and designed for mounting to extraction arms and filter units.



APPLICATIONS

The FUA is intended to be used for the following applications:

- MIG-MAG/GMAW welding
- TIG welding
- FCAW welding
- stick/MMAW welding
- vehicle exhaust extraction systems



Do **not** use the FUA for the following applications or in the following circumstances:

- aluminium laser cutting
- extraction of aggressive fumes and gases (e.g. from acids, alkaline or soldering paste containing lithium)
- extraction of hot gases (more than 80°C/176°F continuously)
- grinding aluminium and magnesium
- flame spraying
- extraction of cement, saw dust, wood dust, etc.
- explosive environments or explosive substances/gases



SPECIFICATIONS

Physical dimensions and properties

Material:	
• fan	aluminium
• housing	sheet metal
Colour:	
• motor	black (RAL 9005)
• housing	grey (RAL 7035)
Motor design	IEC 60072
Fan type	radial
Design conditions	20°C (68°F) at sea level
Max. airflow temperature	80°C/176°F

Performance

Speed	2800 rpm
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Electrical data

Max. start/stops per hour	30
Insulation class	F

Protection class	IP 55
Ambient conditions	
Operating temperature:	
• min.	5°C (41°F)
• nom.	20°C (68°F)
• max.	40°C (104°F)
Max. relative humidity	80%
Outdoor use allowed	no
Storage conditions	5-40°C (41-104°F) relative humidity max. 80%
Product combinations	
Exhaust extraction systems	all hose reel/drop systems
Filter units	all systems
Fume extraction systems	all systems
Control equipment	all systems
Scope of supply	
Fan	
Order information	
Number/package	1
Shipping data	
Harmonized Tariff Code	8414.5940.90
Country of origin	the Netherlands

See table 1: for dimensions.

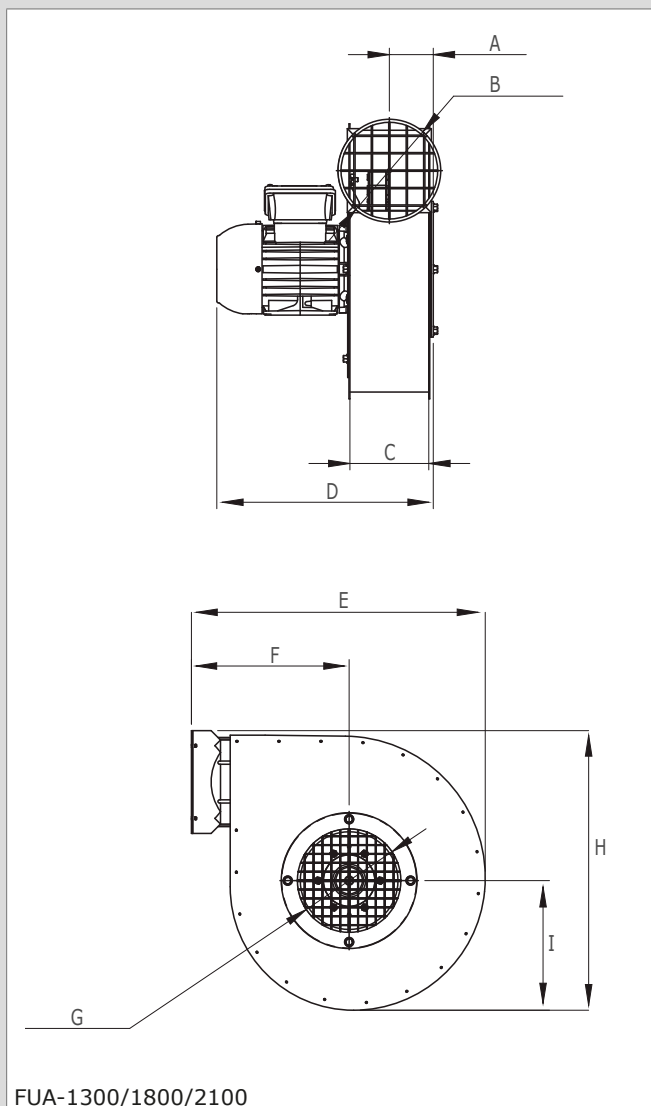
See table 2: for remaining specifications, options and accessories.

See page 2: for outlet and motor positions.

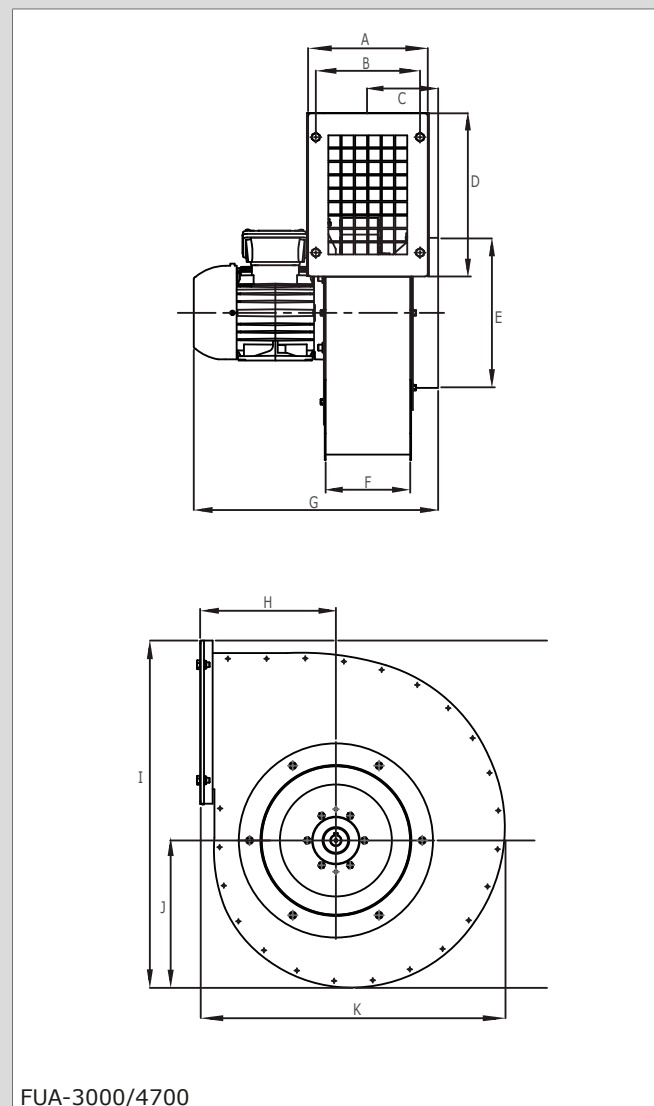
See page 4: for fan curves.

APPROVALS/CERTIFICATES

	FUA-1800/4700
	Directive 2011/65/EC (RoHS) valid as of 8 June 2011



FUA-1300/1800/2100

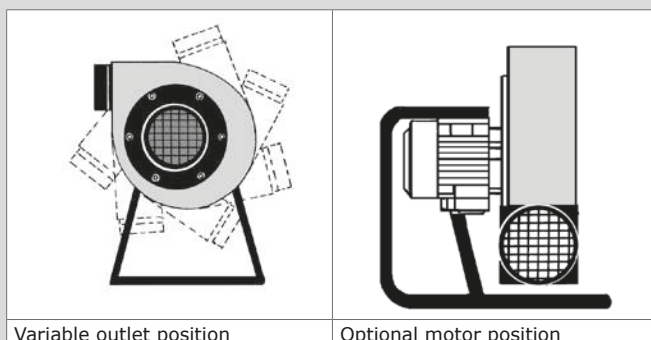


FUA-3000/4700

Table 1: Dimensions

	FUA-1300/1800	FUA-2100
A	68 mm (2.7 in.)	68 mm (2.7 in.)
B	Ø 159 mm (6.3 in.)	Ø 159 mm (6.3 in.)
C	122 mm (4.8 in.)	122 mm (4.8 in.)
D	330 mm (12.9 in.)	353 mm (13.1 in.)
E	455 mm (17.9 in.)	455 mm (17.9 in.)
F	244 mm (9.6 in.)	244 mm (9.6 in.)
G	Ø 160 mm (6.3 in.)	Ø 160 mm (6.3 in.)
H	433 mm (17 in.)	433 mm (17 in.)
I	201 mm (7.9 in.)	201 mm (7.9 in.)
Fan wheel (not shown)		
- diameter	300 mm (Ø 11.8 in.)	Ø 300 mm Ø 11.8 in.)
- width	20 mm (0.8 in.)/ 25 mm (1.0 in.)	60 mm (2.4 in.)

DISCHARGE AND MOTOR POSITIONS



Variable outlet position

Optional motor position

	FUA-3000	FUA-4700
A	201 mm (7.9 in.)	205 mm (8.1 in.)
B	175 mm (6.9 in.)	175 mm (6.9 in.)
C	118 mm (4.6 in.)	117 mm (4.6 in.)
D	274 mm (10.8 in.)	348 mm (13.7 in.)
E	Ø 250 mm (9.8 in.)	Ø 245 mm (9.6 in.)
F	142 mm (5.6 in.)	142 mm (5.6 in.)
G	410 mm (16.1 in.)	480 mm (18.9 in.)
H	228 mm (9 in.)	258 mm (10.6 in.)
I	583 mm (23 in.)	733 mm (28.9 in.)
J	247 mm (9.7 in.)	297 mm (11.7 in.)
K	512 mm (20.2 in.)	591 mm (23.3 in.)
Fan wheel (not shown)		
- diameter	Ø 320 mm (12.6 in.)	Ø 380 mm (15 in.)
- width	60 mm (2.4 in.)	45 mm (1.8 in.)

Product type

FUA

Article no.

see order information

Product category

extraction fan

Version

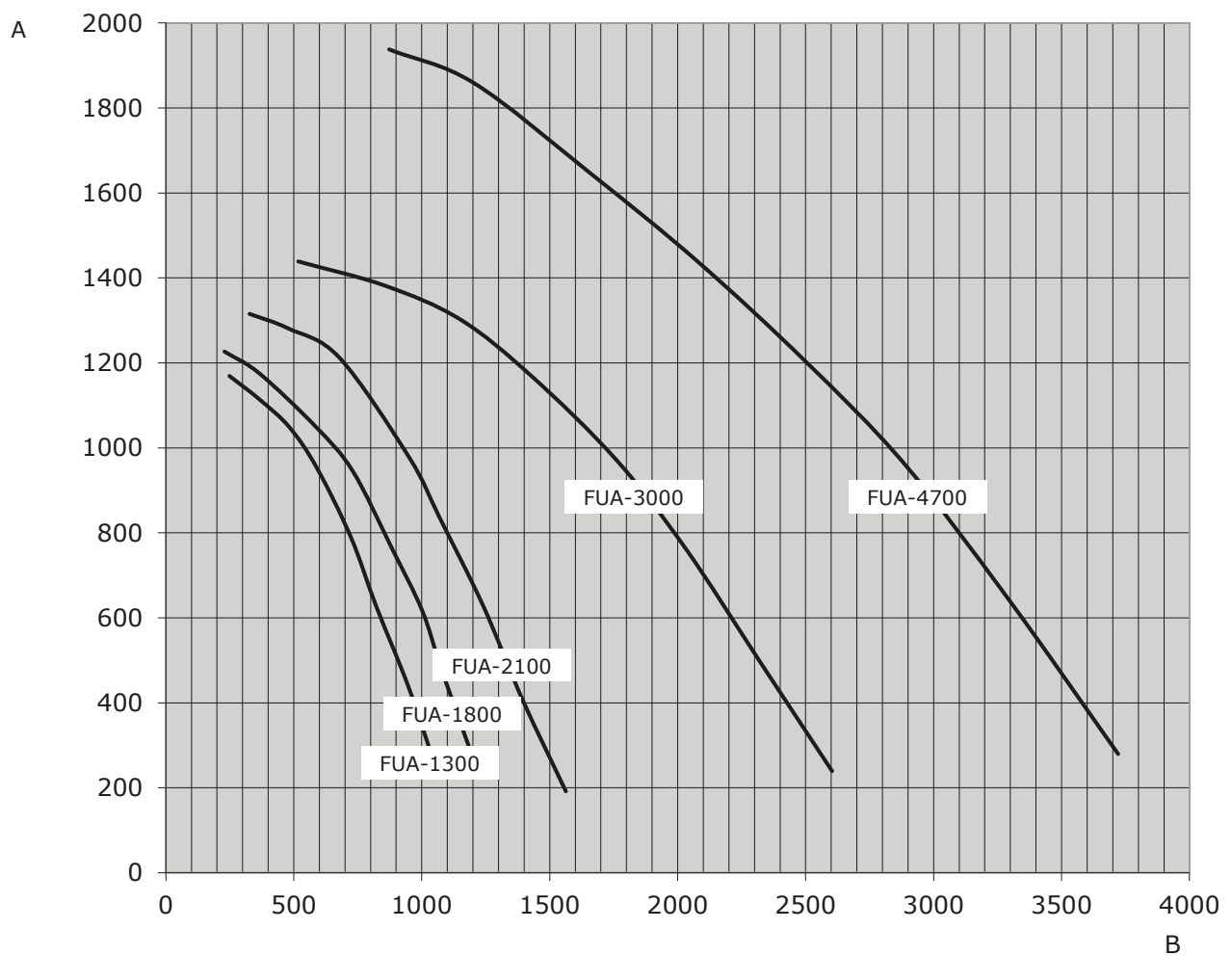
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Always check the latest version on www.plymovent.com.

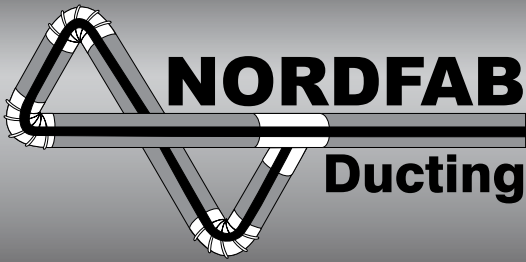
Table 2: Remaining specifications and available options and accessories

Features	FUA-1300		FUA-1800	FUA-2100		FUA-3000	FUA-4700
	230V	230-400V	230-400V	230V	230-400V	230-400V	230-400V
Article number	0000100300	0000100302	0000100303	0000100301	0000100304	0000100306	0000100308
■ Weight							
Net weight	12,8 kg (28.2 lbs)	11,9 kg (26.2 lbs)	12,3 kg (27.1 lbs)	16,5 kg (36.4 lbs)	16,4 kg (36.2 lbs)	21,9 kg (48.3 lbs)	34,5 kg (76.1 lbs)
■ Electrical data							
Connection voltages	230V/ 1~/50Hz	230-400V/ 3~/50Hz	230-400V/ 3~/50Hz	230V/ 1~/50Hz	230-400V/ 3~/50Hz	230-400V/ 3~/50Hz	230-400V/ 3~/50Hz
Power consumption	0,37 kW (0.5 HP)	0,37 kW (0.5 HP)	0,55 kW (0.75 HP)	0,75 kW (1 HP)	0,75 kW (1 HP)	1,1 kW (1.5 HP)	2,2 kW (3 HP)
Nominal current - 230V - 400V	2,75 A -	- 1,1/1,02 A	- 1,5/1,4 A	5 A -	- 2/1,9 A	- 2,7/2,5 A	- 4,9/4,8 A
■ Performance							
Noise level dB(A) (pressure and suction side duct connected)	63	63	63,8	65,9	65,9	68,1	75,9
■ Options and accessories							
<i>Fan on/off manually (wall)</i> Motor starter: - motor protection switch 230V/1~/50Hz - motor protection switch 400V/3~/50Hz	MPS- 2,5-4,0 A -	- MPS- 1-1,6 A	- MPS- 1-1,6 A	MPS- 4,0-6,3 A -	- MPS- 1,6-2,5 A	- MPS- 2,5-4,0 A	- MPS- 4-6,3 A
<i>Fan on/off manually (on hood of extraction arm)</i> - starter for fan and working light - thermal relay 230V/3~/50Hz - thermal relay 400V/3~/50Hz	SA-24-75 MS-2.3/3.2 -	SA-24-75 MS-1.4/2.0 MS-0.9/1.3	SA-24-75 MS-2.3/3.2 MS-0.9/1.3	SA-24-75 MS-4.5/6.3 -	SA-24-75 MS-2.3/3.2 MS-1.4/2.0	SA-24-75 MS-4.5/6.3 MS-2.3/3.2	SA-24-75 MS-7.2/10 MS-4.5/6.3
<i>Fan on/off automatically (inductive sensor)</i> - starter for fan and working light - thermal relay 230V/3~/50Hz - thermal relay 400V/3~/50Hz	ES-90-005 MS-2.3/3.2 -	ES-90-005 MS-1.4/2.0 MS-0.9/1.3	ES-90-005 MS-2.3/3.2 MS-0.9/1.3	ES-90-005 MS-4.5/6.3 -	ES-90-005 MS-2.3/3.2 MS-1.4/2.0	ES-90-005 MS-4.5/6.3 MS-2.3/3.2	ES-90-005 MS-7.2/10 MS-4.5/6.3
<i>Fan on/off automatically (light sensor)</i> - starter for fan and working light - light sensor - thermal relay 230V/3~/50Hz - thermal relay 400V/3~/50Hz	ES-90-005 LS-12 MS-2.3/3.2 -	ES-90-005 LS-12 MS-1.4/2.0 MS-0.9/1.3	ES-90-005 LS-12 MS-2.3/3.2 MS-0.9/1.3	ES-90-005 LS-12 MS-4.5/6.3 -	ES-90-005 LS-12 MS-2.3/3.2 MS-1.4/2.0	ES-90-005 LS-12 MS-4.5/6.3 MS-2.3/3.2	ES-90-005 LS-12 MS-7.2/10 MS-4.5/6.3
Mounting bracket stand (for free standing or mounting on wall, ceiling or platform)	MB-FUA/S1	MB-FUA/S1	MB-FUA/S1	MB-FUA/S1	MB-FUA/S1	MB-FUA/S2	MB-FUA/S2
Mounting bracket crane (for mounting on UK or FlexMax)	-	-	MB-FUA/C1	MB-FUA/C1	MB-FUA/C1	MB-FUA/C2	-
Outlet transition from rectangular to round - Ø 250 mm - Ø 315 mm	- -	- -	- -	- -	- -	OL-250 -	OL-250 OL-315
Soft connection for noise and vibration free connection to duct - inlet - outlet	SC-160 SC-160	SC-160 SC-160	SC-160 SC-160	SC-160 SC-160	SC-160 SC-160	SC-250 SC-250	SC-250 SC-250/315
■ Shipping data							
Gross weight	14,9 kg (32.9 lbs)	13,9 kg (30.4 lbs)	14,4 kg (31.8 lbs)	18,5 kg (40.8 lbs)	18,5 kg (40.8 lbs)	26 kg (57.3 lbs)	43,5 kg (95.9 lbs)
Packing dimensions	470 x 470 x 515 mm (18.5 x 18.5 x 20.3 in.)	470 x 470 x 515 mm (18.5 x 18.5 x 20.3 in.)	470 x 470 x 515 mm (18.5 x 18.5 x 20.3 in.)	470 x 470 x 515 mm (18.5 x 18.5 x 20.3 in.)	470 x 470 x 515 mm (18.5 x 18.5 x 20.3 in.)	590 x 590 x 480 mm (23.3 x 23.3 x 18.9 in.)	860 x 750 x 630 mm (33.9 x 29.5 x 24.8 in.)

FAN CURVES



A = Static pressure (Pa)
B = Airflow (m³/h)



The world's [*FASTEST*] ducting

800-532-0830

www.nordfab.com

ID: 050113

QUICK-FIT

Technical Manual

- Easy & fast to install
- Easy clean
- Laser welded seams
- Re-useable

**Cuts installation and downtime
by more than 45%**



Made in the USA

REGISTERED
ISO
9001:2008
14001:2004



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THE WORLD'S FASTEST DUCTING

QUICK-FIT

STRUCTURAL INTEGRITY & LEAKAGE CLASS

NORDFAB

December 16, 2011

To whom it may concern

Reference: Structural integrity of "QF" Piping System

The Nordfab Laser "Quick-Fit" Piping System has been used in many different industrial applications, and under various negative static pressures.

The typical design range we see in our applications range from -2" wg to -28" wg; however, we have some systems operating at vacuums of -32" wg to -42" wg under normal operating parameters.

Please take into account that our pipe comes in 5' lengths with a rolled lip on each end, thus providing reinforcement every 5', which presents a sound structural design that should be stronger than any pipe in its class according to SMACNA guidelines and regulations.

Sincerely,
Tom Ballus
President

STRUCTURAL INTEGRITY

All fit together ducting systems allow for some degree of leakage. "Q-F" ducting is no exception and is not sold as an airtight system. In addition to our standard Nitrile gasket, NORDFAB offers special clamp gasket material for high heat, food applications, etc. However, the "Q-F" system is sold as a quick way of installing and modifying duct-work while at the same time retaining the usability of each component. In short, "Q-F" is meant to be able to be taken apart, re-assembled, stored or moved. Completely eliminating the possibility for leakage jeopardizes the inherent benefits of the duct.

While NORDFAB is currently unaware of any method of evaluating dust collection piping alone, the following data is presented using the criteria for all duct, including HVAC. This data is presented only for the purpose of indicating acceptability of the "Q-F" in dust/fume removal in a negative pressure situation and should not be confused with the ducting that uses tape or gaskets as sealant in the positive conveyance of air.

LEAKAGE CLASS DETERMINED IN ACCORDANCE WITH SMACNA

Duct Size	Avg. leakage per 100 ft.		SMACNA CLASS
	5" SP	10" SP	
4" 6"	5 CFM	6 CFM	3
7" 10"	2.5 CFM	3.5 CFM	3
11" 24"	2 CFM	4 CFM	3

GENERAL ENGINEERING SPECIFICATION FOR NORDFAB QUICK FIT DUCTING

MANUFACTURING PROFILE:

Nordfab Quick-Fit Ducting is manufactured in Thomasville, NC and Sparks, NV. Nordfab duct is a clamp-together design using a rolled edge design with a single lever clamp. The ducting and clamps are made of similar materials. During manufacturing, the duct material sheet blanks, which are five feet long, are rolled and fused together with a laser weld process along the longitudinal seam. Each pipe is checked with a light apparatus for any welding flaws or gaps. The rolled edge is then die-formed after inspection by rolling each end of the pipe simultaneously. The laser weld prevents any gaps in the rolled edge from forming. This rolled end is used for clamping components together as well as offering reinforcement every five feet. All clamps contain a standard gasket made of Nitrile which is suitable for most applications, including oil mist, as long as high temperatures are not an issue. An ePTFE gasket option is available for food grade and high temp applications. Nordfab Quick-Fit Ducting is available in 1" increments sized 3" to 24" diameter.

Engineering Specification:

1. Ducting shall consist of the following:
 - a. Galvanized: ASTM A527 with a G90 rating
 - i. Temp rating is 500° F with no breakdown of zinc - Zinc melting point is 740° F
 - b. 304SS: Finish meets ASTM A240
 - i. Temp rating is 1,100° F
 - c. 316SS: Finish meets ASTM A240
 - i. Temp rating is 1,100° F
2. Ducting manufacturing techniques:
 - a. Diameters 3" - 24" pipe, adjustable nipples, and collars attached to other components will have one or both ends die formed-rolled to provide a uniform edge around the circumference of the rolled end. The pipe and adjustable nipples shall have the longitudinal seam laser welded to allow for a tighter slip joint and reduce system pressure losses. All laser welded seams will undergo a light test to ensure there are no voids or imperfections in the system. Pipe lengths using laser welded seams will not exceed a nominal 60" length. The rolled edges provide structural support at 5' intervals or less and can be interpreted as a stiffener where SMACNA specifications are required. An adjustable nipple is used for adjustment during the install process. Pipe is cut to appropriate length and the adjustable nipple secures the pipe for install.
 - b. Pipe and other components larger than 24" shall utilize either an angle flange or flat flange attached loosely and retained in place using a 3/8" vanstone lip. The pipe shall have a compressed-interlocking lap form seam and not exceed 78" in length. The angle or flat flanges provide structural support at 6'-6" intervals or less and are considered as stiffeners where SMACNA specifications are required.
 - c. There will be times when certain components will be air direction sensitive. These components will have an arrow sticker attached showing the proper flow direction.
 - d. All ducting and its components shall have been tested to 80" WG using the following gauged reference:
 - i. 3" will use 18ga material thickness
 - ii. 4" through 12" will use 22ga material thickness
 - iii. 13" through 29" will use 20ga material thickness
 - iv. 30" and above will use 18ga material thickness



THE WORLD'S FASTEST DUCTING

QUICK-FIT

Engineering Specification (cont.):

3. Clamping rolled edged duct:
 - a. Clamps shall be constructed with an over-center, spring-lever action for quick connecting of two pieces of ducting. A retaining pin shall be inserted in the handle and an eyelet on the clamp as a safety feature to ensure the handle does not prematurely come undone.
 - b. When closing the clamp, the internal seal shall be compressed in such a manner as to cover both rolled beads for optimum sealing capacity in a full 360° pattern.
4. Optional caulking and other materials governing system temperature ratings if applicable:
 - a. Approved caulk is 3M Scotch Seal Metal Sealant 2084 or equivalent for system temperatures of 250°F or lower
 - b. Optional approved caulk is 3M DP460 two part epoxy or equivalent for system temperatures of 375°F or lower
 - c. Optional approved caulk is RTV 100 Series, Mil-A-46106B Compliance, UL/FDA/NSF or equivalent for system temperatures of 400°F or lower
 - d. Optional approved caulk is Permatex RTV Silicone Rubber Adhesive High Temperature Caulk (red in color) or equivalent for system temperatures of 500°F or lower
 - e. Sealing gaskets
 - i. Buna-N, 70 Duro-Meter hardness with a temperature rating of 250°F maximum and is black in color, used with the adjustable nipple
 - ii. Silicone rubber, ZZ-R-765 Class 2A and 2B grade 770 AMS-3304E and 3304F and 3303G, FDA approved and is red in color, used with the adjustable nipple
 - iii. Molded gaskets shall meet the material classification of ASTM D-2000 M2BG510 A24 B34 EO14 EO34 EF11 EF21 and used in systems where the temperature rating is 225°F or less and are black in color. This component shall be made using conductive materials for conductivity.
 - iv. Sponge o-ring shall meet the material classification of either ASTM D-1056-68 – SBE43 or ASTM D1056-85, 91, 98 – 2B3
 - v. Clamp seals shall be made of either of the following:
 1. Nitrile to meet or exceed ASTM D 1056 standards with a temperature rating not to exceed 158°F constant temperature (or intermittent temperature of 194°F).
 2. ePTFE to meet or exceed FDA /pharmaceutical standards for food usage and not be degraded by any common chemicals in the 0-14 PH range. Temperature rating shall not exceed 600°F.
5. Conductivity:
 - a. Metal-to-metal contact shall be obtained at all joint connections. Die-formed rolled edges are uniform in shape which provides the most consistent contact. The ears of the clamp contact with the rolled edges and provide maximum conductivity. Conductivity shall be adhered to per NFPA 77 paragraph 8.4.1.1; states all parts of the continuous metal piping system should have a resistance level that does not exceed 10 ohms. Testing is the responsibility of the owner.

COLLAPSIBILITY & LEAKAGE DATA

COLLAPSIBILITY STRENGTH OF "Q-F" PIPING

Each size of piping has been tested for strength against collapsing. The piping was exposed to constant Positive pressure and constant vacuum. Each pipe was exposed to a maximum capacity of the test equipment of 80" WG of vacuum and positive pressure. None of the pipe showed any form of deformation during the test. Please take into account that our pipe comes in 5' lengths with a rolled lip on each end, thus providing reinforcement every 5', which presents a sound structural design that should be stronger than any pipe in it's class. Pipe and fittings must be installed in accordance with NORDFAB's standard specifications and standard accepted practices.

LEAKAGE RATE

All fit together ducting systems allow for some degree of leakage where they are joined. "Q-F" ducting is no exception and is not sold as an airtight system. However, versus the other ducting typically used in fit together systems, Nordfab's Quick-Fit (Q-F) ducting has fully welded, leak-tight laser welded seams. Spiral and other ducting with lock form seams are NOT fully welded at the seams and can be expected to have higher leakage rates than "Q-F".

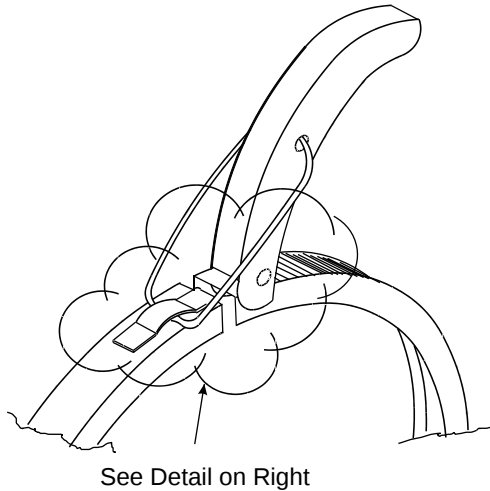
In addition to our standard Nitrile gasket, NORDFAB also offers special clamp gasket material for high heat, food applications, etc. Further, the applying of sealants to the individual rolled ends can enhance the tightness of the system. However, the "Q-F" system is sold as a quick way of installing and modifying duct-work while at the same time retaining the usability of each component. In short, "Q-F" is meant to be able to be taken apart, re-assembled, stored, or moved. Completely eliminating the possibility for leakage jeopardizes the inherent benefits of the duct. Standard "Q-F" is designed to provide tight sealing and efficient airflow under negative pressures. To that end, we are providing the following information for piping situations where fan sizing is of extreme importance. The following data was obtained using standard components and was performed in accordance with the SMACNA, "HVAC AIR DUCT LEAKAGE TEST MANUAL". The information gives the leakage rate per joint of duct at various pressures. To utilize the chart, count the number of clamps, (this equals the number of pieces), per size and multiply by the number given beside the corresponding diameter and under the applicable pressure. These numbers assume that the product is correctly installed; free of dents in the joining ends and that the gasket is in place. Special gasket material and sealants will increase the sealing capabilities.

LEAKAGE RATE IN CFM PER QF JOINT

Dia Inches	3 WG	5 WG	7.5 WG	10 WG	15 WG	20 WG	25 WG	30 WG
4	0.20	0.25	0.30	0.30	0.35	0.50	0.60	0.80
5	0.20	0.25	0.30	0.30	0.35	0.50	0.60	0.80
6	0.20	0.25	0.30	0.30	0.35	0.50	0.60	0.80
7	0.20	0.25	0.30	0.30	0.35	0.50	0.60	0.80
8	0.20	0.25	0.30	0.30	0.35	0.50	0.60	0.80
9	0.20	0.25	0.30	0.30	0.35	0.50	0.60	0.80
10	0.20	0.25	0.30	0.30	0.35	0.50	0.60	0.80
12	0.30	0.30	0.40	0.40	0.40	0.60	0.70	0.90
14	0.30	0.30	0.50	0.70	0.80	0.80	0.90	1.10
16	0.30	0.40	0.60	0.70	1.00	1.10	1.20	1.40
18	0.40	0.40	0.70	0.80	1.10	1.30	1.50	1.70
20	0.40	0.60	0.80	0.90	1.20	1.50	1.70	2.00
22	0.40	0.60	0.80	1.10	1.40	1.50	2.00	2.20

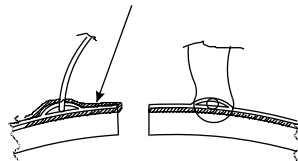
Q-F CLAMP

Stainless Style



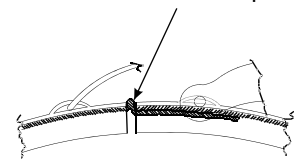
Position # 1

Seal Will Be Installed And Folded Over At the Factory. It Will Release Easily Due To The Pressure Sensitive Backing.



Position # 2

While Clamping Down, Slowly Tuck Extra Seal Underneath The Opposing Side Of Clamp.

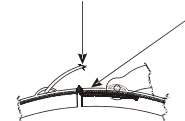


Die Formed Rolled Edge



"QF" Clamp

Nitrile Gasket



Galvanized Style

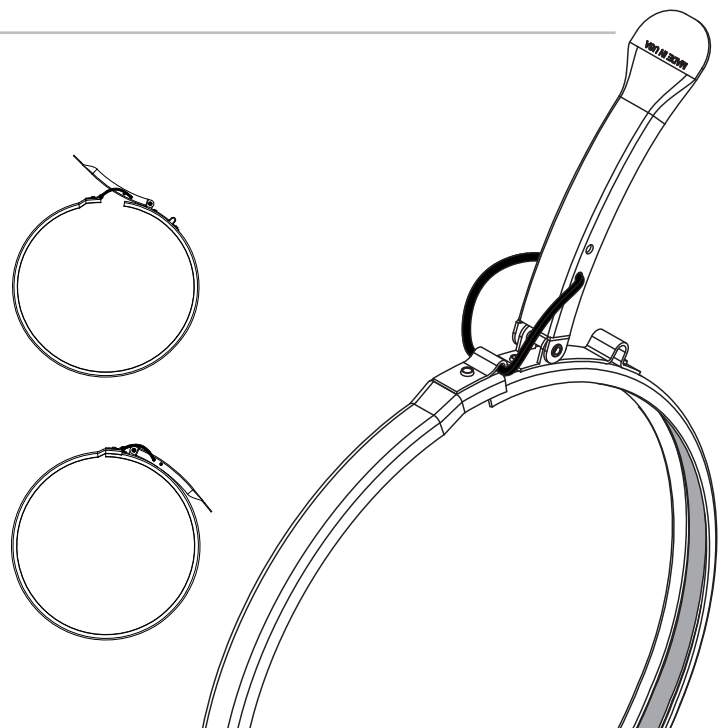
Quick-Seal Clamps

Since 1986, the Nordfab Quick-Fit clamp has been the world's best selling and best sealing duct clamp. It has set the standard for use in industrial dust, mist, smoke and fume collection. Many have tried to imitate it, but we've found none who have ever matched, or improved upon, its tight, leak-resistant seal.

Until now...

The New Nordfab Quick-Seal clamp uses our new revolutionary "overlap" design. This ensures the tightest seal possible.

Additionally, we have lengthened the handle for the Quick-Seal clamp and made it stronger, giving you more leverage to clamp down for super tight seals.



“Q-F” CLAMP GASKETING ALTERNATIVES

1. NITRILE GASKET-STANDARD

- Service temperature: -104° F to +158 ° F with an intermittent max temp of +194° F.
- Standard seal installed in clamp
- The standard specifications meet ASTM D 1056.
- 3/8" Gasket for 4",5",6"
- 1/2 " Gasket for 7" - 11"
- 21/32" Gasket for 12" - 24"

2. ePTFE GASKET

- Service temperature -450° F to 600°
- Not degraded by any common chemicals [0-14 PH range]
- Non-contaminating and non-aging
- 3/8" gasket for 4",5",6"
- 1/2" gasket for 7" and larger
- 21/32" Gasket for 12" - 24"

O-RINGS

Temperature Rating:

250° F - O-ring Black: Included with adjustable nipples as standard

500° F - O-ring Red: Optional for higher temperatures and FDA approval -
Order separately and replace on site

Material Specifications:

O-ring Black: Buna-N, 70 Duro-Meter hardness

O-ring Red: Silicone rubber, ZZ-R-765 Class 2A and 2B grade 70 AMS-3304E and 3304F and 3303G, FDA approved ordered separately and replace on site.

QUICK-FIT GAUGE DATA SHEET

DIA	PIPE		PIPE STD GAUGE	NIPPLE		NIPPLE STD GAUGE	MAX GALV GA		MAX SS GA UPGRADE
	ID	OD		ID	OD		PIPE	NIPPLE	
3"	2.90	3.00	18	3.07	3.15	22	N/A	N/A	20
4"	3.86	3.93	22	3.96	4.03	22	18	18	20
5"	4.87	4.94	22	4.96	5.03	22	18	18	20
6"	5.89	5.96	22	5.99	6.06	22	18	18	20
7"	6.89	6.96	22	7.00	7.07	22	18	18	20
8"	7.88	7.95	22	8.00	8.06	22	16	16	20
9"	8.88	8.95	22	9.00	9.06	22	16	16	20
10"	9.89	9.95	22	10.00	10.07	22	16	16	20
11"	10.88	10.94	22	11.12	11.19	22	16	16	20
12"	11.97	12.04	22	12.11	12.17	22	16	16	20
13"	12.97	13.05	20	13.12	13.20	20	16	16	20
14"	13.96	14.04	20	14.10	14.18	20	16	16	20
15"	14.97	15.04	20	15.12	15.20	20	16	16	20
16"	15.97	16.04	20	16.10	16.18	20	16	16	20
17"	16.97	17.05	20	17.07	17.15	20	16	16	20
18"	17.96	18.04	20	18.10	18.18	20	16	16	20
19"	18.91	19.00	20	19.07	19.15	20	16	16	20
20"	19.96	20.04	20	20.10	20.18	20	16	16	20
21"	20.92	21.01	20	21.07	21.15	20	16	16	20
22"	21.97	22.05	20	22.11	22.19	20	16	16	20
23"	22.91	23.00	20	23.07	23.15	20	16	16	20
24"	23.94	24.02	20	24.06	24.14	20	16	16	20

THINGS TO BE AWARE OF WHEN ORDERING "Q-F"

- Order one clamp per "Q-F" component.
 - One duct = one clamp
 - Two elbows = two clamps
- Specify dimensional information to speed up process:
 - Transitions A,B,D,L,X, Y and flange style
 - Branches A x B x C, or A x B x D, or A x B x C x D
 - Tap-In or In-cuts A, B
 - Reducer All diameters and end style

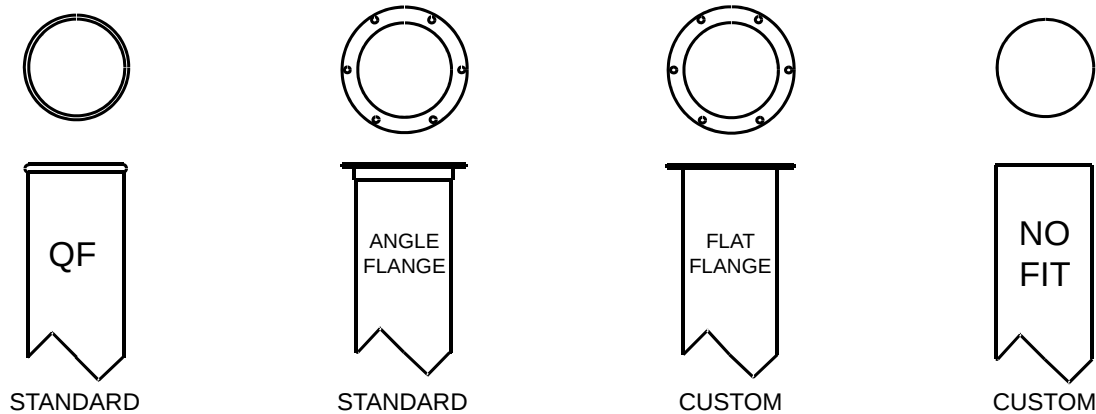
THERE IS NO SUCH THING AS TOO MUCH INFORMATION !

- Look for 60 degree elbows to compliment standard branch orders with 30° tap. This is typical application since the two components will create a perpendicular run to the trunk line.
- Ask for flange styles, hole patterns, ID, OD, when applicable. Typical components requiring flanges will be parts that connect to filters, fans, or other types of equipment.

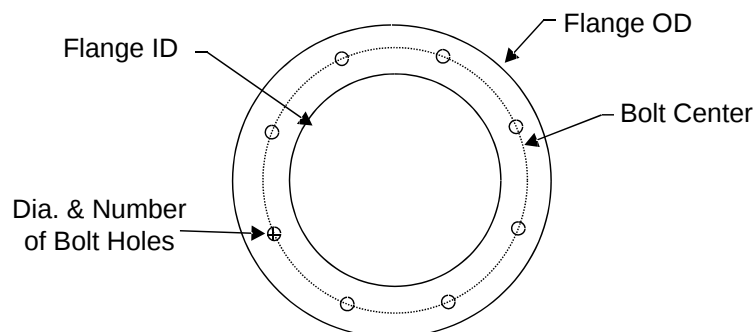
FITTINGS

- A) Branch fittings are produced to have a concentric design, as they taper to a specific dimension. Joints are lapped, spot welded, cleaned, and painted with KRYLON Industrial Tough Coat, Acrylic Enamel #1760 Aluminum. Seams are sealed with 3M Scotch-Seal (R) 2084 grey sealant.
- B) Fitting gauges vary from 22 to 16 gauge depending on the configuration of the branch or fitting. Gauge can generally be determined by using the corresponding QF Pipe diameter gauge. If exact gauge is required, contact factory for more information.
- C) All standard branch fittings are produced on a 30 degree angle, however, other angles (7.5° - 90°) are available upon request.
- D) As a normal practice, internal welds are not cleaned or painted. Cleaning or painting the inside is an option based on the customer's application and is done only at the customer's request with an **upcharge**.

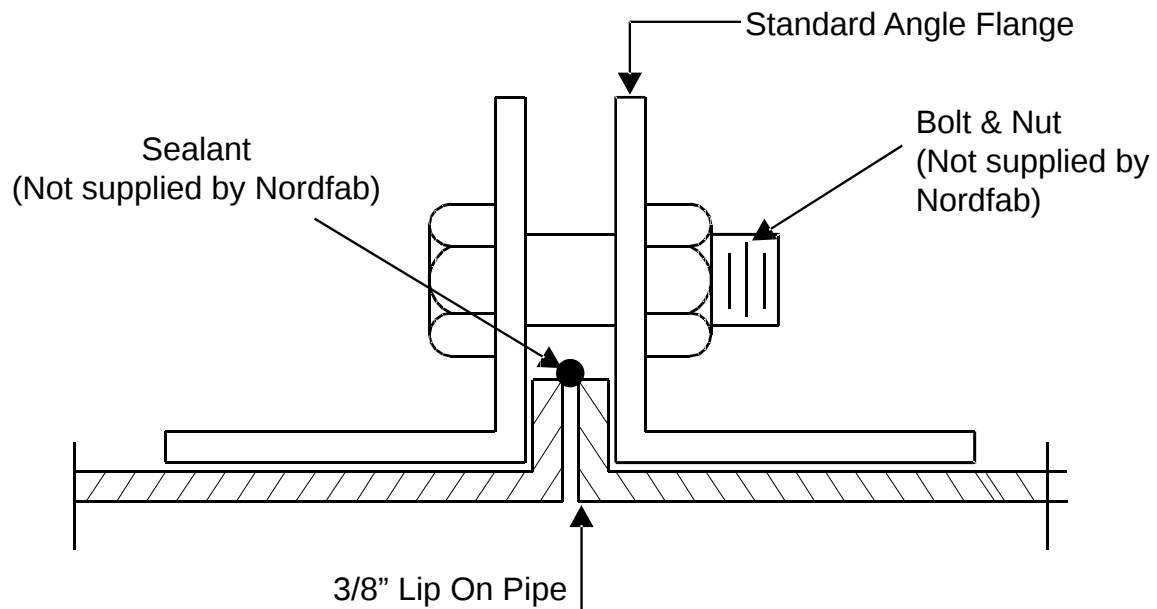
EXAMPLES OF VARIOUS FITTINGS AVAILABLE



INFORMATION NEEDED TO ORDER A CUSTOM FLANGE



FLANGE DUCT SPECIFICATION

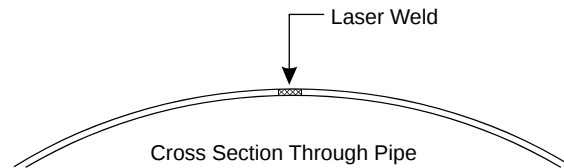


- A) "Flanged" = Material sheet blanks are 78.75" lg. and rolled with a longitudinal lock formed seam. An angle flange made from angle bar stock rolled on edge is placed on the end of the duct using a Van Stone Lip Connection as illustrated above. (See Nordfab Catalog for sizes)
- B) Refer to your local guidelines and codes for how ducting should be supported
- C) Duct diameters for FLANGE DUCT as follows:
3" through 40" available in 1" increments

EXAMPLES OF CONSTRUCTION METHODS

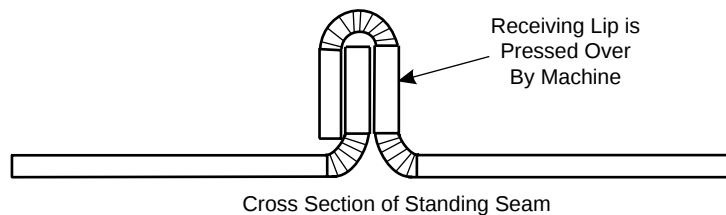
1. LONGITUDINAL LASER WELD SEAM FOR "Q-F" PIPE

* Applies to all straight duct up to 24", adapters, nipples, collars, and most elbows.
All Reno made elbows are supplied with standard seam - see figure 5 below



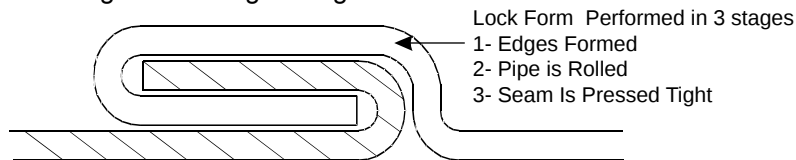
2. STANDING SEAM

* Applied to segmented elbows, offsets and end caps.



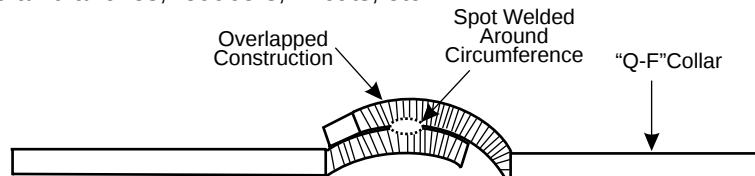
3. LONGITUDINAL LOCK FORM SEAM ON FLANGE PIPE

* Applies to all straight duct flanged lengths.



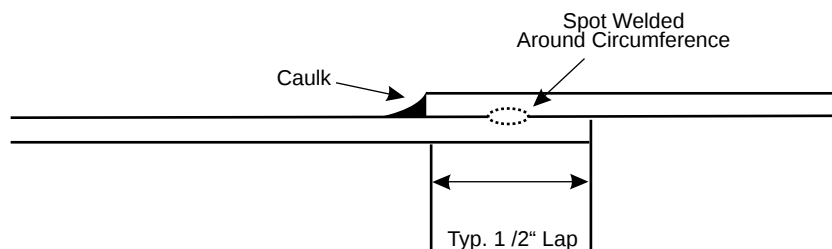
4. OVERLAPPED, SPOT WELDED SEAM CONSTRUCTION AND QF COLLAR CONNECTION

* Applies to all branches, reducers, in-cuts, etc.



5. STANDARD SEAM JOINING METHOD ON HOODS, BOXES, TRANSITIONS, AND SPECIALTY ITEMS

* Lapped, spot welded, and caulked.





THE WORLD'S FASTEST DUCTING

QUICK-FIT

SIZING ELBOWS & SPECIAL COMPONENTS

SIZING ELBOWS

The catalog lists the standard sizes and the standard gauges; however, NORDFAB also makes elbows in long radius and in heavier gauges. The elbows can be made in segments or can be made smooth walled. Pricing for the various sizes and gauges should be obtained by calling NORDFAB.

SPECIAL COMPONENTS

As with the elbows, NORDFAB is able to provide special hoods or special designed pieces for almost any dust collection application. To obtain help in design or pricing, call NORDFAB.

ADAPTING TO EXISTING SYSTEMS

There will be instances where the customer will desire to apply "QF" duct to an existing ducting system; NORDFAB makes adapters for this purpose. We can provide these in flange to "QF" or through simply supplying "raw to QF" adapters that can be attached to the end of existing spiral duct so that "QF" can be coupled to the duct.

CAULK SELECTION AVAILABLE ON ALL COMPONENTS

Temperature Rating:

250° F - Standard Caulk - 3M Scotch Seal Metal Sealant 2084 - Standard (contact your dealer for pricing and other options)

250° F - Optional Oil Mist - 3M 2084 Scotch Seal Metal Sealant

375 ° F - Optional Epoxy Caulk - 3M DP460

400° F - Optional RTV 100 Series, Mil-A-46106B Compliance, UL/FDA/NSF

500° F - Optional Permatex RTV Silicone Rubber Adhesive High Temperature Caulk - Red in color - 26C

Material Specifications:

Galvanized: ASTM A527 with a G-90 rating

500° F - Galvanized with little or no breakdown of zinc - zinc melting point is 740° F

500° F - Optional galvanized and seams solid welded

304SS: Finish meets ASTM A240

1100° F - 304SS bluing may occur at temperatures of 800° F

1100° F - Optional 304SS and seams solid welded

316SS: Finish meets ASTM A240

Note: For temperatures 250° F to 500° F, please request RTV High temp silicone caulk on components. Contact NORDFAB for adder.

Galvanized: Ducting will accommodate systems 0 to 500° F with little or no breakdown of the zinc coating - zinc melting point is 740° F.

304SS: Ducting will accommodate systems 500 to 1100° F with no problems. With temps above 800° F, a small amount of "bluing" may occur.

PAINTING GALVANIZED COMPONENTS

Step 1. Wash down all components with an industrial de-greaser, insuring that no oils or residues are left behind.

Step 2. Apply an epoxy primer in a light coating.

Step 3. For a final coat, apply an acrylic water base paint. (Example: Glidden Lifemaster)

ELBOWS

- A) Standard elbows will have a centerline radii of 1 x dia & 1.5 x dia as specified in catalog .Longer radius elbows are available upon request.
- B) Standard elbows 3" to 7" are pressed formed, 8" and larger are gored construction with a lock form standing seam every 15°. Gore type elbows are produced as follows:

ANGLE IN DEGREES

NUMBER OF GORES

15°

(2) 7.5° + 2 tangents

30°

(1) 15° + (2) 7.5° + 2 tangents

45°

(2) 15° + (2) 7.5° + 2 tangents

60°

(3) 15° + (2) 7.5° + 2 tangents

90°

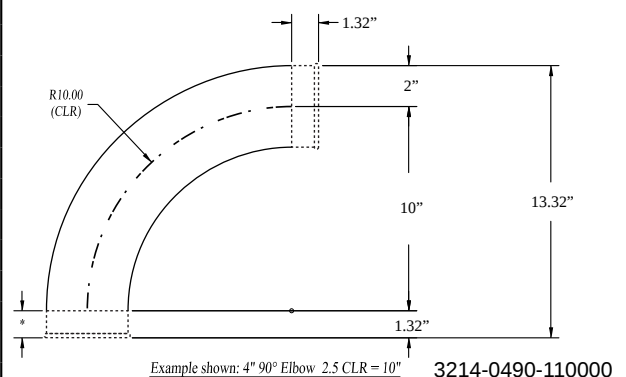
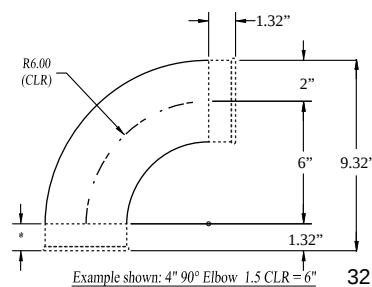
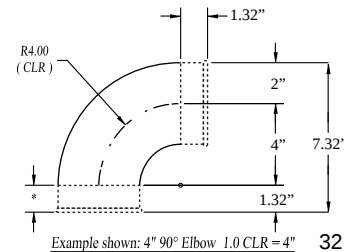
(5) 15° + (2) 7.5° + 2 tangents

ELBOW STANDARD AND UPGRADES FOR QF AND ANGLE FLANGE

NOTE: TUBED ELBOWS ARE AVAILABLE @ 14 GA
EXCEPT 3-4" GAL @ 16GA

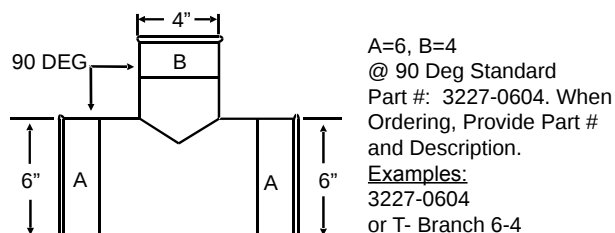
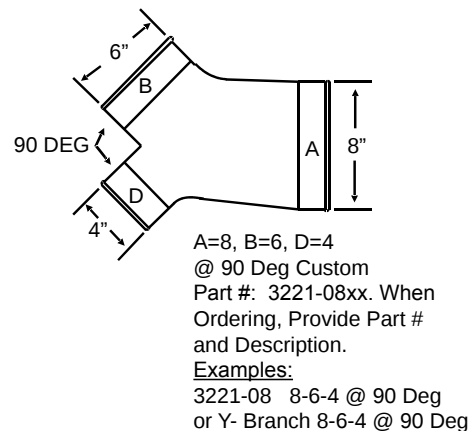
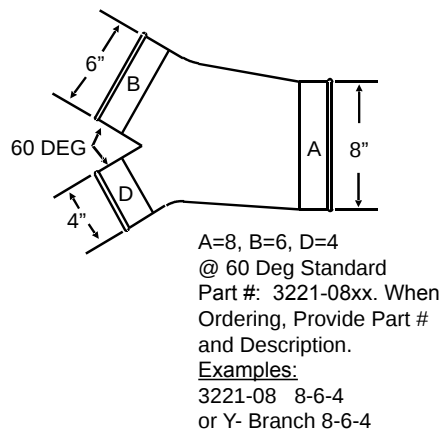
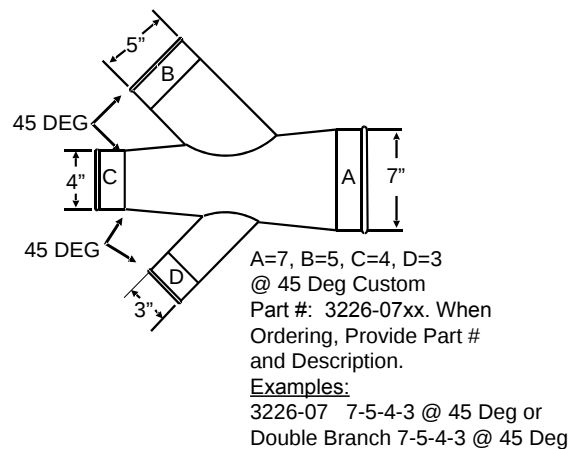
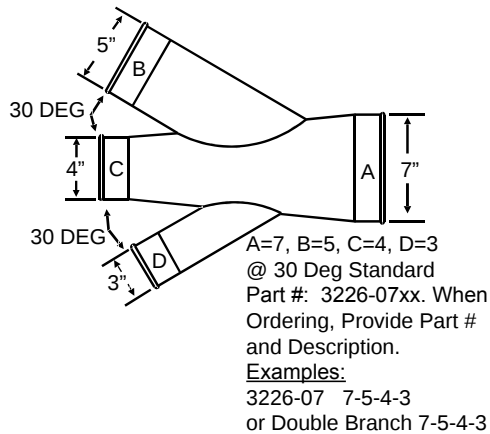
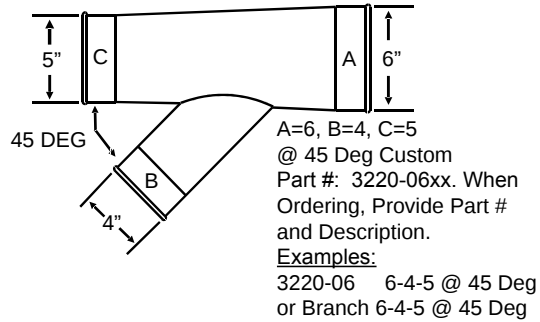
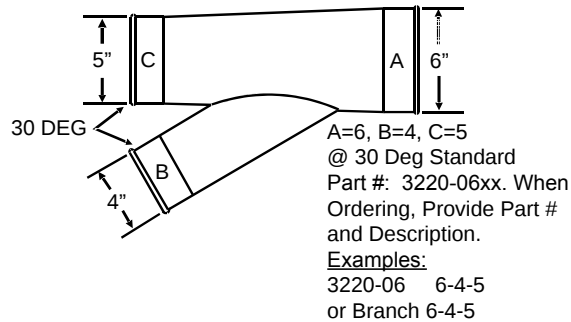
ELBOW DIAMETER	GALV STD GAUGE	SS STD GAUGE	ONE GAUGE UPGRADE	MAX HEAVY WALL STYLE ELBOW
3"	24	14 TUBED	N/A	N/A
4"	24	14 TUBED	N/A	N/A
5"	24	14 TUBED	N/A	N/A
6"	24	14 TUBED	N/A	N/A
7"	24	22	18	16
8"	22	22	18	16
9"	22	22	18	16
10"	22	22	18	16
11"	22	22	18	16
12"	22	22	18	16
13"	20	20	18	16
14"	20	20	18	16
15"	20	20	18	16
16"	20	20	18	16
17"	20	20	18	16
18"	20	20	18	16
19"	20	20	18	16
20"	20	20	18	16
21"	20	20	18	16
22"	20	20	18	16
23"	20	20	18	16
24"	20	20	18	16
26"	18	18	16	16
28"	18	18	16	16
30"	18	18	16	16
32"	18	18	16	16
34"	16	16	16	16
36"	16	16	16	16
38"	16	16	16	16
40"	16	16	16	16

4" GALV. ELBOW CLR EXAMPLE

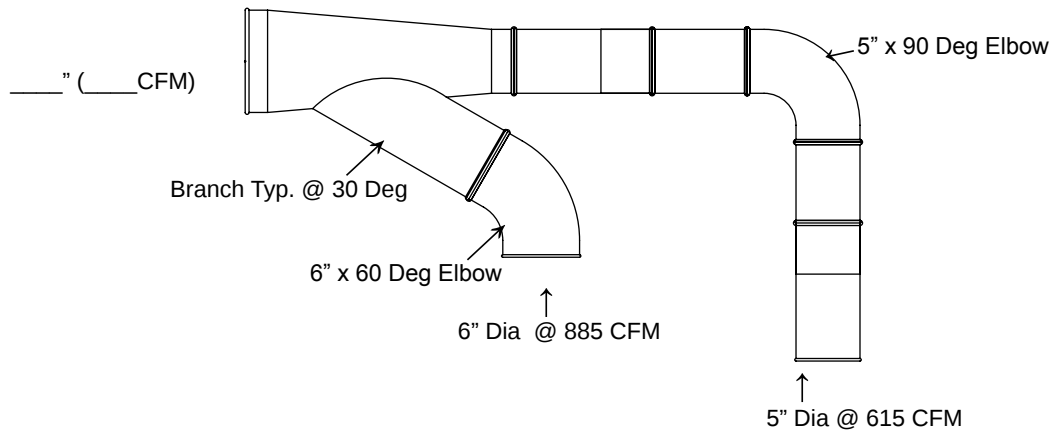


NOTE: Overall height calculation only works with 90° elbows.

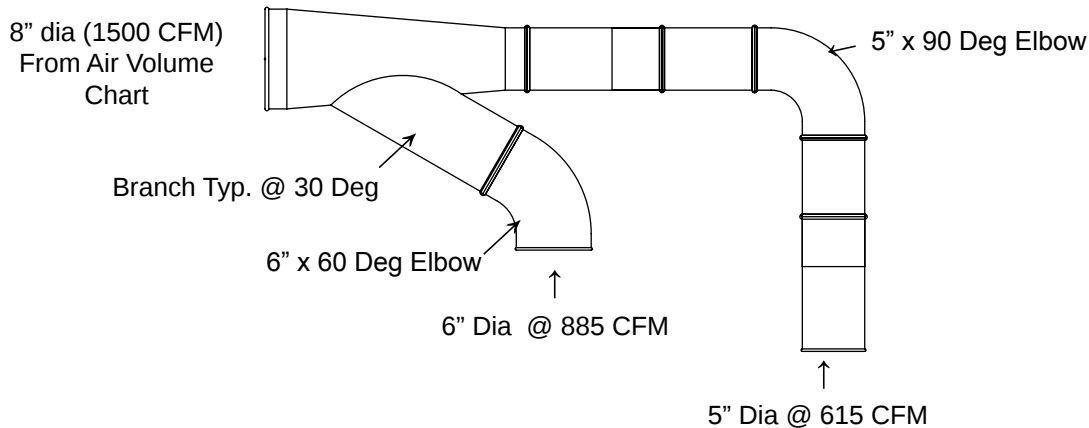
BRANCH STYLES



SIZING BRANCHES

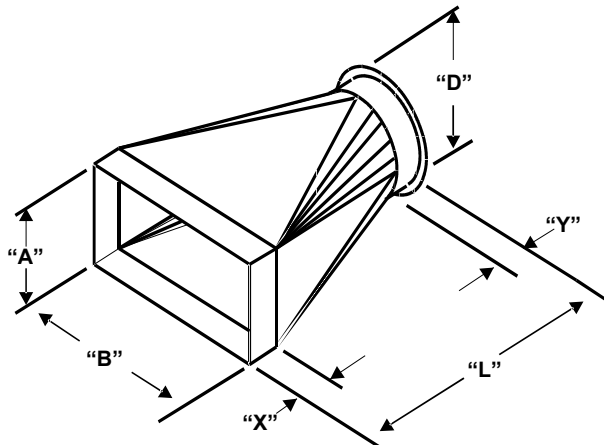


EXAMPLE: Always work from your machines back toward the filter. Suppose that you have a 5" drop that rises and runs back to join with a 6" drop as sketched above. What size branch will you need?

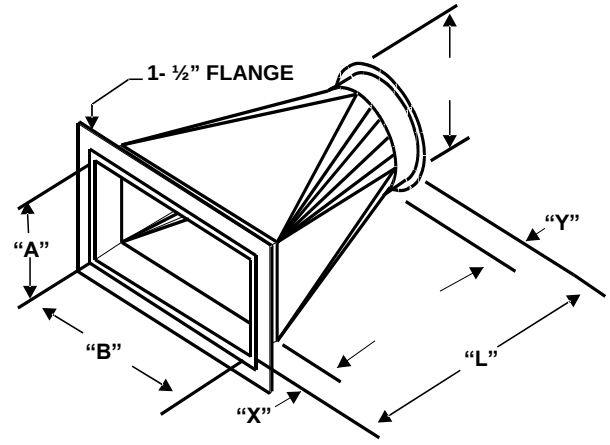


The 5" pipe carries 615 CFM at 4500 FPM, (See Chart). The 6" pipe will need 885 CFM at the same velocity (See Chart). Added together you have a total of (615 + 885) 1500 CFM coming together. Looking again at the chart under 4500 FPM, you find that 1500 CFM is not listed, but falls very close to the 1570 CFM listed for an 8" pipe. This indicates that the 5" joined to the 6" will require an 8" pipe to carry all of the material at the right velocity. The branch, therefore, will be 8" on the downstream end reducing down to a 5" with a 6" branching off of it. That is listed as a 8-6-5 branch.

TRANSITION STYLES



STYLE #1



STYLE #2

Built to your specifications. Please list all required dimensions and details.

- Specify Rectangle End: ☐ Angle Flange ☐ Flat Flange ☐ Raw End ID ☐ Raw End OD
- Flange Type: ☐ Angle Flange ☐ Flat Flange ☐ Sheet Metal
- Specify Round End: ☐ QF ☐ Angle Flange ☐ Flat Flange ☐ Hose Conn.
- ☐ Raw ID Or OD

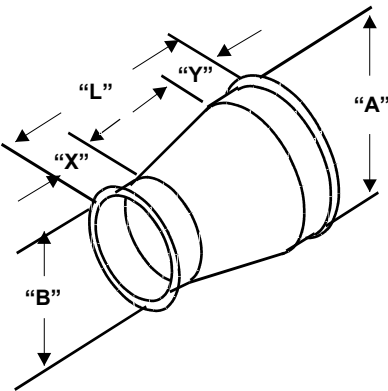
NOTE: If no hole pattern is supplied for flanges, they will be supplied "Blank" to be field drilled.

"L" = to the greater of B or D

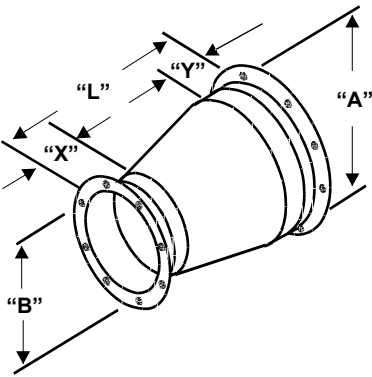
NOTE: Minimum L for Sq to Rd is $B \times 0.75$

Item #	Qty.	"D"	"A"	"B"	"X" Std 2"	"Y" Std 2"	"L"	Gauge	Flange Material	Flange Dwg	Special Notes

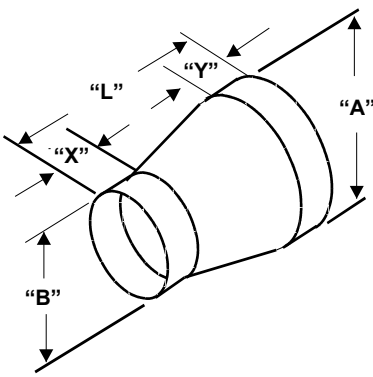
REDUCER STYLES



“Q-F STYLE”



“FLANGED STYLE”



“RAW END STYLE”

A) Reducers are produced by the following formula:

“QF” LENGTH = (A-B) + 6” [7” MIN]
“FL” LENGTH = (A-B) + 8” [9” MIN]

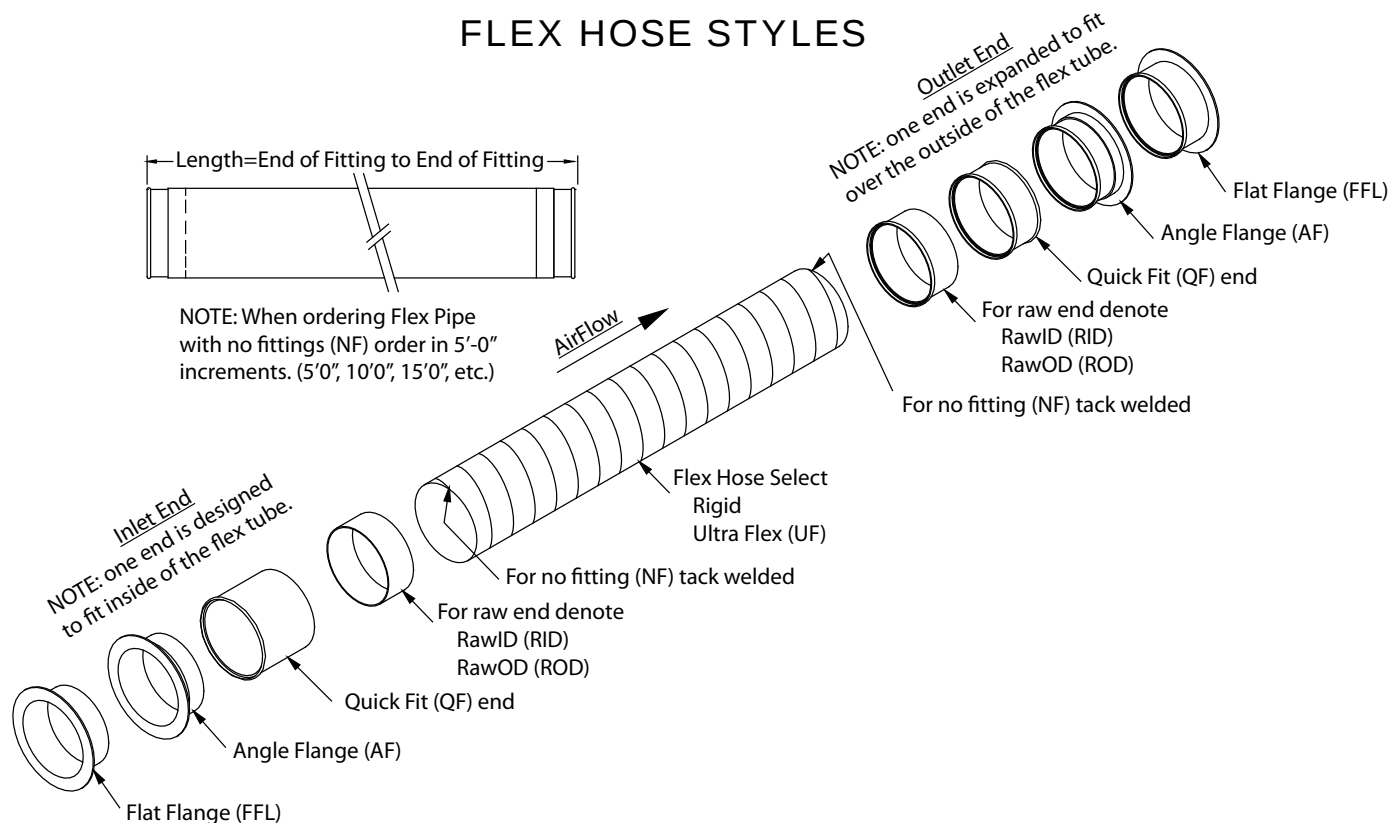
B) Standard material gauges as follows: (Heavier gauges available contact NORDFAB)

DIA.	GALV. GAUGE	SS GAUGE
4” - 12”	22	22
14” - 22”	20	20

NOTE: Any combination of the above style are available upon request. Please specify all the required dimensions and all reducer end configurations (Raw ID, Raw OD Style, QF Style, Flange Style, Etc.).

Item#	Qty	“A”	Style “Q-F” “Flange” “Raw”	“B”	Style “Q-F” “Flange” “Raw”	“L” (A-B+6)	“X” STD-2”	“Y” STD-2”	Part Gauge	Flange Material	Flange Dwg	Special Notes

FLEX HOSE STYLES



NOTES:

1. If no hole pattern is supplied for flanges, you will receive blank flanges (flanges without holes).
2. Any combination of the above style are available upon request. Please specify the inlet diameter, flex hose diameter, and outlet diameter.
3. Note the length is based on the flex hose being stretched out before cutting (not compressed).
4. Special Notes: SP=Spot Weld (Std), ST=Stitch Weld, SO=Solid Weld, BY=Buff Yes, BN=Buff No (Std), note other requirements.
5. Rigid and Ultra Flex hose is produced in 5' lengths in diameters 7" and above.

Item #	Inlet Dia.	Inlet End Style (QF, NF, AF, FFL, RID, ROD)	Flex Dia.	Flex Hose (RF, UF)	Outlet Dia.	Outlet End Style	Length (in.)	Material (G, SS)	Drawing (Y/N)	Special Notes

RUBBER & URETHANE FLEXIBLE HOSE

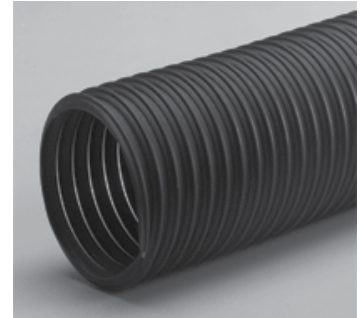
- Wide temperature range
- Versatility
- Better UV, moisture and weathering resistance
- Will not set to the shape of the box when packed
- Outstanding flex resistance
- Better abrasion resistance
- Better looking product

BLACK RUBBER HOSE



Size Range (in).....stock 2" to 24"
Standard Colors..... black
Temp Range (°F) -60° to 275°
Wall Thickness..... 0.030"

- Medium weight thermoplastic rubber hose reinforced with a spring steel wire helix
- Good abrasion resistance
- Designed for applications with wide temperature ranges
- Great moisture & UV resistance
- Smooth interior assures minimal friction loss & efficient air flow
- Available in metric sizes, consult sales team on pricing & minimums

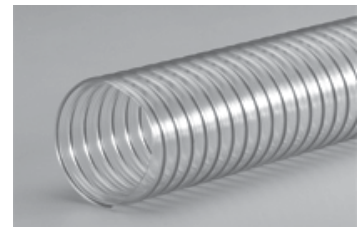


CLEAR RUBBER HOSE



Size Range (in).....stock 2" to 24"
Standard Colors..... clear
Temp Range (°F) 20° to 160°
Wall Thickness..... 0.028"

- Medium weight PVC hose reinforced with a spring steel wire helix
- Good for positive pressure applications
- Great compressibility
- Construction allows for value packaging by reducing the box size, reducing warehouse space & shipping costs
- Ideal for dust and woodworking applications
- Excellent chemical & moisture resistance*
- Manufactured with FDA acceptable materials

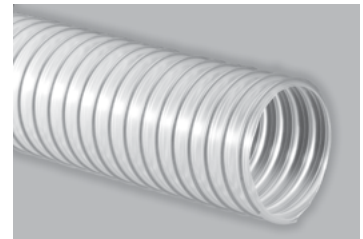


CLEAR STATIC DISSIPATIVE URETHANE HOSE



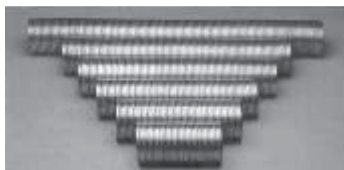
Size Range (in).....stock 2" to 12"
Standard Colors..... clear
Temp Range (°F) -65° to 225°
Wall Thickness..... 0.030"

- Medium weight static dissipative polyurethane hose reinforced with a bronze coated spring steel wire helix
- Reduces static buildup in material handling applications
- Great abrasion resistance & high tear strength
- Superior chemical resistance*
- Excellent flexibility
- Designed for applications with wide temperature ranges
- Manufactured with FDA acceptable materials



* May not be acceptable for all chemical applications. Contact your Nordfab Sales Representative for more information.

RIGID METAL FLEX HOSE



Part # 3281-XX00

Inside Dia. (Inches)	Approx. Outside Dia. (Inches)	Min. CLR Bend Radius	Approx. Weight Per Foot (LBS)
1 1/2	1 3/4	12.0	1.00
2	2 1/4	16.0	1.30
2 1/2	2 3/4	18.0	1.60
3	3 1/4	22.0	2.00
3 1/2	3 3/4	25.0	2.30
4	4 1/4	29.0	2.60
5	5 1/4	34.0	3.00

MEDIUM-HEAVY GALVANIZED OR STAINLESS

Inside Dia. (Inches)	Approx. Outside Dia. (Inches)	Min. CLR Bend Radius	Approx. Weight Per Foot (LBS)
6	6 1/4	44.0	3.60
7	7 1/4	50.0	4.20
8	8 1/4	56.0	4.70
9	9 1/4	61.0	5.30
10	10 1/4	65.0	5.90
12	12 1/4	76.0	7.00
14	14 1/4	106.0	8.10

.017- .020 Strip Thickness

Part # 3283-XX00

ULTRA FLEX METAL HOSE

Inside Dia. (Inches)	Min. CLR Bend Radius	Approx. Weight Per Foot (LBS)
3	21	2.15
4	30	2.65
5	35	2.95

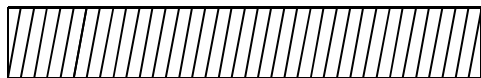
Manufactured in sizes ranging from 3" dia thru 8" dia of stainless steel or galvanized. Some Applications would include Air Handling, and Dust Collection.

Inside Dia. (Inches)	Min. CLR Bend Radius	Approx. Weight Per Foot (LBS)
6	43	3.55
7	52	4.15
8	60	4.55

Square Lock:
Specification: ID Tolerance: +1/4 " , - 0
3"-6" manufactured out of .019 material
7"-8" manufactured out of .024 material

RIGID AND ULTRA FLEX STEEL HOSE CONFIGURATIONS

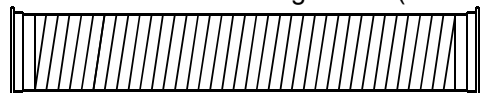
Steel Flex Hose With Raw Ends (Standard)



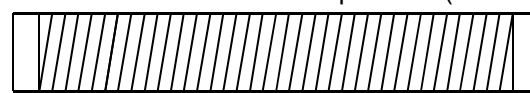
Steel Flex Hose With Q-F Ends (Custom)



Steel Flex Hose With Flange Ends (Custom)

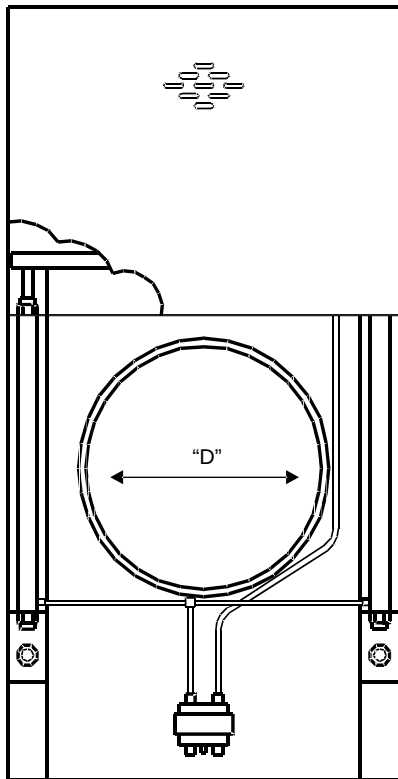


Steel Flex Hose With Raw Pipe Ends (Custom)

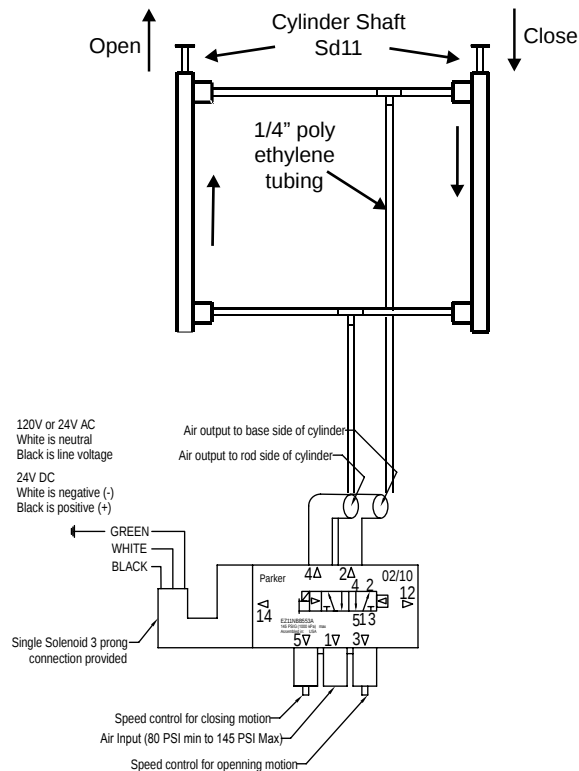


NOTE: When ordering steel hose, you have the option of having the hose fitted with several different style end fittings in any number of combinations. Raw hose is priced per foot, and sold only in 5 Ft. increments on 7" and above. 6" and below can be sold in any length. Contact your sales rep for pricing on specific lengths and end fittings.

NFES AUTOMATIC BLAST GATE



Wiring Diagram



DESCRIPTION:

Automatic energy saving blast gates operated by double-acting compressed air cylinders. Cylinders are controlled by electrically-connecting solenoid to machines or remote switch. Gates are constructed with a special sealing device that reduces air loss and friction in operation.

APPLICATIONS:

Gates are used as energy-saving devices for industrial dust extraction where extraction is not always needed on a constant basis or where manual control needs to be eliminated.

AVAILABILITY:

Material: GALVANIZED or STAINLESS STEEL

Sizes in inch: 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20, 22, 24, 26

One cylinder Two cylinder

Part numbers: 3245-XX00 (where XX is the diameter)

Standard Requirements: 120 Volt power source and 80 psi minimum air pressure horizontally mounted.
240, 24 and 12 volt AC. 24 and 12 volt DC models also available upon request.



THE WORLD'S FASTEST DUCTING

QUICK-FIT

NFES AUTOMATIC BLAST GATE

Temperature Rating:

120°F	Solenoid (solenoid is on the outside of the housing and may handle higher duct temperatures due to its location)
140°F	Poly tube (poly tube is on the outside of the housing and may handle higher duct temperatures due to its location)
158°F	Gasket Spring (intermittent to 250°F)
165°F	Cylinder
194°F	3M #540 Polyurethane Sealant (collar adhesive)
200°F	UHMW Seal
250°F	Optional Oil Mist - 3M 2084 Scotch Seal Metal Sealant
375°F	Optional Epoxy Caulk - 3M DP460
500°F	Galvanized Parts: with little or no breakdown of zinc - zinc melting point is 740°F
1100°F	304SS: bluing may occur at temperatures of 800°F and above

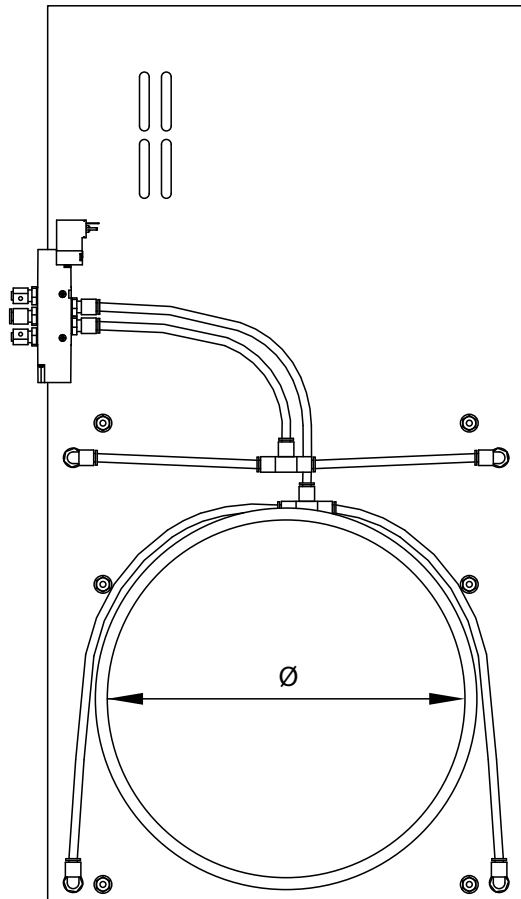
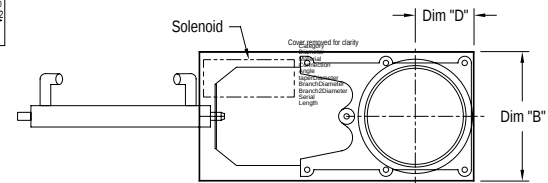
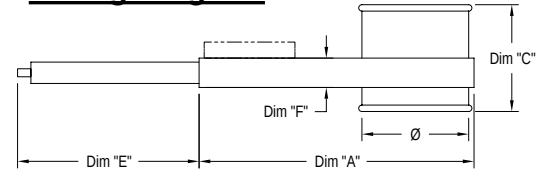
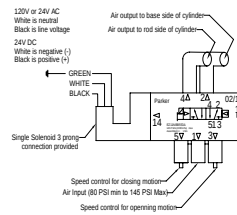
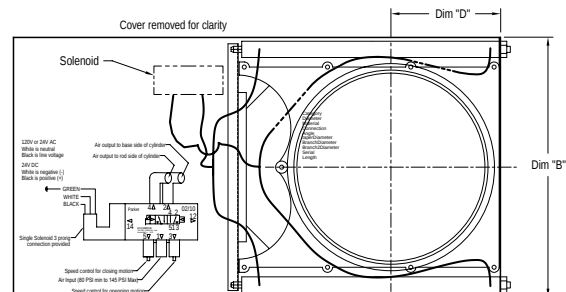
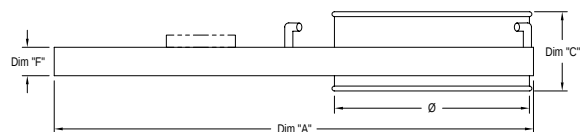
Material Specifications:

Galvanized Body:	Galvanized is ASTM A527 with a G-90 rating
304SS Body:	finish meets ASTM A240
314SS Body:	Finish meets ASTM A240
UHMW Seal:	Ultra High Molecular Weight
Gasket Spring:	Poron® Cellular Urethane material
Cylinders:	Crimped round body, 304 Stainless Steel tube only, Aluminum end caps, Non-repairable Bore size is 1-1/16" Ports are 1/8" NPT Standard Piston rod diameter is 0.312" Piston rod material: 304 Stainless steel only Single acting end Standard fluid: Filtered air Operating medium: Pneumatic, 250 PSI maximum (normal operating pressure is (80 PSI minimum)
Poly tube:	1/4" OD x 0.040 wall poly tube, 120 PSI, Grade E5 LIP, Type 1
Solenoid:	0.8Cv flow characteristics 1/8" NPT ports Solenoid is constant pressure

Structural Integrity:

Automatic, energy saving blast gates are operated by double acting compressed air cylinders
Cylinders are controlled by electrically-connected solenoid to machines or remote switch
Standard hookup is 120 volt AC
Optional: 24 volt AC (Must be stated on PO)
Optional: 24 volt DC (Must be stated on PO)
Single cylinder gates: 3" up to 8" diameters
Double cylinder gates: 9" and up diameters (second cylinder depicted by phantom lines)

SD AUTOMATIC BLAST GATE

Wiring DiagramSingle CylinderDouble Cylinder**DESCRIPTION:**

Automatic standard duty blast gates operated by double-acting compressed air cylinders. The SD version is a less expensive alternative to the NFES gate due to omission of the seals. Cylinders are controlled by electrically-connecting solenoid to machines or remote switch.

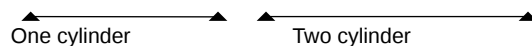
APPLICATIONS:

Gates are used as energy-saving devices for industrial dust extraction where extraction is not needed on a constant basis and where manual control needs to be eliminated.

AVAILABILITY:

Material: GALVANIZED

Sizes in inch: 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20, 22, 24



Part numbers: 3242-XX00 (where XX is the diameter)

Standard Requirements: 120 Volt power source and 80 psi minimum air pressure horizontally mounted.
240, 24 and 12 volt AC. 24 and 12 volt DC models also available upon request.



THE WORLD'S FASTEST DUCTING

QUICK-FIT

SD AUTOMATIC BLAST GATE

Temperature Rating:

120°F	Solenoid (solenoid is on the outside of the housing and may handle higher duct temperatures due to its location)
140°F	Poly tube (poly tube is on the outside of the housing and may handle higher duct temperatures due to its location)
165°F	Cylinder
194°F	3M #540 Polyurethane Sealant (collar adhesive)
250°F	Optional Oil Mist - 3M 2084 Scotch Seal Metal Sealant
375°F	Optional Epoxy Caulk - 3M DP460
500°F	Galvanized Parts: 18ga or thicker - cannot be changed
1100°F	304SS: 18ga or thicker - cannot be changed - bluing may occur at temperatures of 800°F and above

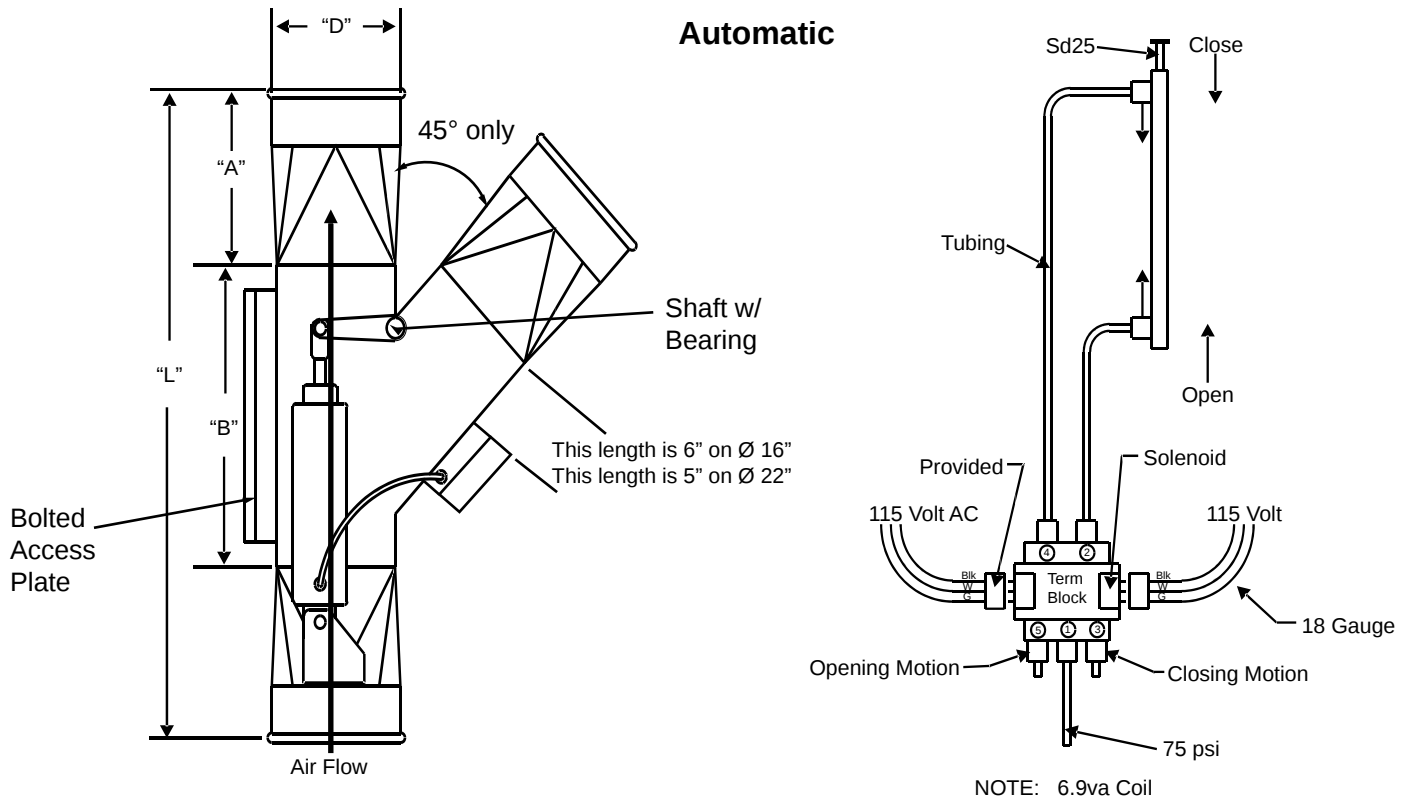
Material Specifications:

Galvanized Body:	Galvanized is ASTM A527 with a G-90 rating
304SS Body:	Stainless is 304 with a finish meeting ASTM A240 - Keeps alum cast housing & replaces galv'd parts with 304SS
316SS Body:	Stainless is 316 with a finish meeting ASTM A240 - Keeps alum cast housing & replaces galv'd parts with 316SS
Gasket Spring:	Poron® Cellular Urethane material
Cylinders:	Crimped round body, 304 Stainless Steel tube only, Aluminum end caps, Non-repairable Bore size is 1-1/16" Ports are 1/8" NPT Standard Piston rod diameter is 0.312" Piston rod material: 304 Stainless steel only Single acting end Standard fluid: Filtered air Operating medium: Pneumatic, 250 PSI maximum (normal operating pressure is (80 PSI minimum)
Poly tube:	1/4" OD x 0.040 wall poly tube, 120 PSI, Grade E5 LIP, Type 1
Solenoid:	0.8Cv flow characteristics 1/8" NPT ports Solenoid is constant pressure

Structural Integrity:

Automatic, energy saving blast gates are operated by double acting compressed air cylinders. Cylinders are controlled by electrically-connected solenoid to machines or remote switch. Standard hookup is 120 volt AC
Optional: 24 volt AC (Must be stated on PO)
Optional: 24 volt DC (Must be stated on PO)
Single cylinder gates: 3" up to 8" diameters
Double cylinder gates: 9" and up diameters (second cylinder depicted by phantom lines)

DIVERTER VALVE



DESCRIPTION:

Highly efficient, economical method of diverting flow of material or air. Designed with Q-F or flanged, manual, or air operated.

APPLICATIONS:

Diverter valves are used for diverting material or air to one of two possible directions at a time.

AVAILABILITY:

Material: BLACK METAL or STAINLESS STEEL 3/16" thick

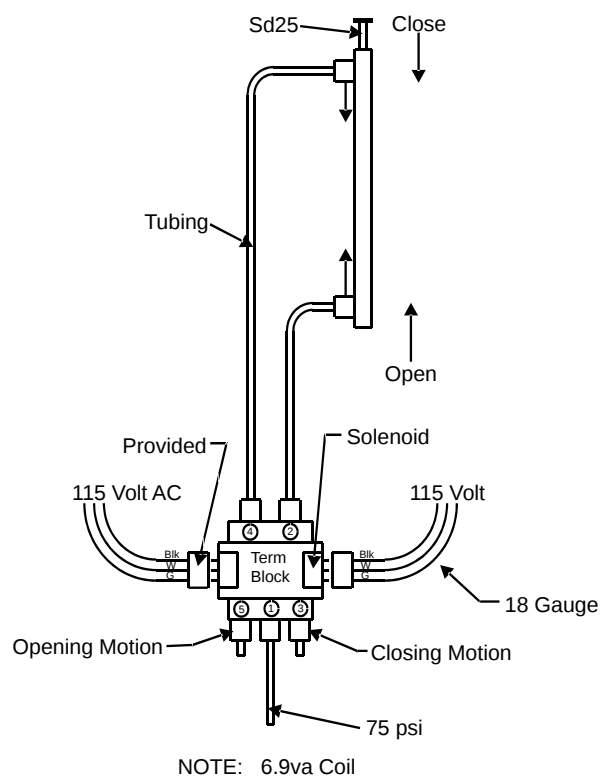
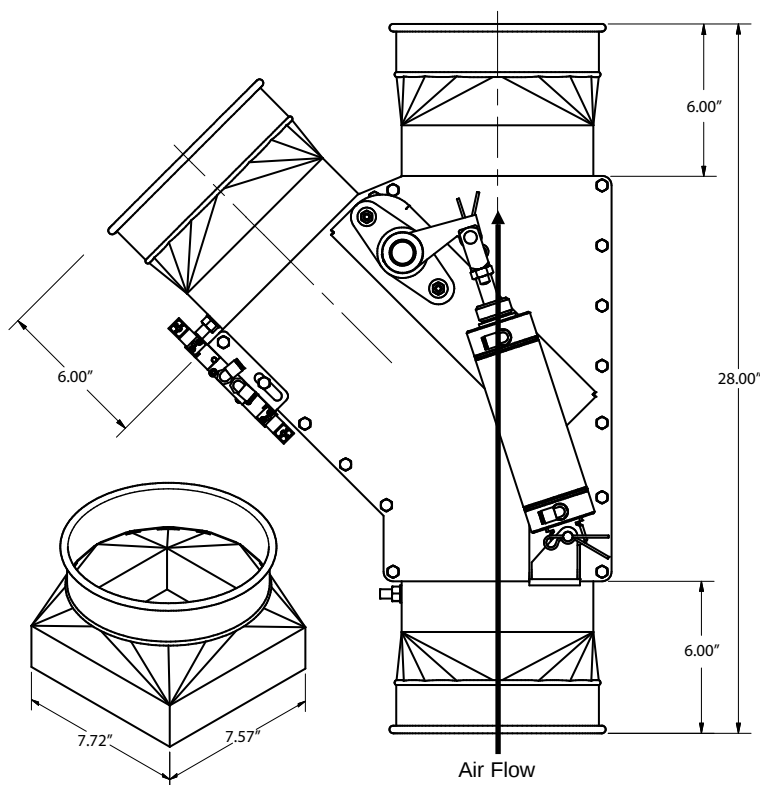
Sizes in inch: 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 22, 24
Larger sizes available upon request.

Please NOTE: 45 lateral angle only

Part numbers: 3235-XX00 for manual (where XX is the diameter)
3236-XX00 for automatic, PLUS read "Special".

Standard Requirements: 120 Volt power source and 75 psi minimum air pressure.
240, 24 and 12 volt AC as well as 24 and 12 volt DC models are available upon request.

SD DIVERTER VALVE



DESCRIPTION:

Highly efficient, economical method of diverting flow of material or air. Designed with Q-F or flanged, manual, or air operated. Lighter weight than our heavy duty diverter valve.

APPLICATIONS:

Diverter valves are used for diverting material or air to one of two possible directions at a time.

AVAILABILITY:

Material: GALVANIZED or STAINLESS STEEL, 14ga construction

Sizes in inch: 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Larger sizes available upon request.

Please NOTE: 45 lateral angle only

Part numbers: 3233-XX00 for manual (where XX is the diameter)
3234-XX00 for automatic, PLUS read "Special".

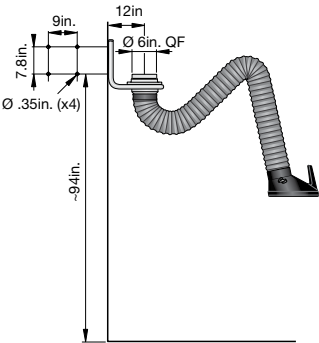
Standard Requirements: 120 Volt power source and 75 psi minimum air pressure.
240, 24 and 12 volt AC as well as 24 and 12 volt DC models are available upon request.

TDH Fume Arm



Specially designed for working environments with fumes, vapors or non-explosive dust. Typical workplaces are the metal fabrication industry or other types of industries where extraction is needed. The applications can be welding, grinding, or other industrial processes where an easily positioned arm is required. The product is equipped with a damper in the hood as standard.

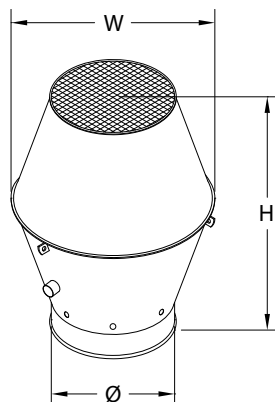
- A swivel allows the product to rotate 360°.
- The arm is flexible in all directions and simple to position.
- The product is equipped with a damper in the hood as standard.
- The hood on all models can be tilted in all directions.



Description	Working range, ft	Airflow, CFM	Connection Ø, in	Max. fume temperature, °F	Noise level at hood, dB(A)	Weight, lbs
TDH Fume Arm 6.5 ft	6.5	412-589	6	158	63-75	24
TDH Fume Arm 10 ft	10	412-589	6	158	63-75	28
TDH Fume Arm 13 ft, vertical	13	412-589	6	158	63-75	35
TDH Fume Arm 13 ft, horizontal	13	412-589	6	158	63-75	35

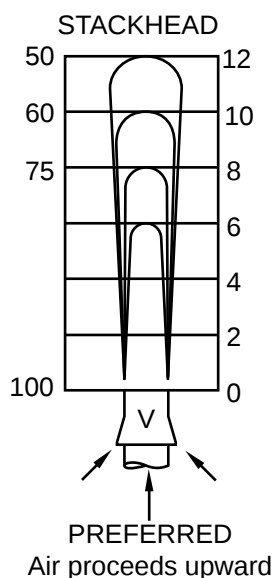
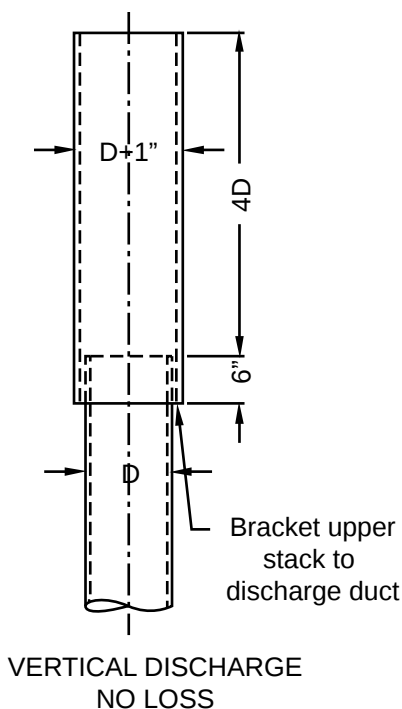
JET CAP

Ø	PART NO.	ENDS	W (inches)	H (inches)
6"	3258-0600	QF	10.12	14.40
8"	3258-0800	QF	13.25	18.40
10"	3258-1000	QF	16.50	22.40
12"	3258-1200	QF	20.00	27.00
13"	3258-1300	QF	21.50	30.00
14"	3258-1400	QF	23.12	32.80
15"	3258-1500	QF	24.50	34.00
16"	3258-1600	QF	26.50	36.40
17"	3258-1700	QF	27.70	38.00
18"	3258-1800	QF	29.50	40.00
20"	3258-2000	QF	32.50	44.40
22"	3258-2200	QF	35.40	47.50
24"	3258-2400	QF	38.60	51.50
26"	3258-2600	FLANGE	42.20	55.00
28"	3258-2800	FLANGE	45.20	59.00
30"	3258-3000	FLANGE	48.20	63.00
32"	3258-3200	FLANGE	51.20	67.00
34"	3258-3400	FLANGE	54.60	71.00
36"	3258-3600	FLANGE	58.20	74.70
38"	3258-3800	FLANGE	61.20	79.00
40"	3258-4000	FLANGE	64.20	83.00



- Prevents rain from entering duct work
- Inner funnel piece allows rain to drain out of ductwork even when system is not running
- Has three angle brackets for guide wire attachment
- Installs In Seconds with Standard Q-F Clamp

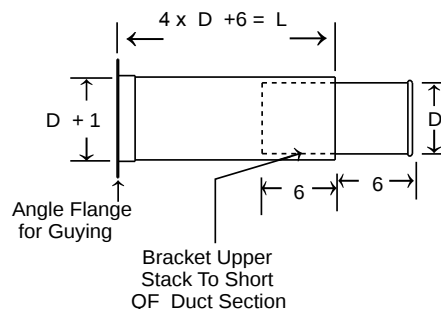
NO-LOSS STACKHEAD



Angle Flange used for
securing with guyed wires



QF Connection

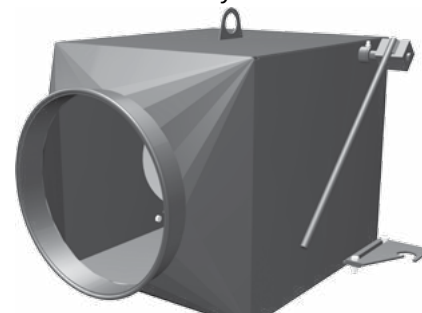


Recommended Industrial Ventilation Guidelines

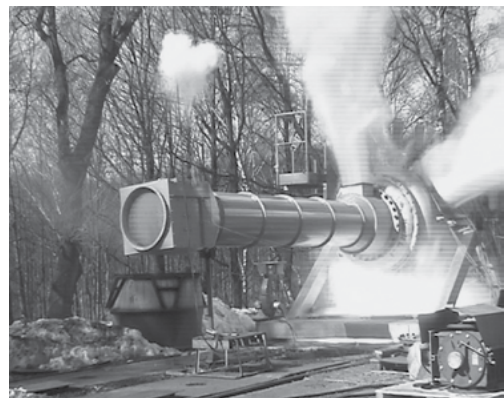
Explosion Isolation Flap

The Standards

Various NFPA standards require that a dust collection system has a means of preventing the transmission of energy from a fire or explosion to the building/work area. Through extensive testing by a third party testing facility, Nordfab has developed the Explosion Isolation Flap (EIF) type CARZ to be installed upstream of the dust collector.



Without EIF



With EIF

How it works

Under normal operation the flap will open as the downstream air moving device generates a flow in the ductwork. Should an explosion happen in the downstream equipment - like a dust collector - a pressure front develops in the ductwork within milliseconds and due to the design of the EIF, the internal flap will be forced closed and seal off the approaching flame front. This prevents glowing embers and burning material from entering into upstream equipment and spaces.

The Design

The design of the EIF is critical as the flap must function in milliseconds and therefore must be of light construction but must be strong enough to withstand the explosion pressure.

Many full scale tests were performed to arrive at the proper design and assure proper function.

The Tests

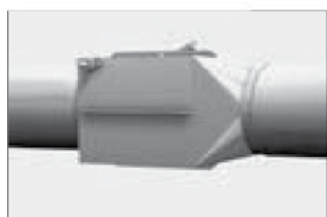
Since the EIF is a safety device, Nordfab submitted the EIF to rigorous testing by an accredited testing facility in accordance with 94/9/EC Directive.



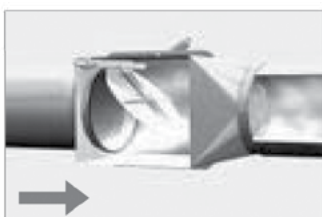
Label: ATS.096 CARZ (0120-0500) CE1180  D St1
Label: ATS.098 CARZ (0560-01000)

The marking is based on product certification by N.B. 1026.

The certificates allow max P_{red} 0.5 bar pressure resistance for sizes dia 22" (560mm) and smaller. Sizes 630mm-1000mm: 0.30 bar



Normal Operation



Explosion/deflagration



Application:

Material Types: Dry Dusts (not designed for combustible gas and vapors and hybrid mixtures of these substances.)

Kst Value of Dust < 200 Bar-M / Sec
NOT SUITABLE for greater than ST1 dust.

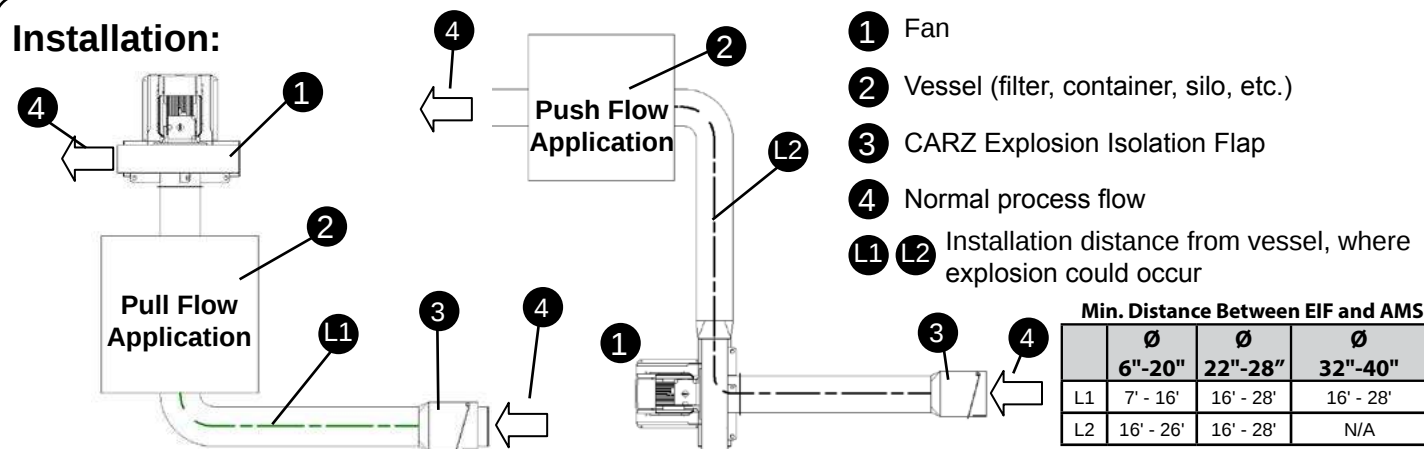
Transport Medium: Standard Air

Air Velocity In the Device: > than the minimum transport velocity of the conveyed dust.

Design conditions for ductwork and Air Material Separator
(Dust Collector)

EIF Designed for Max. Reduced Pressure P_{red}	
Size	P_{red}
CARZ 6"-22"	0.5 bar
CARZ 24"-40" AF	0.3 bar

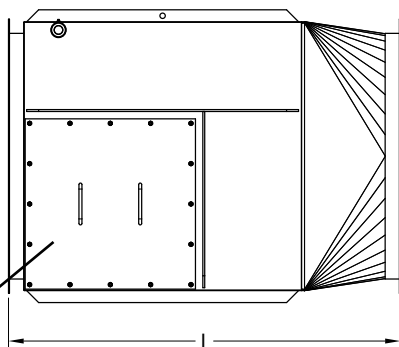
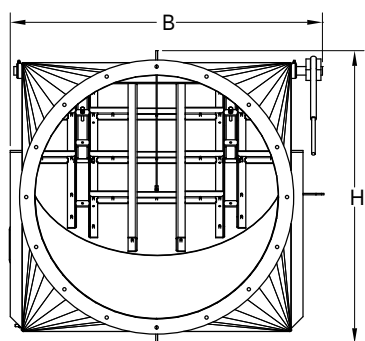
Installation:



Can only be mounted in the horizontal position

KST verification form required / Lead time is 25 working days after receipt.

Dimensions:



Inspection door

Actual diameter	Length (L)	Body (B)	Weight (lbs)
6"	19 1/4"	16 7/8"	29
7"	20 1/8"	17 5/8"	35
8"	21"	18 7/16"	42
10"	23"	20 7/16"	44
12"	25 1/2"	23"	60
14"	27"	24 3/8"	73
16"	29"	26 3/8"	93
18"	31"	28 3/8"	99
20"	33"	30 1/4"	108
22"	42 1/4"	32"	176
24" AF	44 7/16"	34 3/4"	229
28" AF	48"	38"	267
32" AF	51 5/8"	41 1/2"	309
36" AF	55 1/2"	45 3/8"	353
40" AF	59 1/2"	49 3/8"	397

Above dimension chart is for general information. Please consult factory for dimensions based on the connection options

INSTALLING TAP-IN OR CUT-IN

STEP 1:

Temporarily place the in-cut on the main trunk in the required position, and while holding in place, place hand inside of branch and trace the interior of the branch on trunk line where it needs to be cut out.

STEP 2:

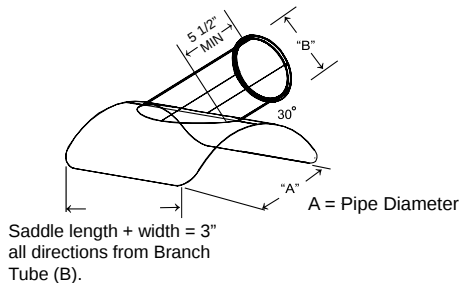
Take down in-cut and drill a starter hole in the main trunk along the line traced from the branch. Then using metal snips or a reciprocating saw, cut out metal piece that has been traced. File or grind any sharp edges to insure efficient flow.

STEP 3:

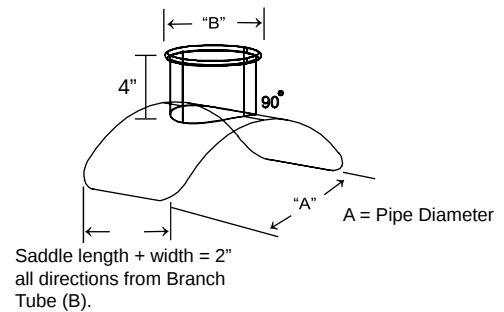
Now use an industrial strength silicone sealant to seal between in-cut base and main trunk.

STEP 4:

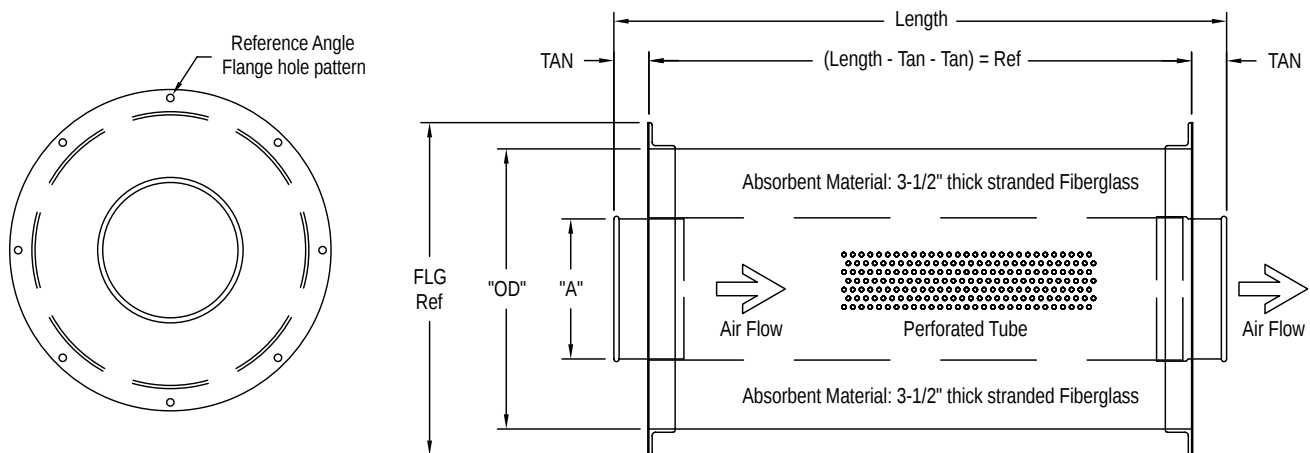
Use small sheet metal screws or a banding type clamp material to secure in-cut to the main trunk line.



NOTE: Gauge based on "A"



INLINE SILENCER



1. Silencer to be placed in process line down stream of fan or cyclone collector.
2. Silencer housing constructed of 18-20 gauge galvanized metal.
3. Silencer should be properly supported in process line.
4. NORDFAB reserves the right to modify the design of the silencer without notice.
5. Efficiencies of Silencer have not been tested, nor are there any guarantees of sound level attenuation.



QUICK-FIT

THE WORLD'S FASTEST DUCTING

INLINE SILENCER (cont.)

"A"	"OD"	PART NO.	ENDS	LENGTH (C)	GAUGE HOUSING	WEIGHT (GALV)
3"	12"	3106-0300	QF	28"	20	10.00
4"	12"	3106-0400	QF	28"	20	21.00
5"	13"	3106-0500	QF	28"	20	35.00
6"	14"	3106-0600	QF	30"	20	43.00
7"	15"	3106-0700	QF	30"	20	54.00
8"	16"	3106-0800	QF	35"	20	65.00
9"	17"	3106-0900	QF	40"	20	76.00
10"	18"	3106-1000	QF	48"	20	89.00
12"	20"	3106-1200	QF	54"	20	104.00
14"	22"	3106-1400	QF	60"	20	122.00
16"	24"	3106-1600	QF	64"	20	176.00
18"	26"	3106-1800	QF	68"	20	225.00
20"	28"	3106-2000	QF	72"	20	265.00
22"	30"	3106-2200	QF	76"	18	310.00
24"	32"	3106-2400	QF	80"	18	406.00
26"	34"	3106-2600	FLANGE	80"	18	546.00
28"	36"	3106-2800	FLANGE	80"	18	600.00
30"	38"	3106-3000	FLANGE	80"	18	678.00
32"	40"	3106-3200	FLANGE	80"	18	700.00
34"	42"	3106-3400	FLANGE	80"	18	770.00
36"	44"	3106-3600	FLANGE	80"	18	897.00
38"	46"	3106-3800	FLANGE	80"	18	974.00
40"	48"	3106-4000	FLANGE	80"	18	1,118.00

Material Specifications:

Galvanized: ASTM A527 with a G-90 rating
 Perforated Tube: ASTM A653
 304SS: Finish meets ASTM A240
 316SS: Finish meets ASTM A240

Absorbent Material:

3-1/2" thick fiberglass stranded bats

Structural Integrity:

Outer Tube: Longitudinal seam is laser welded to 15" diameter pipe and lock formed 16" and greater

Air flow directional:

Yes - arrows are painted on product for installation.

Special Notes:

Standard QF end can be changed to RawID, RawOD, No Fitting, Hose Adapter, Flat Flange, and Angle Flange.

SLIDING ACCESS PANEL MIST RECYCLER



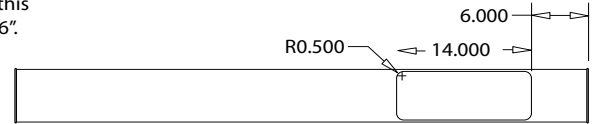
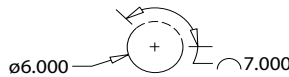
QUICK-FIT
THE WORLD'S FASTEST DUCTING



Closed position Partially Open Fully Open

SLIDING ACCESS PANEL

The 7" dimension of the opening is measured around the pipe as shown. Because of this panels are not available under 6".

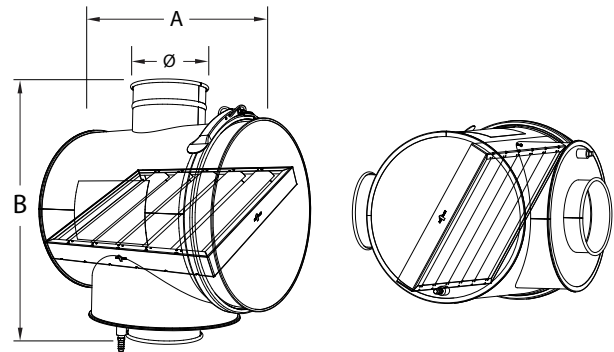


Ø	Pipe Length/Slide Length	Access Hole	Part Number
6"-8"	59.25 inches/18 Inches	7" x 14"	3103-XX00-100000
9"-24"	58.75 inches/18 Inches	7" x 14"	3103-XX00-100000

The SAP consists of a standard length of QF pipe with an access opening laser cut into it, a pre-mounted 18-inch sleeve with two clamps and two rubber o-rings that covers and allows access.

MIST RECYCLER

Ø	PART NO.	GAUGE	(A) INCH	(B) INCH	BAFFLE SIZE	WEIGHT (GALV)
3"	3192-0300	22	14.00	18.00	10" x 14"	11.10
4"	3192-0400	22	14.00	18.00	10" x 14"	11.25
5"	3192-0500	22	14.00	18.00	10" x 14"	11.45
6"	3192-0600	22	14.00	18.00	10" x 14"	11.60
7"	3192-0700	22	20.00	24.00	16" x 20"	22.70
8"	3192-0800	22	20.00	24.00	16" x 20"	22.85
9"	3192-0900	22	20.00	24.00	16" x 20"	23.10
10"	3192-1000	22	20.00	24.00	16" x 20"	23.30
11"	3192-1100	22	20.00	28.00	20" x 20"	32.65
12"	3192-1200	22	20.00	28.00	20" x 20"	32.85



DESCRIPTION:

The Nordfab Mist Recycler (MR) can extend filter media life, reduce maintenance costs and decrease issues caused by excessive fluids in the system..

APPLICATIONS:

Mist recyclers are used to extract mist particles from the air to be recycled back to the machine. The baffle acts as a system prefilter and mechanically extracts droplets and mist from the airstream. Liquid collected in the MR drains into a sump and is returned to the machine via a drain port.

AVAILABILITY:

Material: GALVANIZED OR SS304

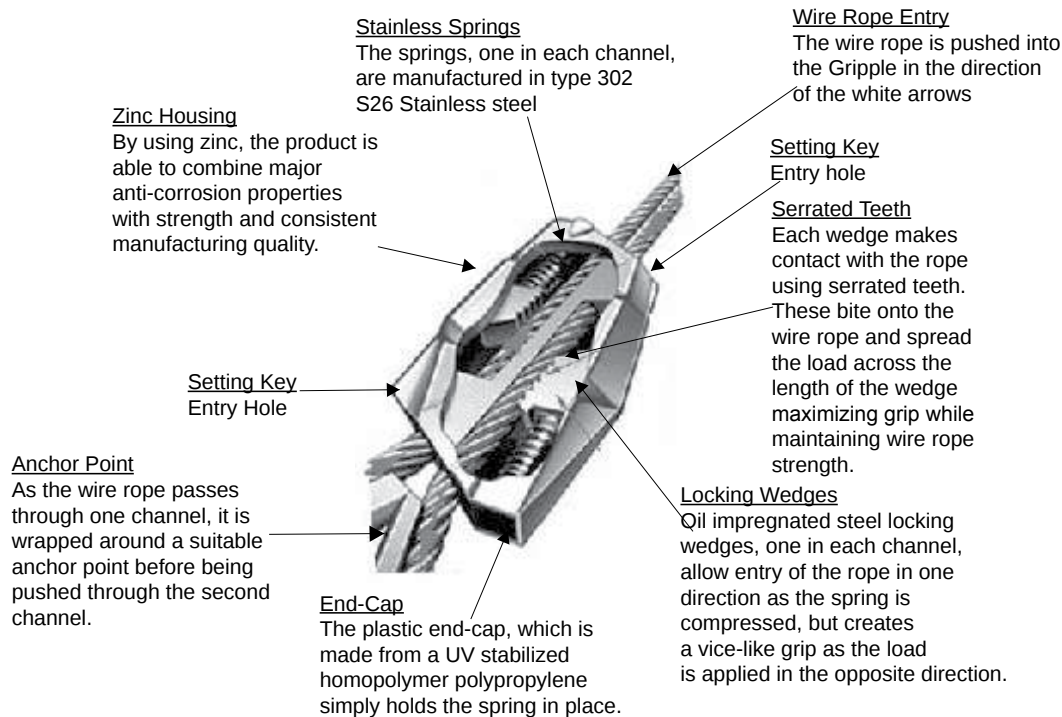
GRIPPLE HANG-FAST

Gripple Hang-Fast is a complete solution for hanging mechanical and electrical services. It comes as a ready-to-use suspension kit, with load ratings from 22lbs to 715lbs. The comprehensive range ensures that installation times are minimized and high productivity is achieved on site.

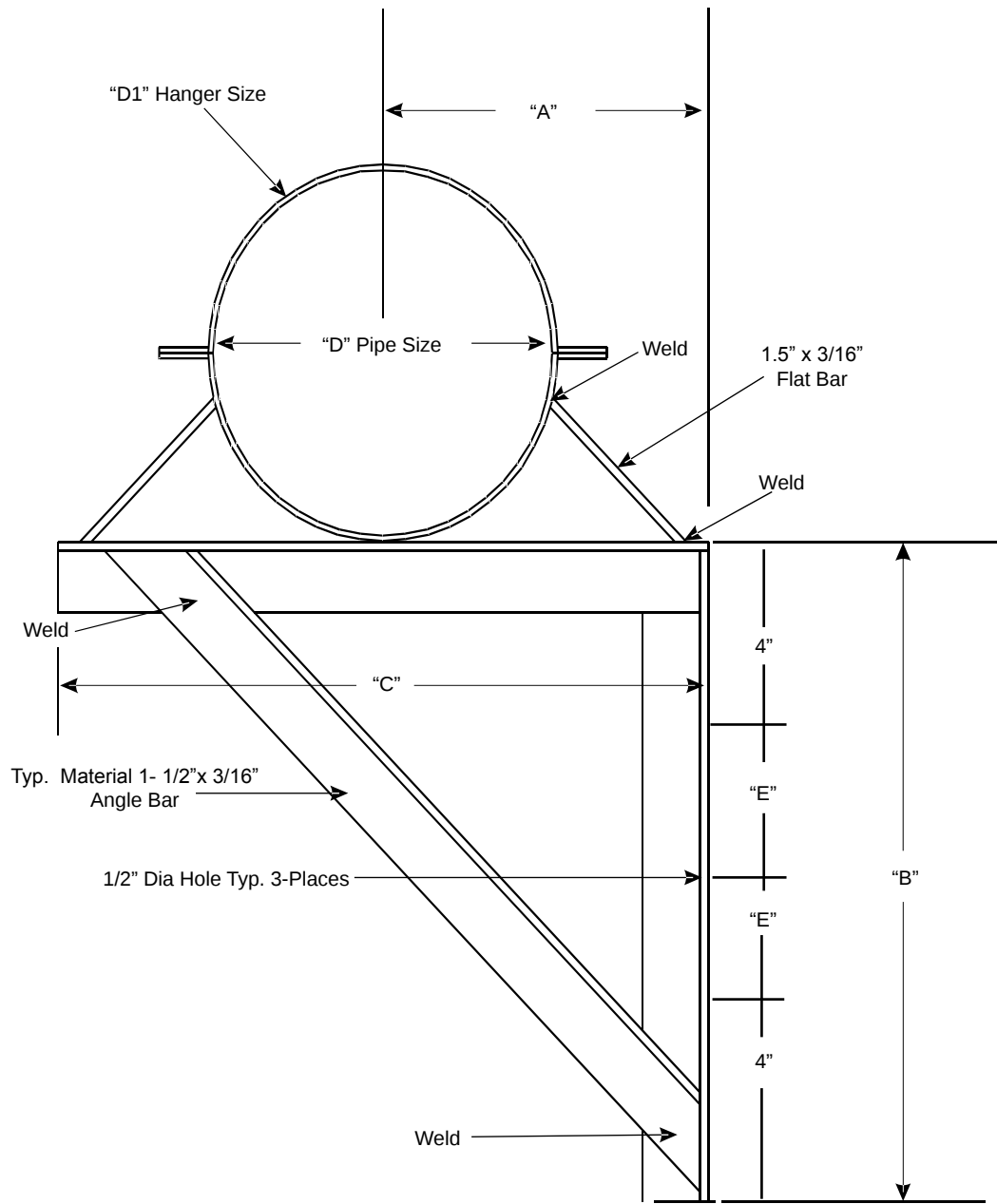
The principal element of all Gripple Hang-Fast assemblies is the Gripple Hang-Fast Grip, which is not only used to terminate the rope but is also the means by which object height can be adjusted.

Gripple Hang-Fast
Sizes & Working Load Limits ...

ITEM #	LENGTH	WEIGHT	AVAILABILITY
3266-1500-022LBS	15'	22 LBS	IN STOCK
3266-1500-100LBS	15'	100 LBS	IN STOCK
3266-1500-200LBS	15'	200 LBS	IN STOCK
3266-1500-495LBS	15'	495 LBS	IN STOCK
3266-1500-715LBS	15'	715 LBS	IN STOCK



TYPICAL WALL MOUNTING BRACE

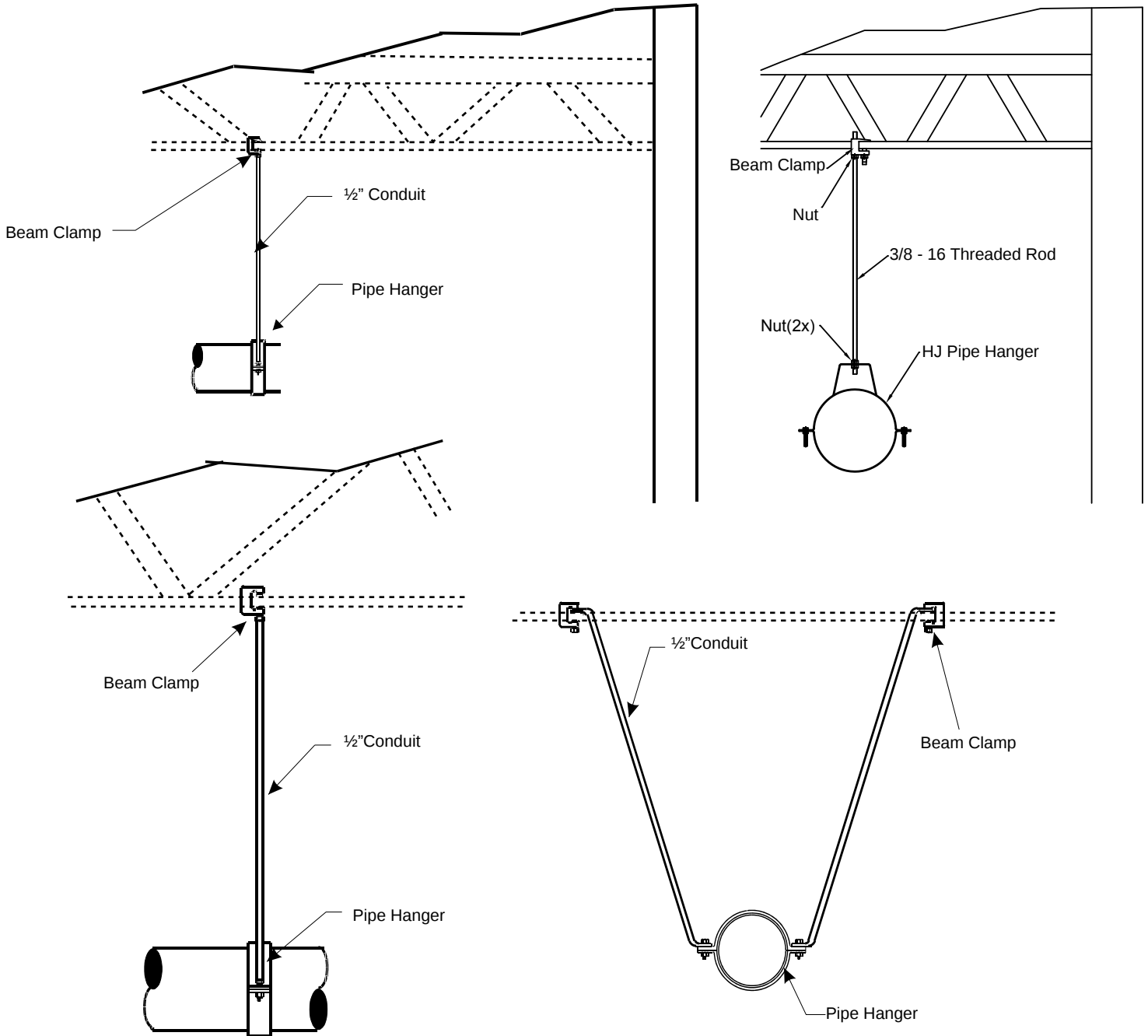


QTY	"A"	"B"	"C"	"D1"	"D"	"E"

TYPICAL CEILING HANGING METHOD

(Check local building codes, Nordfab is not responsible for building code violations)

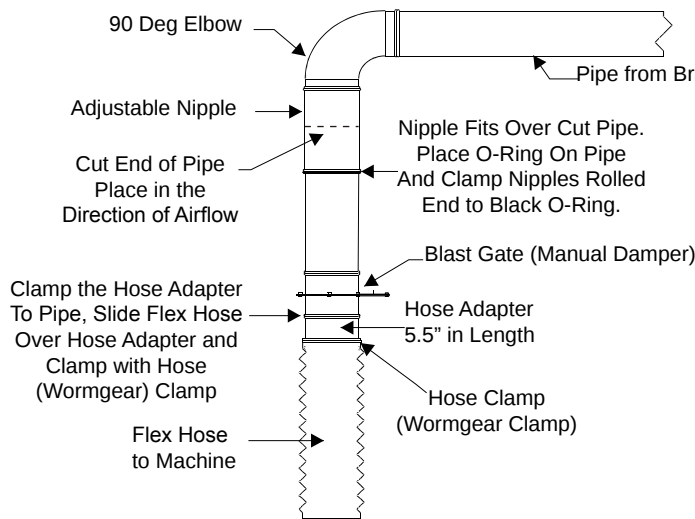
Gripple hangers are also a typical ceiling hanging method.



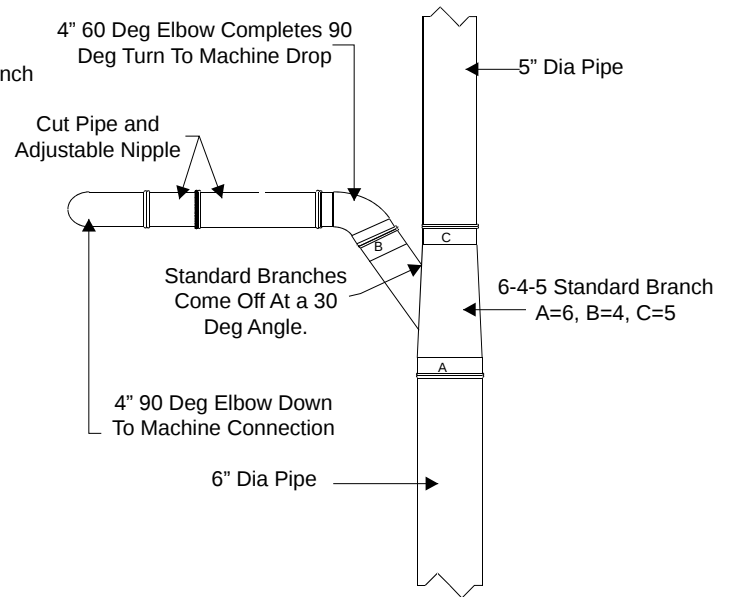
NOTE: Refer to your local codes when choosing how to support QF ducting.

TYPICAL DRY SYSTEM INSTALLATION

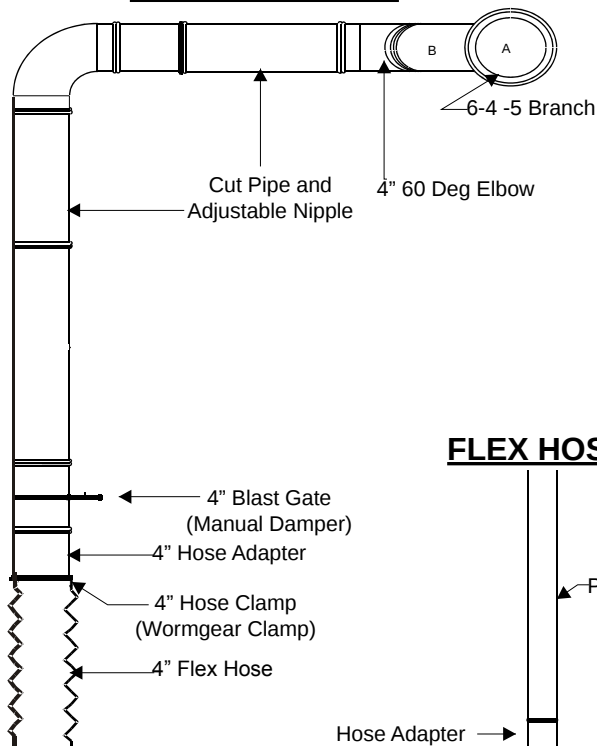
TYPICAL DROP FOR DRY SYSTEMS



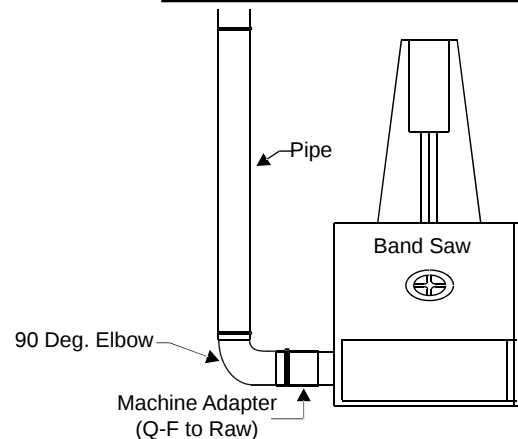
PLAN VIEW



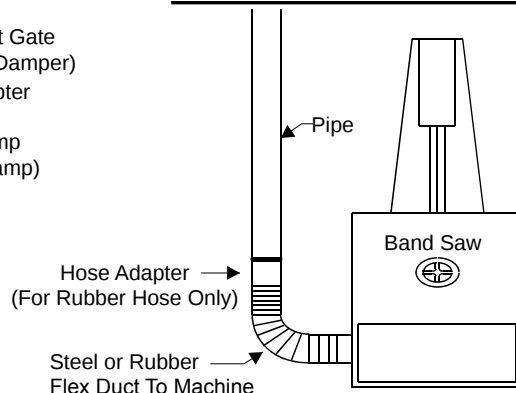
ELEVATION VIEW



HARD DUCT TO MACHINE

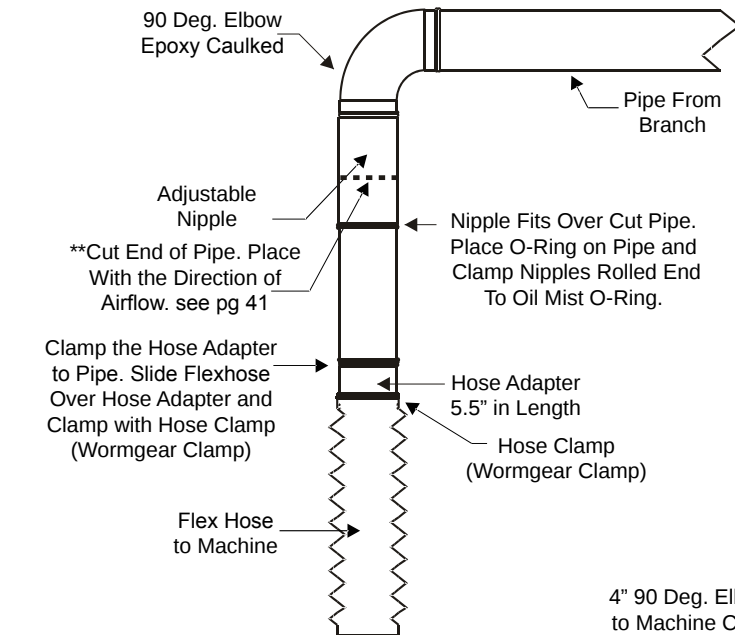


FLEX HOSE TO MACHINE

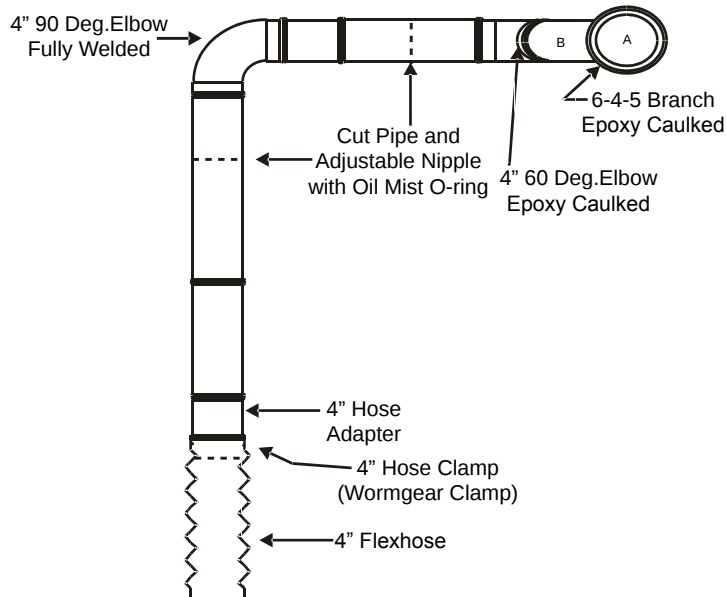


TYPICAL WET SYSTEM INSTALLATION

TYPICAL DROP FOR WET SYSTEMS

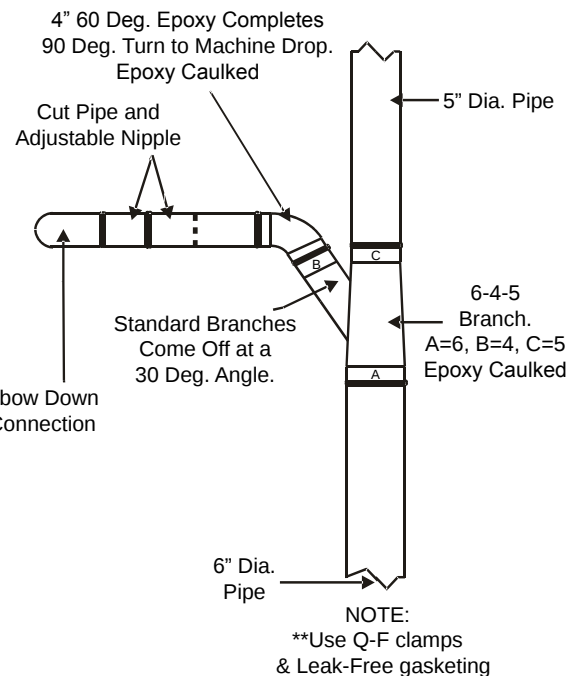


ELEVATION VIEW

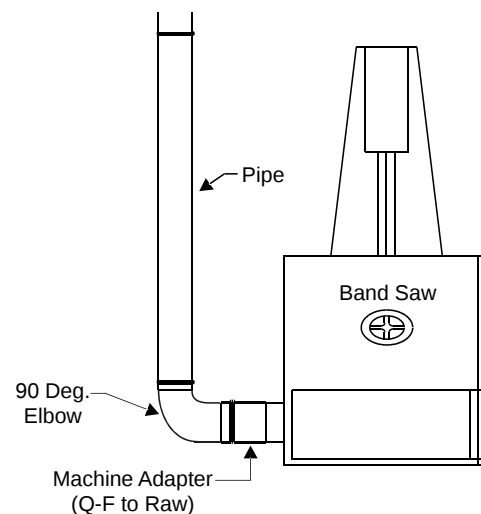


NOTE:
Blast gates are not commonly used for wet systems. Use butterfly valves for flow control.
***Use Q-F clamps & Leak-Free gasketing

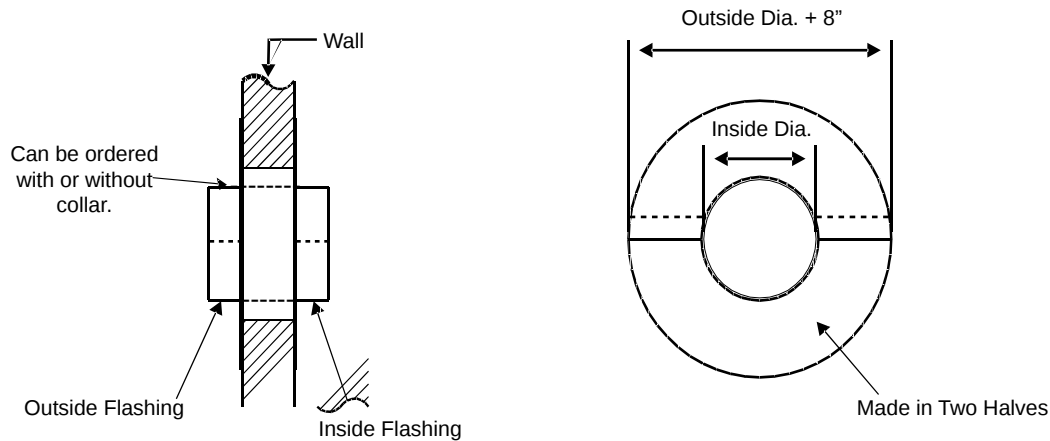
PLAN VIEW



HARD DUCT TO MACHINE



WALL FLASHING



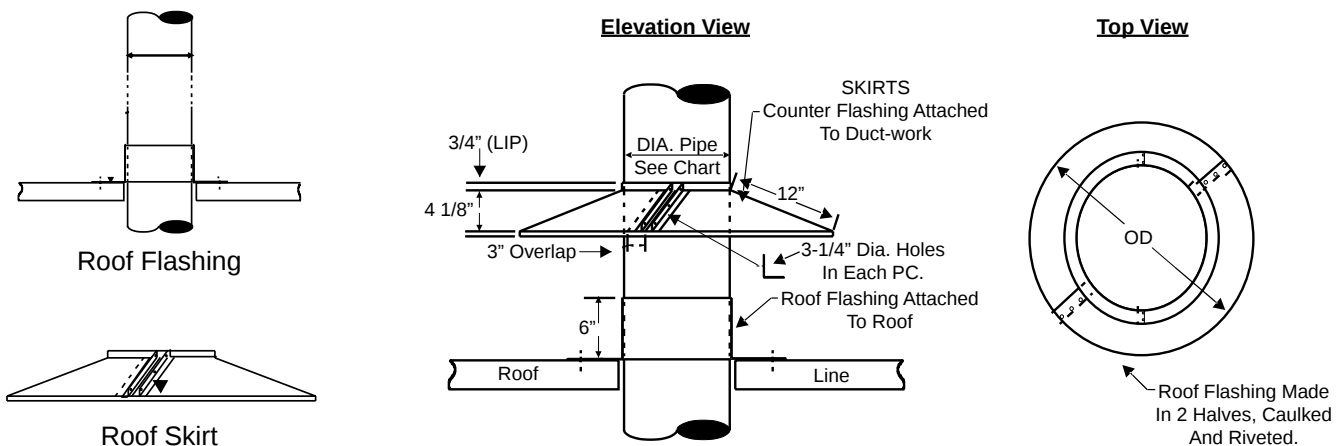
DESCRIPTION:

Provides weather protection for Wall penetration. Ordering one flashing provides you with both 1 inside and 1 outside flashing (4 halves).

AVAILABILITY:

Material: GALVANIZED or STAINLESS STEEL
 Sizes in inch: 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40

ROOF FLASHING & SKIRT (SOLD SEPARATELY)



DESCRIPTION:

Provides weather protection for roof penetration.

AVAILABILITY:

Material: GALVANIZED or STAINLESS STEEL
 Sizes in inch: 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40

NOTE: Please specify Wall or Roof Flashing

Quantity	Dia. Of Pipe	# of Sets

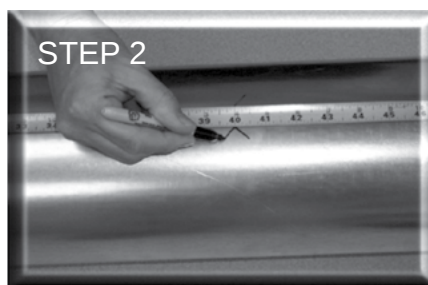
INSTRUCTIONS FOR USING THE "QF" ADJUSTABLE NIPPLE WITH RUBBER O-RING FOR DRY SYSTEM

Each QF pipe section is 5 ft. in length. To accommodate an existing span, an adjustable nipple is used to shorten.



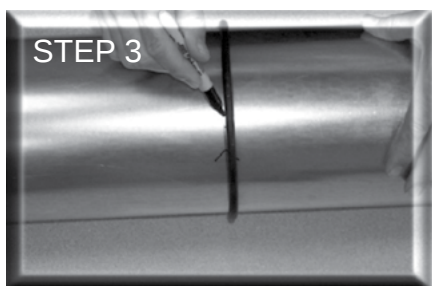
STEP 1

Measure distance to be spanned.



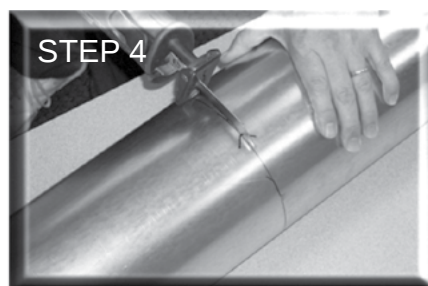
STEP 2

Mark distance to be spanned less 4".



STEP 3

Use O-ring provided and mark for cut.



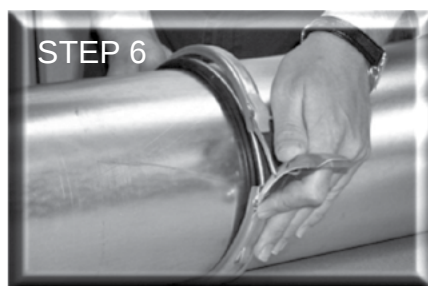
STEP 4

Drill access hole then cut with saw



STEP 5

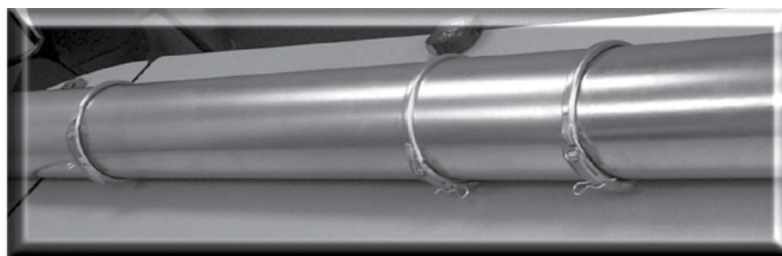
Cut piece of pipe put O-ring on cut pipe, slide nipple over



STEP 6

Snap clamp over O-ring and one end of nipple.

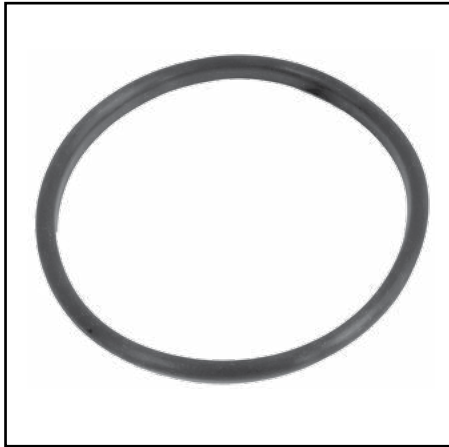
FINISHED CONNECTION
USING THE ADJUSTABLE
NIPPLE ASSEMBLY.



NOTE: KEEP CUT PIPE IN THE SAME DIRECTION AS THE AIR FLOW.

NORDFAB'S LEAK-FREE GASKET AND O-RING

LEAK-FREE GASKET



- General purpose oil resistant polymer
- Preforms well with many oil, water and hydraulic fluid
- Good tear resistance
- Should not be used with solvents such as acetone, and MEK, ozone, chlorinated hydrocarbons and nitro hydrocarbons
- Fabricated with conductive material

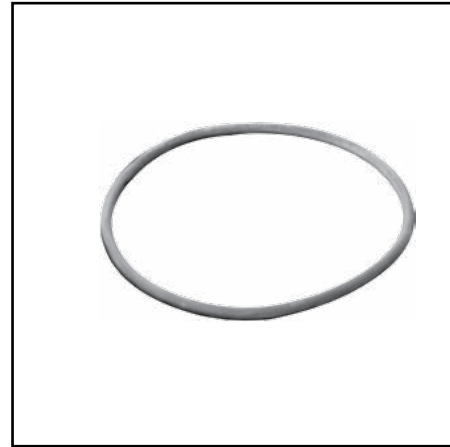
Classification:

1. ASTM D-2000 M2BG510 A24 B34 EO14
EO34 EF11 EF21

Temperature Range:

Low Temperature Range: -30° F to +225° F
 Intermittent: +280° F

LEAK-FREE O-RING



- Resists corrosion from weather
- Preforms well with many oils and chemicals
- Resistant to wide temperature range
- Tough
- Can't damage by flexing and twisting
- Grey or black with grey mark

Classification:

1. ASTM D-1056-68.....SBE43
2. ASTM D-1056-85, 91, 98.....2B3

Temperature Range:

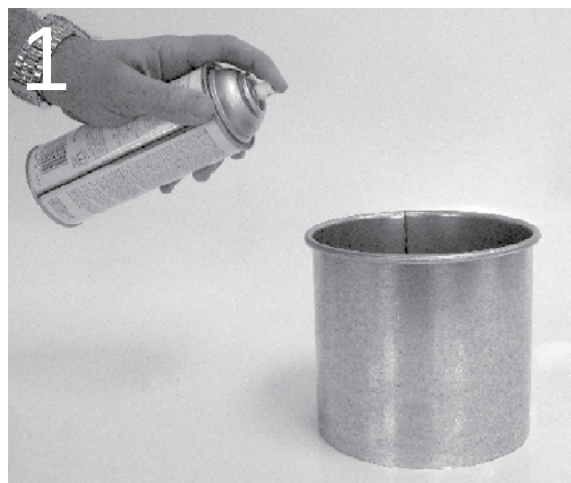
Low Temperature Range: -30° F to 225° F
 Intermittent +280° F

NOTE: These materials work in conjunction with Nordfab's standard O-Ring. It does not replace it. See Installation Guidelines enclosed.

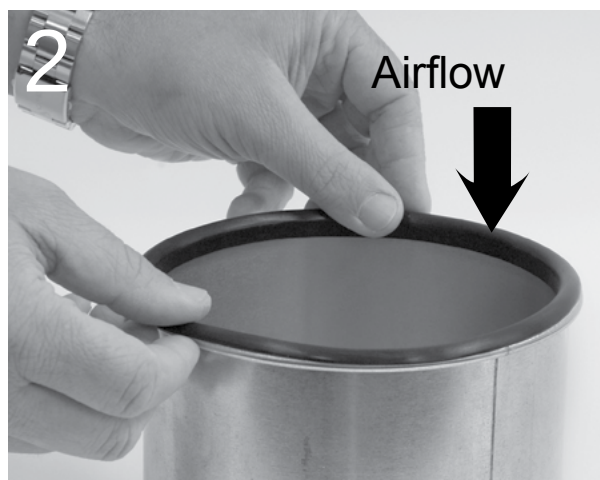
NORDFAB can't guarantee that these materials will work on every application. Please see above for manufacturer's classifications on these materials. When ordering for mist application specify epoxy caulk.

LEAK-FREE GASKET INSTALLATION

The molded Nitrile gaskets slip easily onto one end of the duct and are connected with a standard Q-F clamp to form a tight and re-useable seal. **Note the direction of the airflow when installing the duct.**



- 1) Wipe rolled edge with clean cloth. Then apply a high tack gasket adhesive per the manufacturer's instructions. High tack gasket adhesives can be purchased locally at industrial or automotive suppliers in either aerosol spray or brushable formulations.

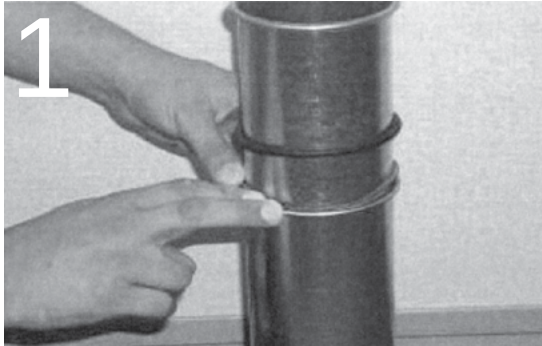


- 2) Carefully place the gasket along the rolled edge of the part, being careful to avoid kinks or voids. Only one gasket is needed per joint.



- 3) Join the gasketed end of the pipe to a non-gasketed end of the next part in the ducting run using a standard Q-F clamp. The oil-mist gasket, in addition to the gasket inside the Q-F clamp, provides dual protection against leakage.

INSTALLATION OF ADJUSTABLE NIPPLE FOR OIL MIST OR WET APPLICATIONS



The patented Nordfab “adjustable nipple” provides unlimited flexibility in the length of a duct run.

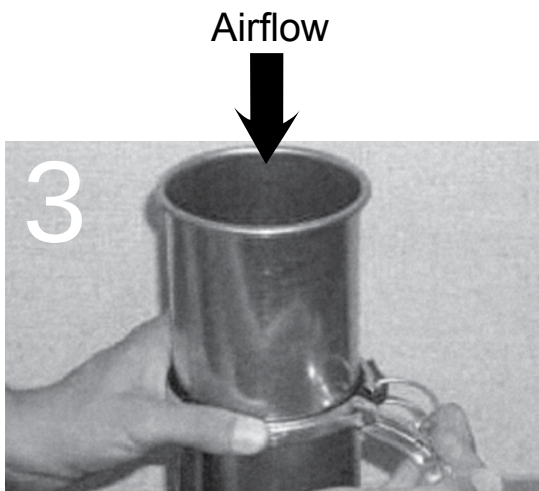
1. Cut a standard piece of pipe to length and insert it into the short adjustable nipple section. This assembly will telescope to any length. Place the soft grey (or black with grey mark) o-ring seal onto the cut (inside) piece of pipe and seat it evenly against the rolled metal edge of the adjustable nipple.



2. Place the harder black o-ring seal against the outside of the inner grey seal.

The order should be as follows:

- a) rolled edge or nipple; against
- b) soft, small-diameter o-ring; against
- c) standard Nordfab o-ring



3. Finally clamp the standard Q-F clamp over the rolled metal edge of the adjustable nipple and the hard rolled black o-ring for a leak-free connection. [Make sure both seals fit completely under the clamp and that the air-flows from the cut pipe towards the adjustable nipple].

SIZING A "Q-F" SYSTEM

NORDFAB offers assistance to those sales people and customers who have never designed a ducting system before. We can assist you in determining the correct duct size and configuration that will supply you with the correct flow.

We have the ability to assist customers in designing a blast-gated system; taking into account flow dynamics that will be affected by blast gates. While blast gates can be used to effectively utilize an undersized filtering system, they can also destroy the flow if not properly placed.

USING THE CFM / FPM CHART

Different materials need to be moved at different velocities to prevent the material from falling out of the air stream. For example: wood chips and saw dust flow well at 4500 feet per minute. Referring to the chart on the next page, you will see that a 4" duct will convey 395 CFM at 4500 FPM. This will mean that a 4" pick-up on a machine will take 395 CFM from your filtering system; or working in reverse, if you know that a machine will require approximately 400 CFM to remove the waste, then you should design a 4" duct for the purpose.

Description of Conveyed Material	Velocity FPM	Example
Gases	1,000 - 2,000	All Vapors, Gases and Smoke
Fumes	2,000 - 2,500	Welding
Oil Mist	2,000 - 2,500	Oily Vapor or Oily Smoke
Very Fine Light Dust	2,500 - 3,000	Cotton Lint, Litho Powder, Wood Flour
Dry Dusts and Powders	3,500 - 4,000	Light Shavings, Rubber Dust, Soap Dust
Typical Industrial Dust	3,000 - 4,000	Grinding or Buffing Dust, Granite/Brick/Clay Dust
Heavy Dusts	4,000 - 4,500	Heavy or Wet Sawdust, Metal Turnings, Sand Blast Dust, Wood Blocks
Heavy or Moist	4,500 +	Moist Cement Dust, Quick-Lime Dust, Sticky Buffing Lint

AIR VOLUME CHART (CFM)

AIR VOLUME IN DUCTS IN CUBIC FEET PER MINUTE (CFM)												
VELOCITY IN FEET PER MINUTE (FPM)												
DUCT Ø	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	
3	100	125	150	170	195	220	245	270	295	320	345	
4	175	220	260	305	350	395	440	485	525	570	615	
5	275	340	410	475	545	615	680	750	820	885	955	
6	395	490	590	685	785	885	980	1080	1180	1275	1375	
7	535	670	800	935	1070	1205	1335	1470	1605	1735	1870	
8	700	875	1050	1220	1395	1570	1745	1920	2095	2270	2445	
9	885	1105	1325	1545	1765	1990	2210	2430	2650	2870	3090	
10	1090	1365	1635	1910	2180	2455	2725	3000	3270	3545	3820	
11	1320	1650	1980	2310	2640	2970	3300	3630	3960	4290	4620	
12	1570	1965	2355	2750	3140	3535	3925	4320	4710	5105	5500	
13	1850	2300	2770	3225	3685	4150	4610	5070	5530	5990	6450	
14	2140	2675	3205	3740	4275	4810	5345	5880	6415	6950	7485	
15	2450	3070	3680	4300	4900	5520	6130	6750	7360	7970	8590	
16	2790	3490	4190	4885	5585	6285	6980	7680	8380	9075	9775	
17	3150	3940	4730	5515	6300	7090	7880	8670	9450	10240	11030	
18	3535	4420	5300	6185	7070	7950	8835	9720	10600	11485	12370	
20	4365	5455	6545	7635	8725	9815	10910	12000	13090	14180	15270	
22	5280	6600	7920	9240	10560	11880	13200	14520	15840	17160	18480	
24	6285	7855	9425	10995	12656	14135	15710	17280	18850	20420	21995	
26	7370	9210	11055	12900	14740	16580	18420	20270	22110	23950	25800	
28	8550	10685	12820	14960	17100	19230	21310	23500	25650	27780	29920	
30	9800	12260	14700	17170	19625	22080	24530	26990	29440	31890	34350	
32	11160	13950	16750	19541	22330	25120	27910	30700	33490	36280	39070	
34	12600	15755	18905	22055	25210	28360	31510	34660	37810	40965	44115	
36	14130	17665	21195	24730	28260	31800	35325	38860	42390	45925	49455	
38	15745	19680	23615	27550	31490	35425	39360	43295	47230	51170	55100	
40	17445	21800	26170	30530	34890	39250	43610	47975	52330	56700	61055	

"QF" PARTS LIST TAKE-OFF WORKSHEET

Your Name: _____

Company Name: _____

Fax: _____

Phone: _____

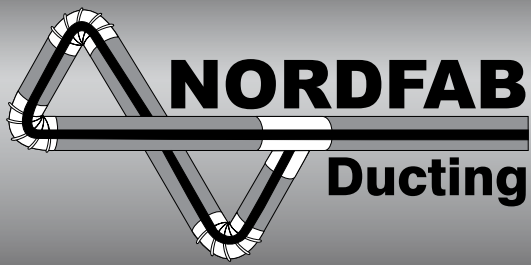
Project: _____

Date: _____

Page _____ of _____

QF DIA.	PIPE 5'0" LONG (3" x 39")	ADJ. NIPPLE INCL O-RING	ELBOWS				BLAST GATES	FLOOR SWEEP	MACHINE ADAPTOR STAND. IS QF TO ID	FLEX HOSE ADAPT.	QF CLAMP	PIPE HANGER	FLEX HOSE RUBBER OR STEEL	FLEX HOSE CLAMP	MISC. FITTINGS (REDUCERS, ADAPTORS, TRANSITIONS, ANY FITTINGS THAT CAN NOT BE SPECIFIED ELSEWHERE)	BRANCH, DOUBLE BRANCH & Y BRANCH				QTY
			90°	60°	45°	30°										A	B	C	D	
3"																				
4"																				
5"																				
6"																				
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18"																				
20"																				
22"																				
24"																				

QUICK-FIT FAST FAX: 336-889-7873



The world's [*FASTEST*] ducting



QUICK-FIT FAST FAX TO: 336-889-7873

☐ HAVE MY LOCAL DUCTING EXPERT CONTACT ME

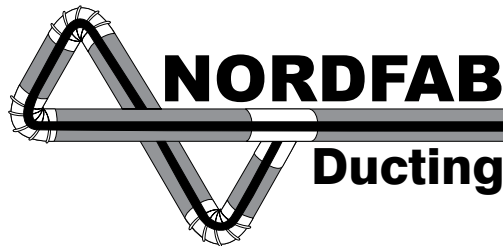
NAME: _____ COMPANY: _____

ADDRESS: _____ CITY: _____ ST: _____ ZIP: _____

DATE NEEDED: _____

PHONE: _____ FAX: _____ EMAIL: _____

CURRENT NEED: _____



**150 Transit Ave/ PO Box 190
Thomasville, NC 27361-0190
Toll Free: 800-532-0830
Fax: 336-889-7873**

**1050 Spice Island Dr.
Sparks, NV 89431
Toll Free: 800-532-0830
Fax: 336-410-0872**

www.nordfab.com

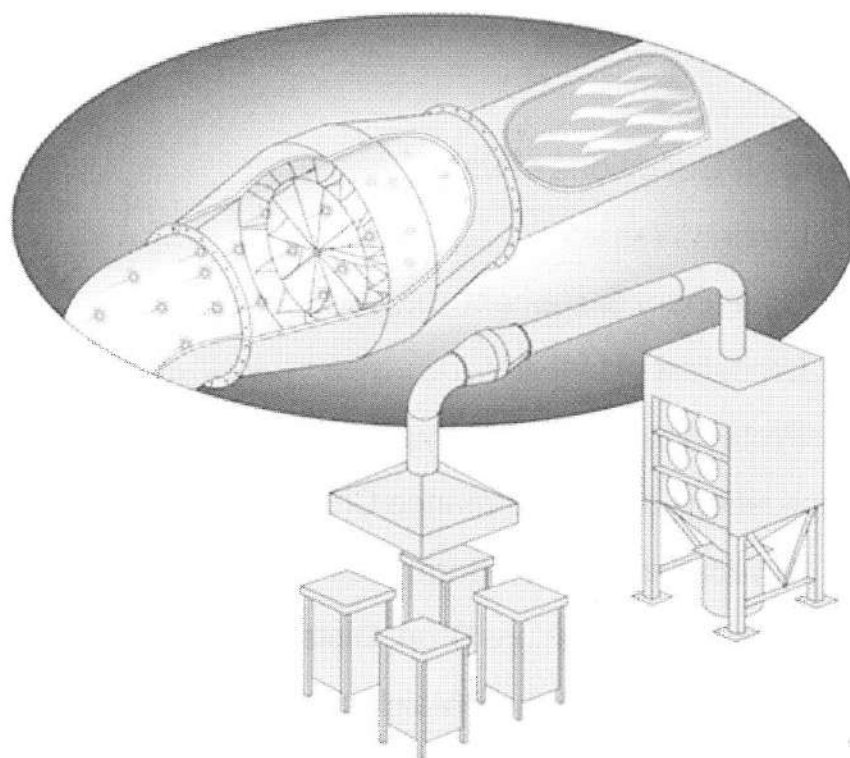


**Blender^{INC.}
Products**

VERSION 3

MARCH 2012

SPARK COOLER[®]



OWNER'S MANUAL

TERMS AND CONDITIONS OF SALE

APPLICATIONS AND PERFORMANCE CRITERIA

INSTALLATION, OPERATION AND MAINTENANCE (IOM) MANUAL



**Blender^{INC.}
Products**

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OWNER'S MANUAL

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Contact information..... 6



Blender INC.
Products

1

**Terms &
Conditions,
Limited
Warranty**

BLENDER PRODUCTS, INC., TERMS & CONDITIONS

Terms and Conditions of Sale. The SPARK COOLER® is sold to Customer and Customer accepts delivery of the equipment on the following terms, conditions and subject to the following agreements.

Limited Warranty Blender Products, Inc. ("Blender") warrants that the SPARK COOLER® will perform in accordance with published specifications for a period of one (1) year from the date of delivery and that the equipment will be free from defects in material and workmanship under normal use for one (1) year from the date of delivery. This limited warranty is valid only if the equipment is installed on approved applications, and maintained and serviced in accordance with the Owner's Manual (the "Manual") and any other product information included with the equipment. This limited warranty shall be void if the SPARK COOLER® is not installed, maintained and serviced in accordance with the Manual. Blender's sole obligation and Customer's sole remedy under this limited warranty is the replacement and repair, at Blender Products' option, of the defective component at Blender's Denver, Colorado facilities. Such obligation and remedy are expressly conditioned upon (i) installation and operation of the equipment in strict conformity with the Manual; and (ii) the equipment not having been altered, mishandled, misused, damaged or repaired (except for repairs performed by Blender). Defective components shall be shipped freight prepaid to Blender's Denver, Colorado facility. Customer shall pay inbound and outbound freight and insurance on all components returned to Blender for repair or replacement. This limited warranty is the exclusive warranty of the product. **BLENDER MAKES NO OTHER WARRANTY OF ANY KIND OR DESCRIPTION, WRITTEN OR ORAL, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY, WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR WARRANTY ARISING OUT OF ANY COURSE OF PERFORMANCE, COURSE OF DEALING USAGE OF TRADE.**



**Blender^{INC.}
Products**

BLENDER PRODUCTS, INC., TERMS & CONDITIONS (CONTD.)

Cautionary Statement Customer expressly acknowledges and understands that the SPARK COOLER® system does not preclude the possibility of fire or explosion. The purpose of the system is to minimize the frequency of spark ignition by creating turbulence in the airflow. Additional fire and explosion suppression systems, flame barriers or explosion venting may be necessary or advisable to reduce fire and explosion risks. Customer acknowledges that the technology is of such complexity and that each application is unique and distinct from all others so that performance and effectiveness will vary widely, and that, in addition, machine and operator variables will influence performance of the equipment. Blender Products cannot and does not warrant the complete detection or elimination of sparks. **THE SPARK COOLER(R) SHOULD NEVER BE USED AS A STANDALONE DEVICE IN APPLICATIONS IN WHICH ABSOLUTE SPARK SUPPRESSION IS REQUIRED TO AVOID EXPLOSION OR CATASTROPHE.**

Limitation of Liability The SPARK COOLER® is sold to Customer and Customer accepts delivery of the equipment upon the express understanding and conditions that Customer has read and understands the Cautionary Statement set forth above and Customer shall and does for itself, its affiliates officers, directors, employees, contractors and agents, release Blender Products, Inc., its affiliates, officers, directors, employees and agents from and against any and all liability or claim for any direct, indirect, special, incidental or consequential damages, including lost profits, death, or personal injury, or loss of use or other economic loss ("Damages"), arising in tort, contract or otherwise in connection with the purchase, installation, use, operation and maintenance of the SPARK COOLER® equipment. Customer acknowledges that its sole remedy is the limited warranty set forth above and that in no event shall Blender be responsible for Damages to Customer, its contractors, employees, invitees or agents. Customer shall indemnify and save harmless Blender from and against any claim(s) for such Damages.

Protection of Proprietary Information The SPARK COOLER®, related equipment and the Manual include patented and unpatented technology, trade secrets and copyrighted material (collectively, "Proprietary Information"). Customer shall not make or permit to be made Proprietary Information available in any form to any person other than Customer's employees and contractors whose job performance requires access. Customer shall not attempt to reverse-engineer or otherwise copy or use any Proprietary Information except in strict compliance with the Manual. Customer agrees to honor all copyright, trademark, and other legends affixed to the equipment and manual.



Blender INC.
Products

2

**Applications
and
Performance
Criteria**

APPLICATIONS AND PERFORMANCE CRITERIA

Applications and Performance Criteria The SPARK COOLER® is designed and applied as a preventive measure, to reduce the life and frequency of hazardous sparks within an industrial exhaust system. The SPARK COOLER® is *not* designed to extinguish actual fires. *Installation of the SPARK COOLER® does not assure elimination of all sparks and does not preclude the possibility of fire and explosion.* Please see the "Cautionary Statement" above.

The following are application guidelines to help improve product performance and safety. ***Please review this entire Manual for complete instructions and installation information.***

- **Location:** Install the SPARK COOLER® to allow a minimum of one duct diameter between the spark source and the inlet of the SPARK COOLER®. Leave a minimum of 10 duct diameters between the outlet of the SPARK COOLER® and the air-material-separator.
- **Flow:** Performance of the SPARK COOLER® is best operated at duct velocities greater than 1000 fpm, but not exceeding 5,000 fpm.
- **Temperature:** Performance of the SPARK COOLER® is dependent on the conveying air being at a lower temperature than the spark ember itself. Therefore, the SPARK COOLER® typically operates in air streams with temperatures well below the ignition point of the suspended particulates, but in no case greater than 500°F.



Blender INC.
Products

APPLICATIONS AND PERFORMANCE CRITERIA (CONTD.)

Flow Rate, Pressure Drop, Distance Requirements

SIZING		FLOW RATE					OPTIMAL DISTANCE (inches)*			
Spark Cooler Model #	Duct Diameter (inches)	CFM					Upstream Distance	Downstream Distance - GOOD	Downstream Distance - BETTER	Downstream Distance - BEST
SC6	6	490	590	690	790	880	6	30	45	60
SC8	8	870	1050	1220	1400	1570	8	40	60	80
SC10	10	1360	1640	1910	2180	2450	10	50	75	100
SC12	12	1960	2360	2750	3140	3530	12	60	90	120
SC14	14	2670	3210	3740	4280	4810	14	70	105	140
SC16	16	3490	4190	4890	5590	6280	16	80	120	160
SC18	18	4420	5300	6190	7070	7950	18	90	135	180
SC20	20	5450	6540	7640	8730	9820	20	100	150	200
SC22	22	6600	7920	9240	10560	11880	22	110	165	220
SC24	24	7850	9420	11000	12570	14140	24	120	180	240
SC	** 30-56	12270-106910					-	-	-	-
Velocity (fpm)		2500	3000	3500	4000	4500				
Pressure Loss (w.g.)		0.32	0.46	0.63	0.82	1.04				

* Approx. 1 duct diameter required upstream from Spark Cooler inlet; Required downstream distances from Spark Cooler outlet:
Good = 5 duct diameters, Better = 7 duct diameters, Best = 10 duct diameters

** Standard sizes available up to 100,000 CFM. Please contact the factory for specifications of larger or alternate sizes.

Applications: The SPARK COOLER® can function to mitigate sparks in metal dust and other carbonaceous dust applications, with low to moderate loading. Applications involving materials prone to accumulation on blades or interior duct surfaces, and applications producing moderate to heavy dust loads can compromise function.

	Ideal Applications
PROCESSES	• Metal Grinding • Resistance Welding • Plasma Cutting • Laser Cutting • Thermal Spray • Carburization • Metal Quenching
SPECIFIC APPLICATIONS	• All Metal Process Industries • Fabrication facilities • Automotive plants • Foundries • Metal Recycling • Robotic weld cells • Battery Recycling • Ball Bearing Manufacturing • Charcoal manufacturing • Shoe grinding (rubber) • Coffee manufacturing
VELOCITY	Optimal: 1500-5000 fpm
TEMPERATURE	Optimal: up to 300°F primary air stream
PARTICLE SIZE	Small-to-medium sized embers
DUCT DISTANCE	Optimal: 10 diameters Effective: 5 diameters Functional: > 1 diameter



**Blender^{INC.}
Products**

3

**Installation,
Operation, &
Maintenance**

INSTALLATION, OPERATION, & MAINTENANCE

Installation: Install the SPARK COOLER(R) to allow a minimum of one duct diameter between the spark source and the inlet of the SPARK COOLER® . Leave a recommended minimum of 10 duct diameters between the outlet of the SPARK COOLER® and the air-material-separator. If ten duct diameters are not available, then install at a location along the duct that leaves the maximum distance possible between the outlet of the SPARK COOLER® and the air-material-separator.

No specialty tools are required for installation or operation. Provide adequate structural support when installing and operating the SPARK COOLER®. On some units, a lifting lug may be included to facilitate installation. This lug is not designed nor intended to bear a long term weight load. Using the lug to support the installed Spark Cooler will void the warranty.

Observing the directional flow arrow on the SPARK COOLER® , install the SPARK COOLER® in line with the duct. For flange mounting, supply gasket material between mating flanges to assure an air-tight seal. For slip-fit mounting, make sure the mating duct connection or mating flex hose connection is air-tight.

Operation: Turn on your system fan and draw process air through the SPARK COOLER®. In appropriate applications, the SPARK COOLER® can function to cool sparks that pass through the unit. The SPARK COOLER® is a static device with no moving parts, so it is off when the system fan is turned off and is on whenever the system fan is turned on.

Maintenance: There are no electronic controls and no water or chemical retardants, making the SPARK COOLER® virtually maintenance-free.

To avoid combustible dust accumulation, periodically check the inside of the SPARK COOLER® and observe whether or not solids accumulate within. In applications where solids arrest against the internal blades of the SPARK COOLER® and/or appreciably adhere to the inside surfaces, a regularly scheduled cleaning should be considered to prevent obstruction.

Warning: If the SPARK COOLER® is provided with access doors, never open the doors when the system is operating. Also, never open access doors when a duct fire is suspected.



**Blender^{INC.}
Products**

CONTACT INFORMATION

Please contact the factory with any questions regarding application, or the contents of this owner's manual.

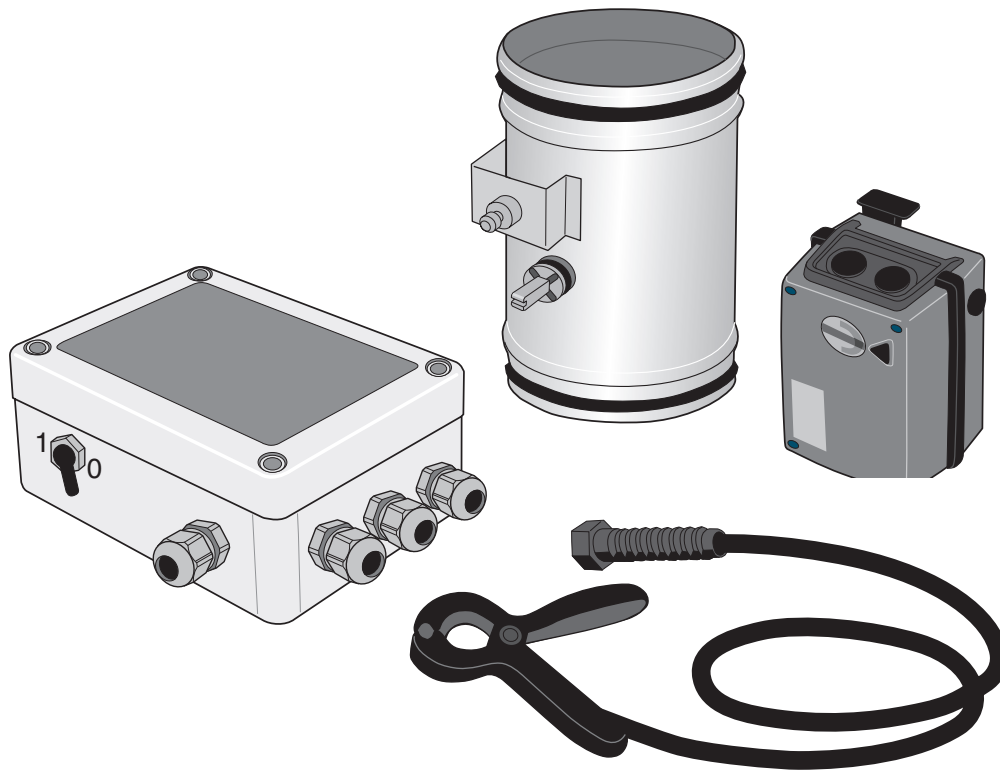
BLENDER PRODUCTS, INC.
5010 COOK STREET
DENVER, CO 80216

www.sparkcooler.com

toll free: 800.523.5705

Motor Damper

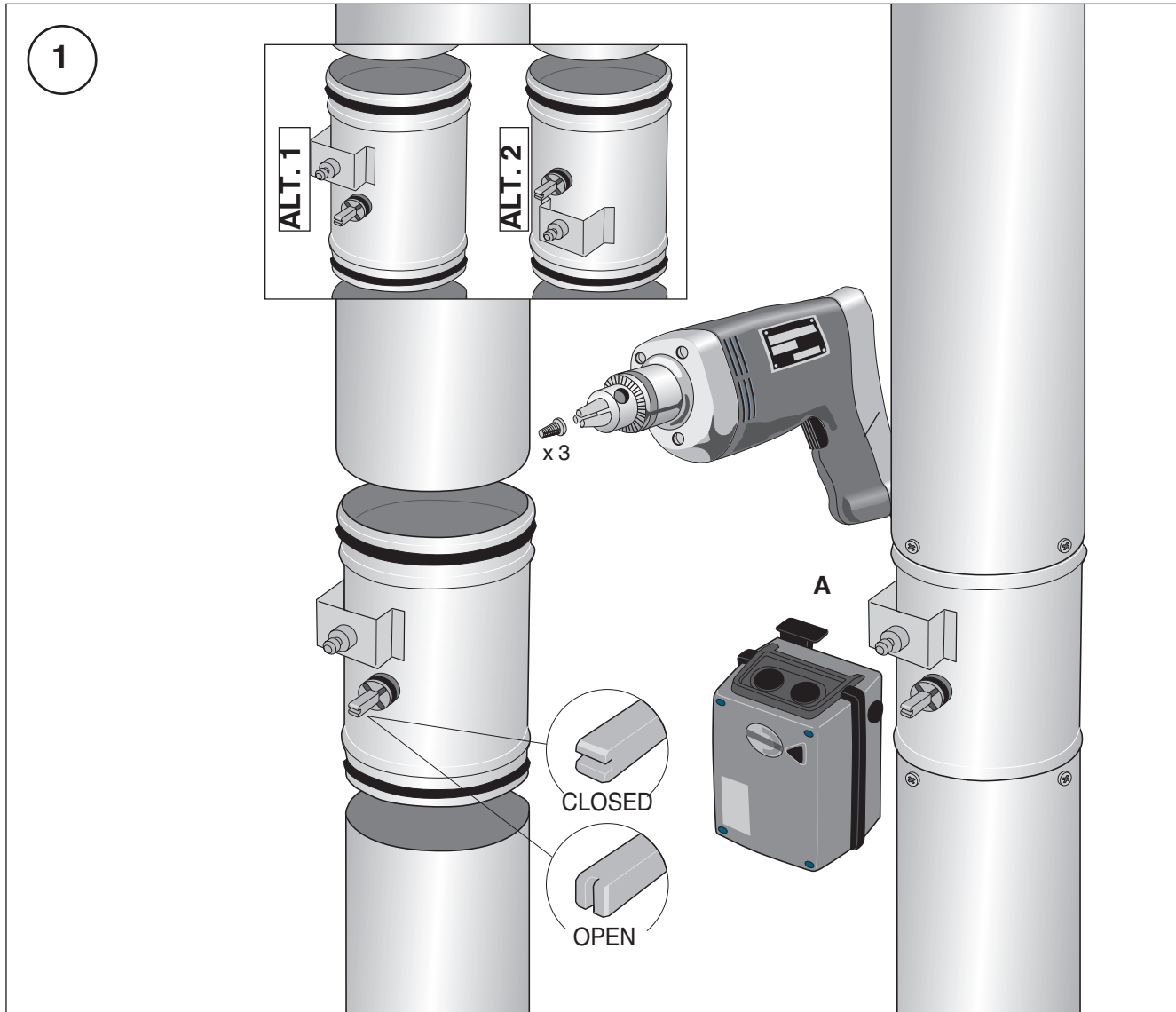
SER. 591

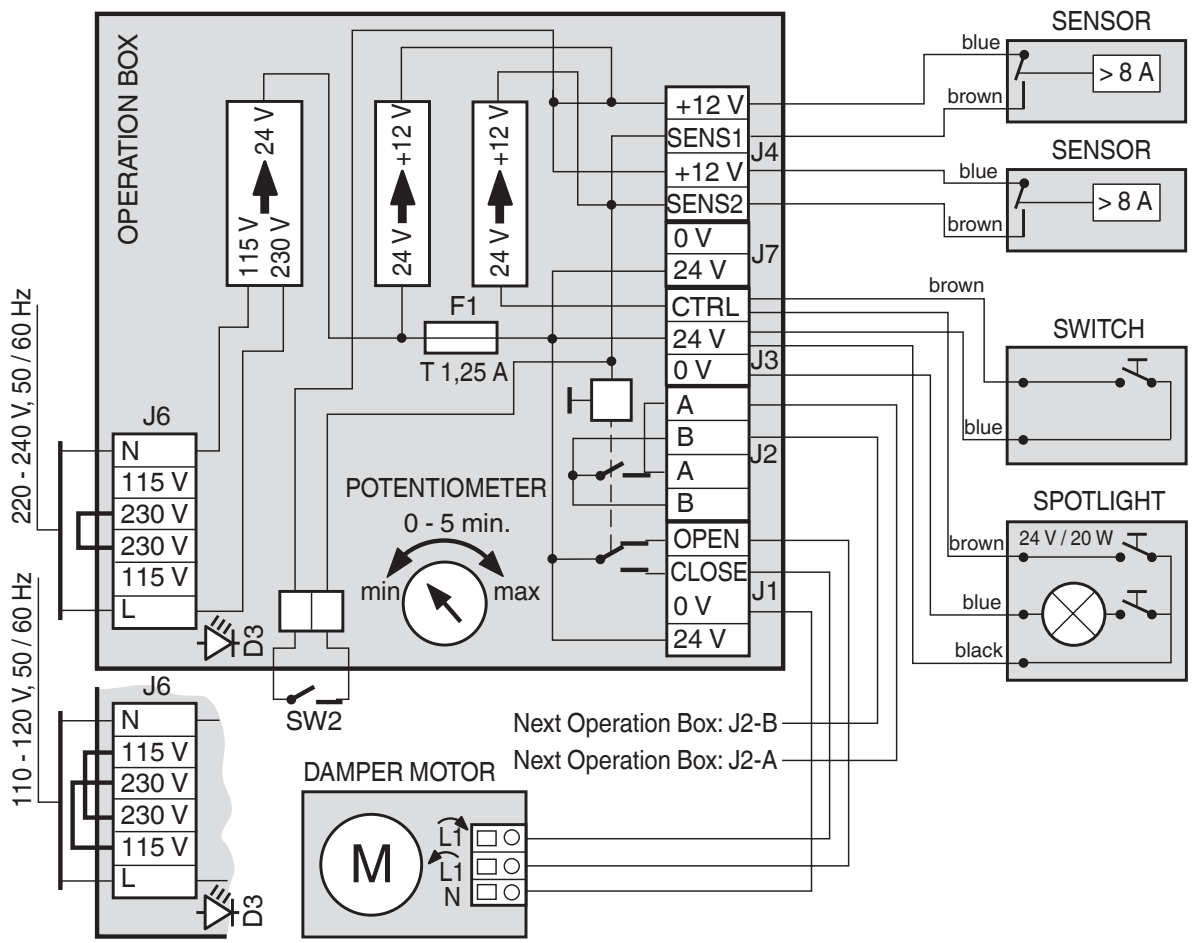


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FAN CONTROL EQUIPMENT

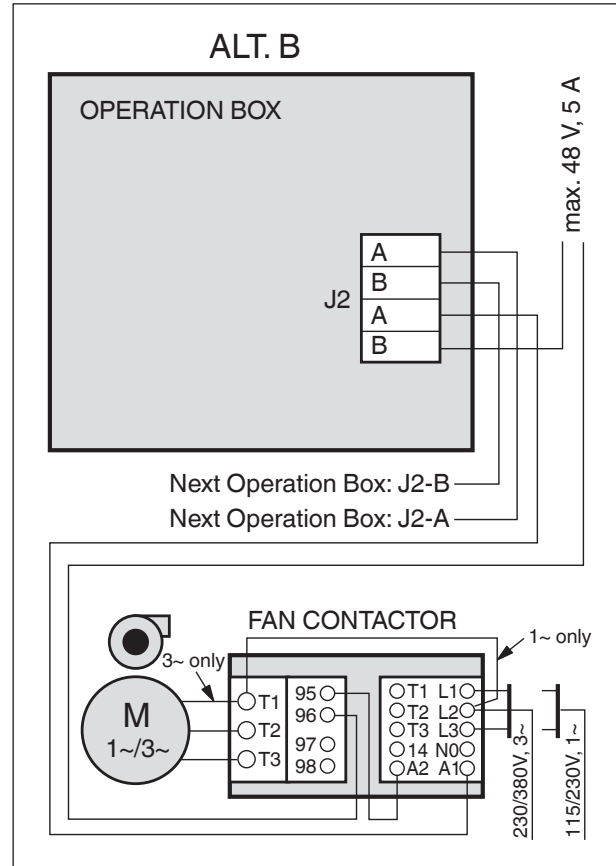
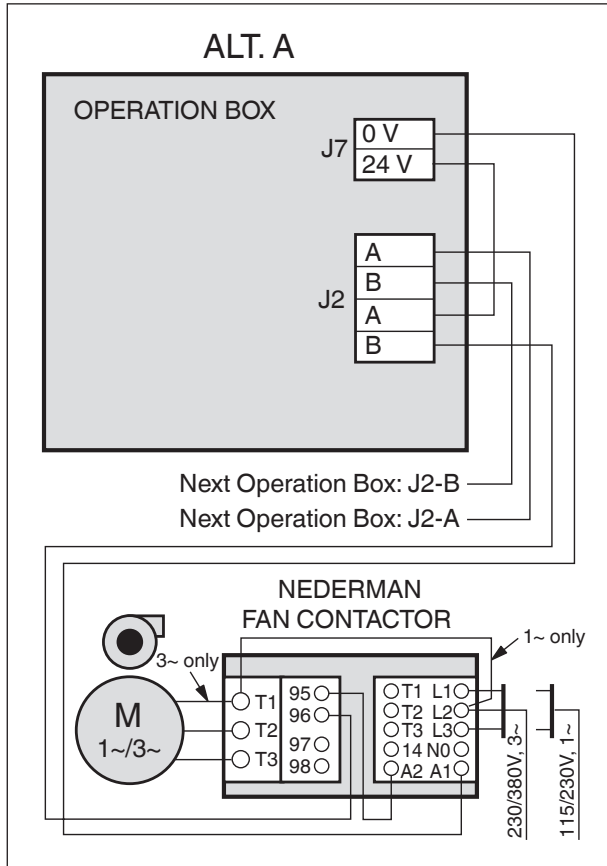
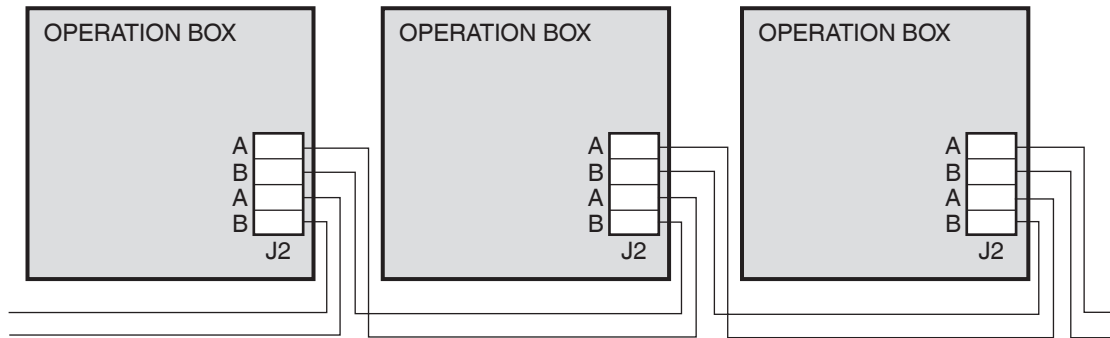
Motor Damper

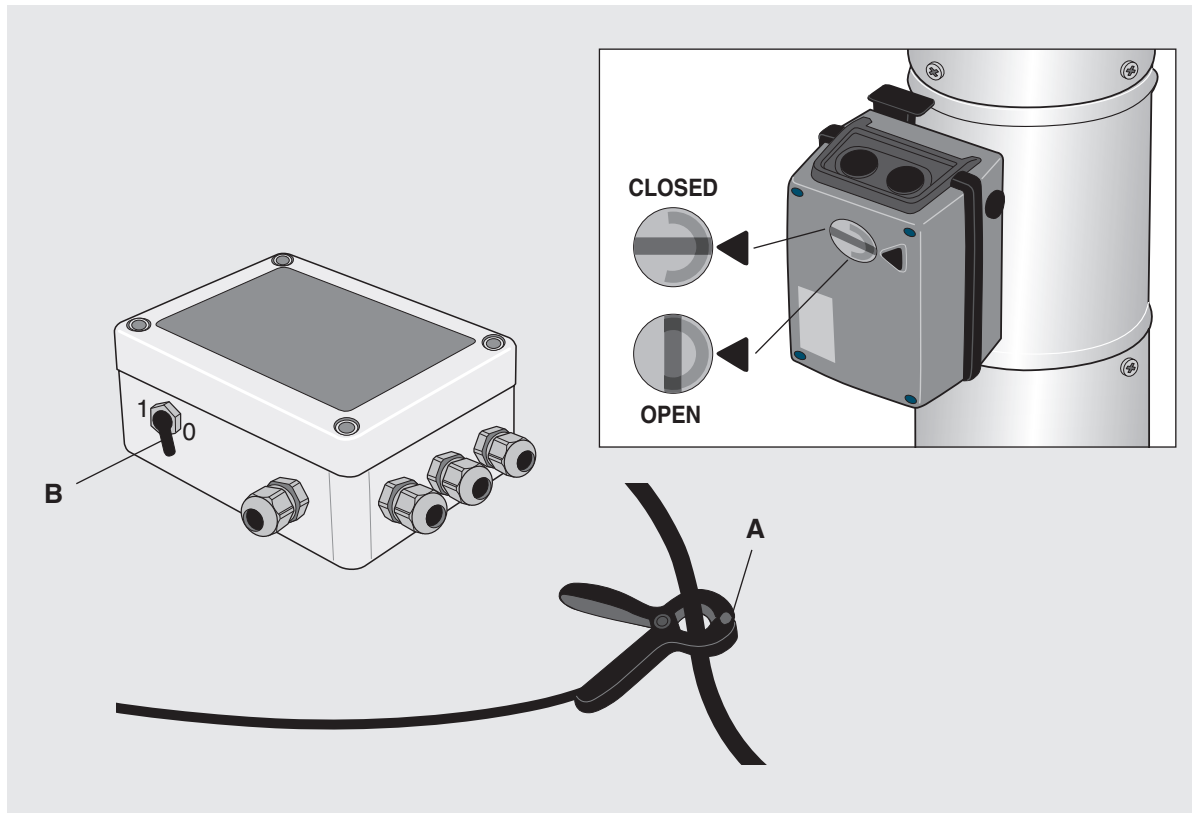




Motor Damper

3





Spare parts

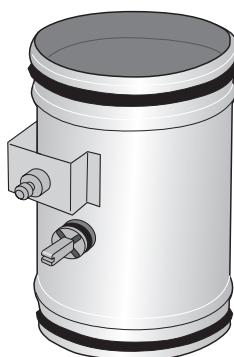
When ordering spare parts always state:

- Part no. and control no. (from the type label).
- Detail no. of the spare part and the name (as per list below).
- Quantity of parts required.

Description

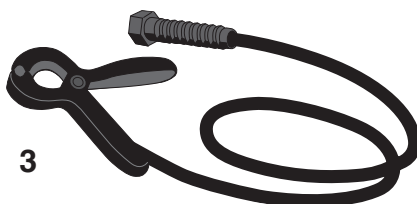
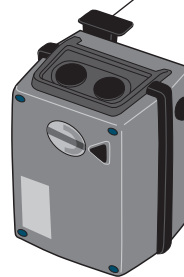
1. Damper housing
2. Damper motor
3. Sensor, incl. cable
5. Operation box (with components)
6. Circuit card incl. transformer and switch
8. Fuse (F1, see wiring diagram)
9. Snap locking

1



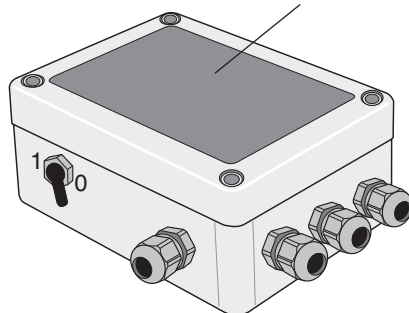
2

9



3

5, 6, 8



Tekniska data

Primärspänning.....	110-120 V / 220-240 V
Avsäkras (primärt).....	max 10 A
Sekundärspänning.....	24 V
Fas.....	1~
Frekvens.....	50/60 Hz
Transformator.....	30 VA
Svetsström.....	8-400 A
Fördröjningstid*.....	0-5 min. ±25% (1 minut vid leverans)
Anslutningsdiameter.....	Ø125, 160 eller 200 mm

* från avslutat svetsarbete till stängning av spjället

Denna produkt är konstruerad för att uppfylla kraven i de EG-direktiv den omfattas av. För att behålla denna status får installation, reparation och underhåll endast utföras av kompetent personal och med användning av original reservdelar. Kontakta närmaste auktoriserad återförsäljare eller AB Ph. Nederman & Co. för rådgivning vid teknisk service eller vid behov av reservdelar.

Montageanvisning - fig. ①

1. Kontrollera att spjällbladet i spjällhuset är i helt stängt läge. Montera sedan spjällhuset i kanalsystemet på fläktens sug sida. För säker fastsättning rekommenderas 3 självborrande skruvar i varje kanalanslutning. Kontrollera axeländens läge för stängt spjäll.
2. Drag ut snäppet (A). Montera spjällmotorn i rätt position enligt bild. Tryck på snäppet (A).
3. Montera kontrollenheten på väggen i närhet till operatörens arbetsområde.

WARNING!**Risk för personskador.**

Bryt strömmen till kontrollenheter och fläktkontakter innan något elektriskt arbete påbörjas.

Elektrisk installation av spjällmotor och tillbehör - fig. ②**Elektrisk installation av spjällsystemet skall ske av behörig elektriker.**

Inkopplingen sker enligt kopplingschema.

1. Anslut kabeln mellan spjällmotorn och kontrollenheten. 3 x 1,0 mm² kabel rekommenderas.
 2. För spjällsystem med sensor; anslut sensorns kabel i kontrollenheten.
 3. Anslut förekommande belysning eller strömbrytare för Nedermans punktutslagningsarmar.
- Kontrollera att plinten J6 är kopplad för rätt voltal.**
D3 = lysdiod för ansluten spänning.

Frånslagsfördröjning

För spjällsystem med sensor stänger spjället automatiskt efter avslutat svetsarbete med en fördröjningstid på ca. 1 min. Denna tid kan justeras med en potentiometer som sitter i kontrollenheten (se bild). Tiden kan ställas in mellan 0 och 5 minuter +/- 25 %.

Sammankoppling av flera kontrollenheter (operation boxes) - fig. ③

Flera kontrollenheter kan kopplas samman när en gemensam fläkt skall styras. Se kopplingsschema.

Inkoppling av fläktstyrning

För att starta fläkten, samtidigt som något av spjällen öppnas, skall fläktstyrningen kopplas in på plinten J2 i **en** av kontrollenheterna.

Alternativ A

Den interna strömförsörjningen på 24 V AC max 80 mA (2 VA) används till fläktstyrningen (Nederman-produkt).

Kabel 2 x 1,0 mm², A1 - J7:0 och 96 - J2:B

Kabel 1 x 1,0 mm², J7:24V - J2:A

Alternativ B

Strömförsörjningen till fläktstyrningen (ej Nederman-produkt) kommer från en extern källa, max. 48 V, 5 A.

Anslutning till motordrivna avgasslangupprullare

Anslutning till Nedermans motordrivna avgasslangupprullare sker enligt separat kopplingsanvisning nr.148346.

Låsbara säkerhetsbrytare rekommenderas för hela elsystemet inkl. fläkt.

Viktigt! Strömbrytaren **B** (se fig. 4) måste vara riktad uppåt innan strömmen ansluts.



Användning - fig. ④

Utrustningen är avsedd att användas i torr miljö i kombination med Nedermanprodukter för utsugning av avgaser, rök eller damm. Kontrollera att spjällmotorn kan visa stängt respektive öppet spjälläge (se fig.)

Automatisk reglering av spjället

(Gäller endast produkter med sensor.)

Montera sensortången på svetskabeln. Kontrollera alltid före påbörjat svetsarbete att sensortången sitter på plats. Sensorn öppnar spjället vid påbörjat svetsarbete och stänger det automatiskt efter avslutat svetsarbete med en fördröjningstid på ca. 1 min. (kan justeras, se Frånslagsfördröjning). Sensorn reagerar på svetsströmmar mellan 8 och 400 A. På sensorn finns en lysdiod **A** som lyser när sensorn har signal.

Manuell reglering av spjället

Spjället kan aktiveras med strömbrytaren **B** (se bild) eller med strömbrytare på punktutsugets huv.

WARNING!

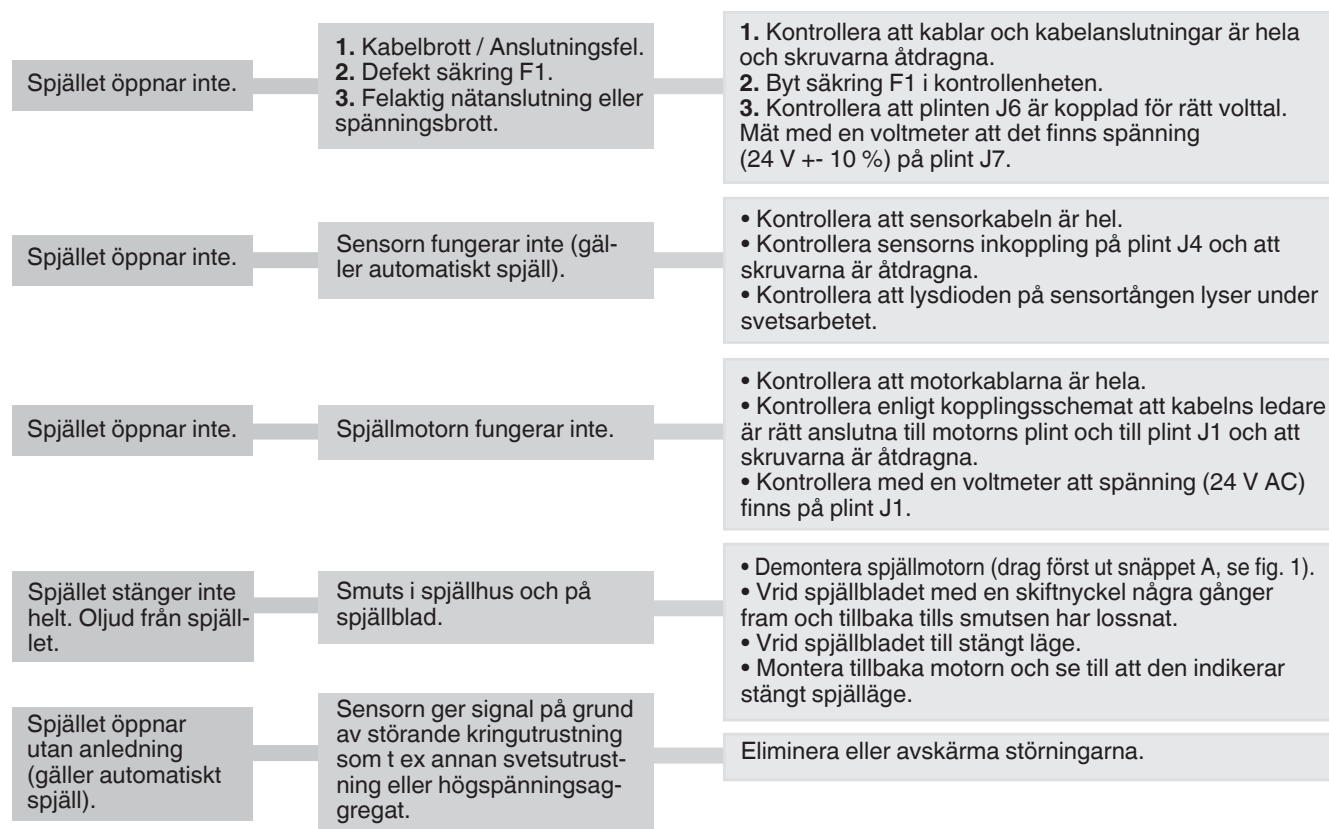
Risk för personskador.



- Kontrollera, efter installation av produkten, att det finns tillräcklig sugeffekt i kanalsystemet innan arbete påbörjas. Kontrollera fläkthjulets rotationsriktning och spjällfunktion.
- Utrustningen får inte användas i explosiv miljö.

Felsökningsschema

WARNING! Risk för personskador. Primärspänning 110-120 / 220-240 V.



Technical data

Primary voltage	110-120 V / 220-240 V
Line fuse (primary).....	max. 10 A
Secondary voltage	24 V
Phase	1~
Frequency.....	50/60 Hz
Transformer	30 VA
Welding current	8-400 A
Delay time*	0-5 min. ± 25 % (1 minute at delivery)
Connection diameter...	Ø125, 160 or 200 mm

* from completion of welding to closing the damper

This product is designed to meet the requirements of the relevant EC directives. To maintain this status all installation, repair and maintenance work must be carried out by qualified personnel using only original spare parts. Contact your nearest authorised dealer or AB Ph. Nederman & Co. for advice on technical service or if you require spare parts.

Mounting instruction - fig. ①

1. Check that the damper blade in the damper housing is in a completely closed position. Then fit the damper in the ducting system on the inlet side of the fan. For safe connection 3 self-drilling screws in each duct connection is recommended. Check the shaft end position for closed damper position according to picture.
2. Pull the button (A). Fit damper motor in the correct position according to picture. Push the button (A).
3. Fit operation box on the wall near to the operators working area.

WARNING!

Risk of personal injuries.



Break the power supply to Operation Boxes and Fan Contactor before any electrical work is started.

Electrical Installation of Damper Motor and Accessories - fig. ②

Electrical installation of the damper system should be done by a qualified electrician.

Connection should be done according to the wiring diagram.

1. Connect the cable between the damper motor and the operation box. 3 x 1.0 mm² cable is recommended.
2. For damper systems with sensor; connect the sensor cable in the operation box.
3. Connect possible spotlight or circuit-breaker for Nederman Extractor arms.

Check correct voltage connection: block J6.

D3 = light emission diode for voltage connected.

Delay time

The damper system with sensor shuts the damper automatically after welding, with a delay time of 1 minute. This delay time can be adjusted with a potentiometer positioned in the operation box (see picture). The time can be adjusted between 0 and 5 minutes +/- 25 %.

Connection of Several Operation Boxes - fig. ③

Several operation boxes can be connected when a central fan should be operated. See wiring diagram.

Connection of Fan Contactor

To start the fan, when any damper is opened, the fan contactor should be connected to block J2 in **one** of the operation boxes.

Alternative A

The internal power supply on 24 V AC maximum 80 mA (2 VA) is used to the fan contactor (Nederman product).

Connect a cable 2 x 1.0 mm² from A1 to J7:0V and from 96 to J2:B. Connect a cable 1 x 1.0 mm² from J7:24V to J2:A.

Alternative B

The power supply to the fan contactor (not a Nederman product) is supplied from an external source, maximum 48 V, 5 A.

Connection to Motor Operated Exhaust Hose Reels

Connections to Nederman motor operated exhaust hose reels should be done according to wiring diagram no. 148346.

Lockable safety switches are recommended for the whole electric system including the fan.

Important! The switch B (see fig.4) must point upwards before power connection.



Directions for use - fig. ④

The damper is designed to be used in a dry environment in combination with Nederman products for extracting fumes, smoke or dust. Check that the damper motor can indicate closed and opened damper position.

Automatic regulation of damper

(Only products with sensor.)

Fit the sensor clamp on the welding cable. Before welding begins, check that the sensor clamp is in place. The sensor closes the damper automatically after completion of welding with a delay time of approximately 1 min. (can be adjusted, see Delay time). The sensor responds to welding currents from 8 to 400 A. The sensor has a LED (A) which indicates when the sensor has received a signal.

Manual regulation of damper

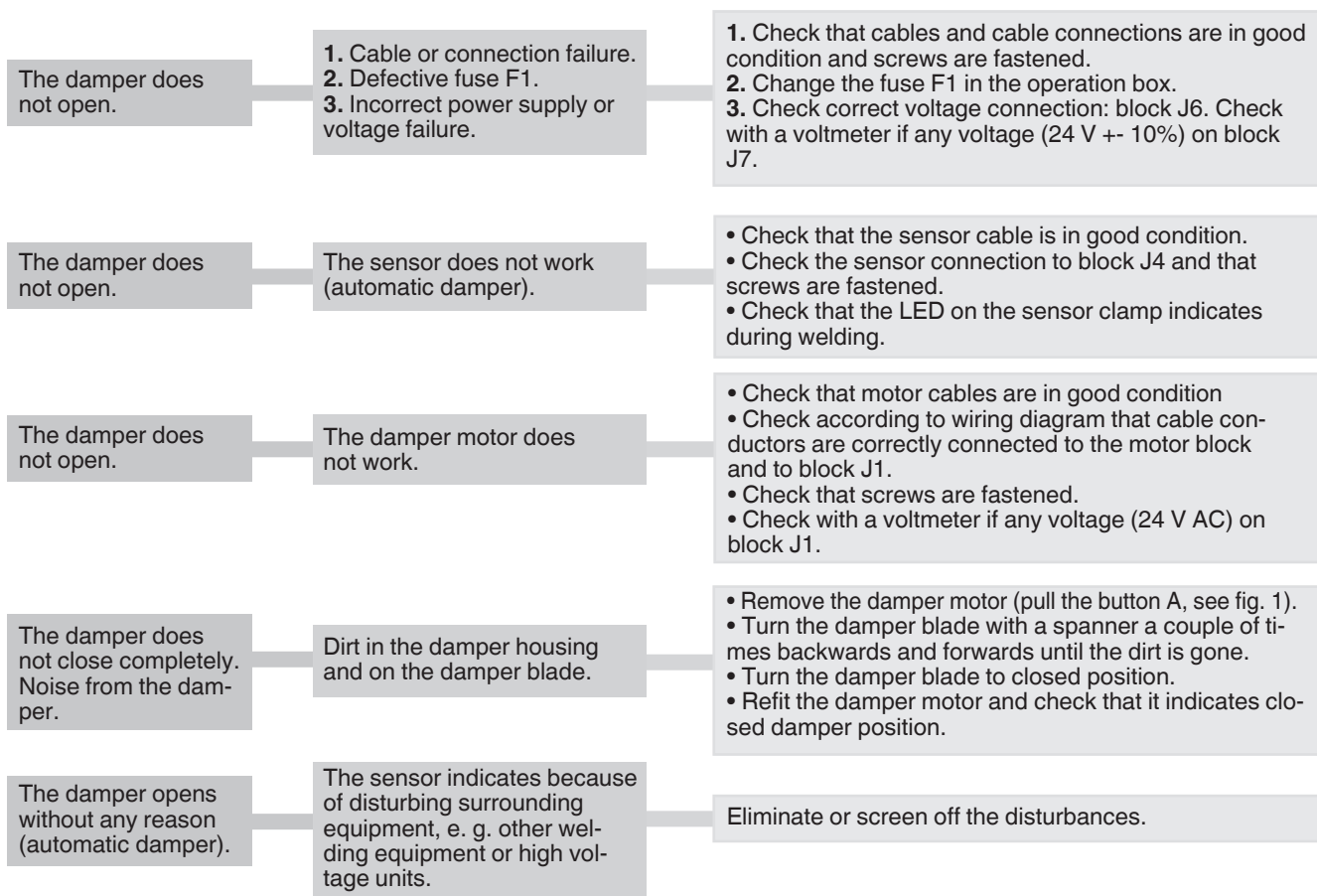
The damper can be opened or closed with the switch **B** (see picture) or with the switch on the Fume Extractor hood.

WARNING!**Risk of personal injuries.**

- When the damper has been installed, check that there is enough suction capacity in the ducting system before any work has begun. Check the fan impeller rotation direction and the damper function.
- The equipment must not be used in an explosive environment.

Trouble-shooting schedule

WARNING! Risk of personal injuries. Beware of primary voltage.



Technische Daten

Primärspannung	110-120 V / 220-240 V
Primärsicherung	max. 10 A
Sekundärspannung	24 V
Phase	1~
Frequenz	50/60 Hz
Transformatorleistung.....	30 VA
Schweißstrom.....	8-400 A
Verzögerungszeit* ..	0-5 Min. ± 25% (1 Minute bei Lieferung)
Anschlußdurchmesser	Ø125, 160 oder 200 mm

*vom Ende des Schweißvorgangs bis zum Schließen des Dämpfers

Dieses Produkt wurde unter Berücksichtigung der in den EG-Richtlinien festgelegten Anforderungen entwickelt. Um diesen Qualitätsanforderungen zu entsprechen, dürfen Installationen, Reparatur- und Wartungsarbeiten nur von Fachleuten unter Anwendung von Original-Ersatzteilen ausgeführt werden. Wenden Sie sich bei technischen Fragen oder bei Bedarf an Ersatzteilen an den nächstgelegenen autorisierten Fachhändler oder an AB Ph. Nederman & Co.

Montageanleitung - Abb. ①

1. Sicherstellen, daß die Dämpferklappe im Dämpfergehäuse vollkommen geschlossen ist. Dann den Dämpfer an der Ein-laßseite des Ventilators in den Luftkanal einsetzen. Um einen sicheren Anschluß zu gewährleisten, sollte der Dämpfer auf jeder Luftkanalseite mit drei selbst-schneidenden Schrauben gesichert werden. Die Stellung der Klappenwelle in geschlossener Position überprüfen, siehe Abbildung.
2. Sicherungsknopf (A) ziehen. Den Dämpfermotor gemäß der Abbildung in der richtigen Stellung ansetzen. Sicherungsknopf (A) wieder einschieben.
3. Den Schaltkasten in der Nähe des Arbeitsbereichs des Bedieners an der Wand montieren.

ACHTUNG!

Verletzungsgefahr.



Vor elektrischen Arbeiten Spannungsversorgung zum Ventilatorschalter und zum Schaltkasten trennen.

Elektroinstallation von Dämpfer-motor und Zubehör - Abb. ②

Die elektrische Installation des Dämpfer-systems darf nur durch einen qualifizierten Elektriker erfolgen.

Alle Anschlüsse gemäß Schaltplan herstellen.

1. Die Leitung zwischen Dämpfermotor und Schaltkasten installieren. Empfehlung: Dreiadrige Leitung mit 1,0 mm² Querschnitt.
2. Bei Dämpfersystemen mit Sensor die Sensorleitung im Schaltkasten anschließen.
3. Alle eventuellen Spots oder Leistungsschalter für Nederman-Abzugsarme anschließen.

Sicherstellen die richtige Spannung: Anschluß J6.
D3 = Leuchtdiode, Spannung.

Verzögerungszeit

Bei einem mit Sensor ausgestatteten Dämpfer-system wird der Dämpfer automatisch eine Minute nach dem Ende des Schweißvorgangs abgeschaltet. Diese Verzögerungszeit kann mit einem im Schaltkasten untergebrachten Potentiometer eingestellt werden, siehe Abbildung. Die Verzögerungszeit kann zwischen 0 und 5 Minuten +/- 25 % eingestellt werden.

Anschluß von mehreren Schaltkästen - Abb. ③

Wenn ein zentraler Ventilator angesteuert werden soll, können mehrere Schaltkästen angeschlossen werden, siehe Schaltplan.

Anschluß des Ventilatorschalters

Um den Ventilator zu starten, wenn einer der Dämpfer geöffnet ist, ist der Ventilatorschalter an Anschluß J2 in **einer** der Schaltkästen anzuschließen.

Alternative A

Der Ventilatorschalter (Nederman-Produkt) ist an die interne Spannungsversorgung von 24 V~ und maximal 80 mA (2 VA) angeschlossen.

Leitung 2 x 1,0 mm², A1 - J7:0 und 96 - J2:B

Leitung 1 x 1,0 mm², J7:24V - J2:A

Alternative B

Die Spannungsversorgung für den Ventilatorschalter (keine Nederman-Produkt) ist an eine externe Spannungsquelle mit maximal 48 V und 5 A angeschlossen.

Anschluß an motorgesteuerte Abluftschlauchrollen

Motorgesteuerte Abluftschlauchrollen von Nederman sind gemäß Schaltplan Nr. 148346 anzuschließen.

Für das gesamte elektrische System einschließlich des Ventilators wird der Einbau sperrbarer Sicherheitsschalters empfohlen.

Wichtiger Hinweis! Schalter **B** (siehe Abb. 4) muß vor dem Anschluß der Spannungsversorgung nach oben zeigen.



Gebrauchsanweisung - Abb. ④

Der Dämpfer ist für den Einsatz in trockenen Umgebungen zusammen mit Nederman-Produkten zur Extraktion von Rauch oder Stäuben gedacht. Sicherstellen daß der Dämpfermotor die offene und geschlossene Dämpferstellung korrekt erreichen kann.

Automatische Steuerung des Dämpfers

(Nur bei sensorgesteuerter Ausführung). Die Sensorklemme an das Schweißelektrodenkabel anklemmen. Vor dem Beginn der Schweißarbeiten überprüfen, daß die Sensorklemme richtig angebracht ist. Der Sensor schließt den Dämpfer automatisch ungefähr eine Minute nach dem Ende der Schweißarbeiten. (Diese Verzögerungszeit kann bei Bedarf eingestellt werden, siehe Verzögerungszeit.) Der Sensor erkennt Schweißströme zwischen 8 und 400 A. Der Sensor ist mit einer LED (A) ausgestattet, die immer leuchtet, wenn der Sensor einen Schweißstrom erkannt hat.

Manuelle Steuerung des Dämpfers

Der Dämpfer kann über den Schalter **B** (siehe Abbildung) oder über den Schalter auf der Rauchgasabzugshaube gesteuert werden.

ACHTUNG!**Verletzungsgefahr.**

- Nach der Installation des Dämpfers vor dem Beginn von Schweißarbeiten sicherstellen, daß die Abzugsleistung des Abzugssystems ausreicht. Die Drehrichtung des Ventilator-Impellers und die korrekte Funktion des Dämpfers überprüfen.
- Dieses Produkt ist nicht für den Einsatz in explosionsgefährdeten Bereichen geeignet.

Schema zur Fehlersuche

ACHTUNG! Verletzungsgefahr! 110-120 / 220-240 V



Caractéristiques techniques

Tension primaire	110-120 V / 220-240 V
Fusible primaire	max. 10 A
Tension secondaire	24 V
Phase	1~
Fréquence	50/60 Hz
Transformateur	30 VA
Courant de soudage	8-400 A
Temps de délai*	0-5 min. ±25% (1 minute à la livraison)
Diamètre de connexion	Ø125, 160 ou 200 mm

* à partir de la fin du soudage jusqu'à la fermeture du clapet

Ce produit est conçu pour répondre aux normes des directives européennes. Pour maintenir celles-ci, l'installation, la réparation et la maintenance ne doivent être effectuées que par un personnel qualifié en n'utilisant que des pièces d'origine. Pour toute assistance technique et la fourniture de pièces détachées, veuillez vous adresser à votre revendeur le plus proche ou AB Ph. Nederman & Co.

Instructions de montage - fig. ①

1. Contrôler que le volet dans le logement du clapet soit en position complètement fermée. Puis mettre en place le clapet dans la tuyauterie côté entrée du ventilateur. Pour un raccordement en toute sécurité, il est recommandé d'utiliser 3 vis auto-taraudeuses sur chaque raccordement avec le tuyau. Contrôler la position d'extrémité de l'arbre pour la position de volet fermé conformément à la figure.
2. Tirer le bouton (A). Mettre en place le volet en position correcte conformément à la figure. Pousser le bouton (A).
3. Fixer le boîtier de commande sur le mur près de la zone de travail de l'opérateur.

AVERTISSEMENT !

Risque de blessures corporelles.



Couper l'alimentation électrique du contacteur de ventilateur et du boîtier de commande avant d'intervenir sur l'installation électrique.

Installation électrique du moteur du volet et des accessoires - fig. ②

L'installation électrique du clapet doit être effectuée par un électricien qualifié.

La connexion doit être effectuée conformément au schéma de câblage.

1. Connecter le câble entre le moteur du volet et le boîtier de commande. Un câble de 3 x 1,0 mm² est recommandé.
2. Pour les clapets avec capteur, connecter le câble du capteur dans le boîtier de commande.
3. Connecter l'éventuel kit éclairage ou disjoncteur pour bras d'extraction Nederman.

Contrôler la bonne tension: bloc J6.

D3 = Diode lumineuse, tension.

Temps de délai

Le clapet avec capteur ferme le volet automatiquement après le soudage dans un délai de 1 minute. Ce délai peut être réglé à l'aide d'un potentiomètre situé dans le boîtier de commande (voir figure). Ce délai peut être réglé entre 0 et 5 minutes +/- 25%.

Connexion de plusieurs boîtiers de commande - fig. ③

Lorsqu'un ventilateur central doit être utilisé, il est possible de connecter plusieurs boîtiers de commande. Voir schéma de câblage.

Connexion du contacteur de ventilateur

Pour démarrer le ventilateur, lorsqu'un clapet est ouvert, le contacteur de ventilateur doit être connecté au bloc J2 dans l'un des boîtiers de commande.

Possibilité A

L'alimentation en puissance interne de 24 V CA maximum 80 mA (2 VA) est utilisée vers le contacteur (Nederman produit) de ventilateur.

Câble 2 x 1,0 mm², A1 - J7:0 et 96 - J2:B

Câble 1 x 1,0 mm², J7:24V - J2:A

Possibilité B

L'alimentation en puissance vers le contacteur de ventilateur est fournie par une source extérieure de 48 V, 5 A maximum.

Connexion aux enrouleurs de tuyau pour extraction de gaz

Les connexions aux enrouleurs de tuyau d'extraction Nederman commandés par moteur doivent être effectuées conformément au schéma de câblage n°148346.

Il est recommandé de disposer d'interrupteurs de sécurité verrouillables pour l'ensemble du système électrique, y compris le ventilateur.

NB! L'interrupteur B (voir fig. 4) doit pointer vers le haut avant connexion de l'alimentation.



Instructions d'utilisation - fig. ④

Le clapet est conçu pour être utilisé dans un environnement sec avec d'autres produits Nederman pour extraction de vapeur, fumée ou poussière. Contrôler que le moteur du clapet peut indiquer les positions de volet ouvert et fermé.

Régulation automatique du clapet

(Ne concerne que les produits avec capteur.)

Mettre en place la pince du capteur sur le câble de soudage. Avant que le soudage ne commence, contrôler que la pince du capteur soit bien en place. Une fois que le soudage est terminé, le capteur ferme automatiquement le volet dans un délai d'environ 1 min (ce délai peut être réglé, voir Temps de délai.) Le capteur répond à des courants de soudage compris entre 8 et 400 A. Il est équipé d'un LED (A) indiquant que le capteur a reçu un signal.

Régulation manuelle du clapet

Il est possible d'ouvrir et de fermer le volet à l'aide de l'interrupteur B (voir figure) ou de l'interrupteur situé sur la hotte d'extraction de vapeur.

AVERTISSEMENT!

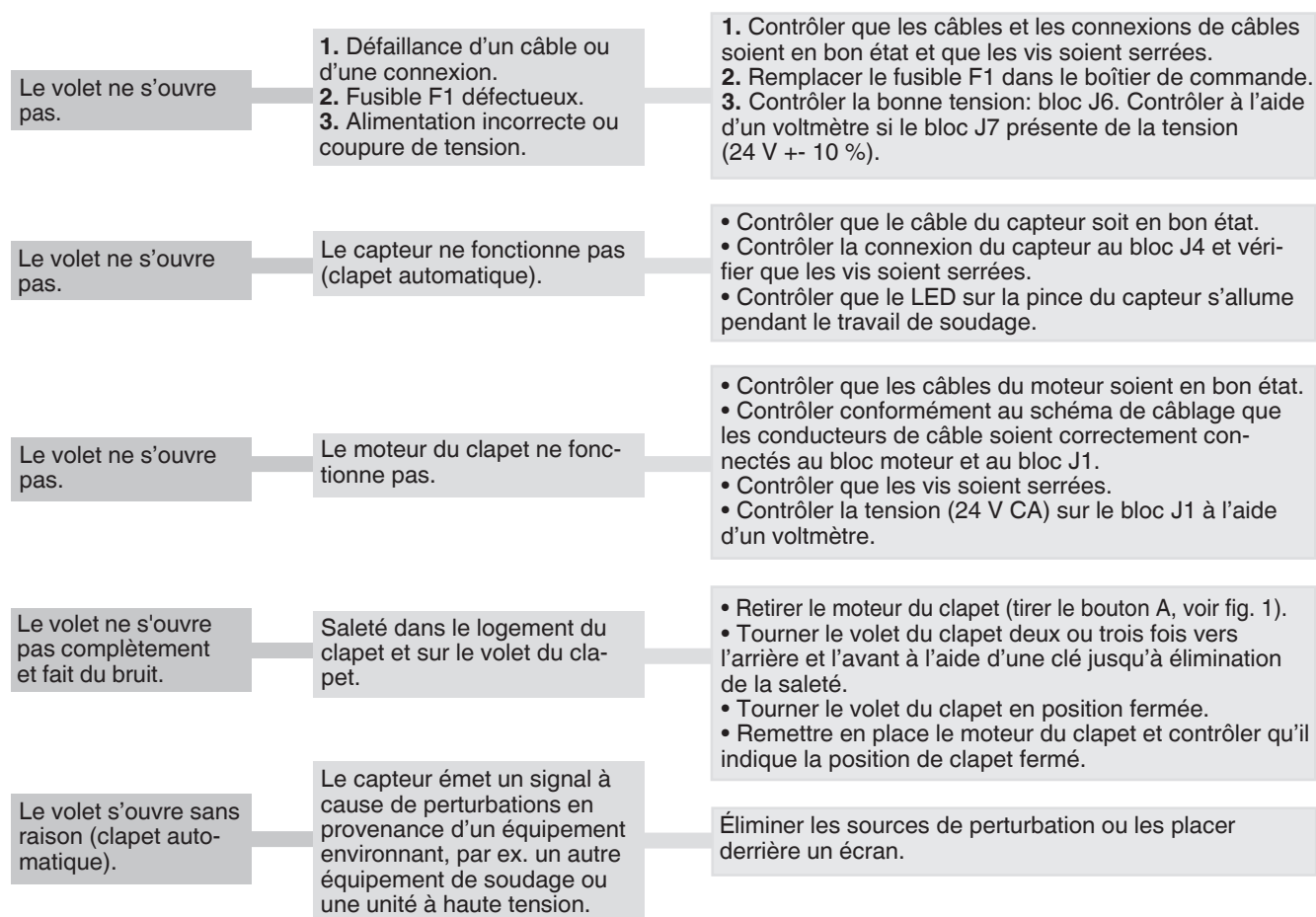
Risque de blessures corporelles.



- Une fois que le clapet est installé, contrôler que la capacité d'aspiration dans la tuyauterie est suffisante avant d'entreprendre tout travail. Contrôler le sens de rotation de la pale du ventilateur et le fonctionnement du clapet.
- Ne pas utiliser l'équipement dans un environnement explosif.

Programme de recherche de pannes

AVERTISSEMENT! Risque de blessures corporelles. 110-120 / 220-240 V



Datos técnicos

Voltaje alimentación.....	110-120 V/ 220-240 V
Fusible alimentación	max. 10 A
Voltaje maniobra.....	24 V
Fase.....	1~
Frecuencia.....	50/60 Hz
Transformador	30 VA
Corriente de soldadura	8-400 A
Tiempo de retardo*	0-5 min. ±25% (1 minuto en la entrega)
Diámetro de conexión Ø125, 160 ó	200 mm

* desde la finalización de la soldadura hasta el cierre de la válvula

Este producto está diseñado y construido para cumplir con los requerimientos de las directivas de la Comunidad Europea que lo abarcan. Para mantener este estado, es necesario que la instalación, reparación y mantenimiento sólo sean efectuados por personal cualificado y utilizando recambios originales. Para asesoría técnica o adquisición de recambios, tengan la amabilidad de ponerse en contacto con el concesionario más cercano o AB Ph. Nederman & Co.

Instrucciones de montaje - fig. ①

1. Controlar que la compuerta de la válvula esté en posición totalmente cerrada. Después, montar la válvula motorizada en la canalización en el lado de entrada del aspirador. Para una conexión segura recomendamos utilizar 3 tornillos en cada conexión con el conducto. Controlar en la posición del extremo del eje la posición cerrada de la válvula como indica la figura.
2. Tirar del botón (A). Montar el motor de la válvula en la posición correcta como indica la figura. Empujar el botón (A).
3. Montar la unidad de mando en una pared cercana a la zona de trabajo de los operadores.

¡ADVERTENCIA!

Riesgo de daños personales.



Desconecte de la red eléctrica tanto la Unidad de mando como el contactor antes de empezar a manipular el equipo.

Instalación eléctrica del motor de la válvula y sus accesorios - fig. ②

La instalación eléctrica del sistema de la válvula debe ser realizada por un electricista cualificado.

Efectuar las conexiones como indica el diagrama de circuito.

1. Conectar el cable entre el motor de la válvula y la unidad de mando. Se recomienda un cable de 3 x 1,0 mm².
2. Para sistemas de válvula motorizada con sensor, conectar el cable del sensor en la unidad de mando.
3. Conectar el conjunto de iluminación o el disyuntor de los Brazos Extractores de Nederman, si los hay.

Compruebe latensión correcta: bloque J6.

D3 = Diodo luminoso, latensión.

Tiempo de retardo

El sistema de válvula motorizada con sensor cierra automáticamente la válvula motorizada después de la soldadura, con un tiempo de retardo de 1 minuto. Este tiempo se puede modificar con un potenciómetro situado en la unidad de mando (ver la figura). El tiempo es ajustable entre 0 y 5 minutos +/- 25%.

Conexión de varias unidades de mando - fig. ③

Cuando va a conectarse a un aspirador central se pueden conectar varias unidades de mando. Ver el diagrama de circuito.

Conexión del contactor del aspirador

Para arrancar el aspirador cuando hay varios tiros de extracción abiertos el contactor debe estar conectado al bloque J2 de una de las Unidades de mando.

Alternativa A

La alimentación interna de 24 V CA, como máximo 80 mA (2 VA), es utilizada para el contactor (Nederman producto) del aspirador.

Cable 2 x 1,0 mm², A1 - J7:0 y 96 - J2:B

Cable 1 x 1,0 mm², J7:24V - J2:A

Alternativa B

La alimentación al contactor del aspirador es suministrada por una fuente externa, como máximo 48 V, 5 A.

Conexión a los enrolladores de extracción de gases de escape accionados por motor

La conexión a los enrolladores de manguera de escape accionados por motor se debe realizar como indica el diagrama nº 148346.

Es aconsejable disponer de interruptores de seguridad bloqueables para todo el circuito eléctrico, incluyendo el del aspirador.

Importante! El interruptor B (ver fig. 4) debe estar dirigido hacia arriba antes de conectar la alimentación.



Instrucciones de uso - fig. ④

Esta válvula motorizada está diseñada para ser utilizada en un entorno seco junto con otros productos Nederman para extracción de gases, humo o polvo. Controlar que el motor de la válvula pueda indicar la posición abierta y cerrada de la compuerta de la válvula.

Regulación de la válvula automática

(Únicamente productos con sensor.) Colocar la pinza del sensor en el cable de soldadura. Controlar antes de iniciar la soldadura que esté colocada la pinza del sensor. El sensor cierra automáticamente la válvula motorizada después de finalizar la soldadura, con un retardo de 1 minuto aproximadamente (valor regulable, ver Tiempo de retardo). El sensor responde a corrientes de soldadura de 8 a 400 A. El sensor tiene un LED (A) que indica que el sensor ha recibido una señal.

Regulación de la válvula manual

La válvula motorizada se puede abrir y cerrar con el interruptor **B** (ver la figura) o con el interruptor del brazo articulado de extracción (si dispone de él).

¡ADVERTENCIA!

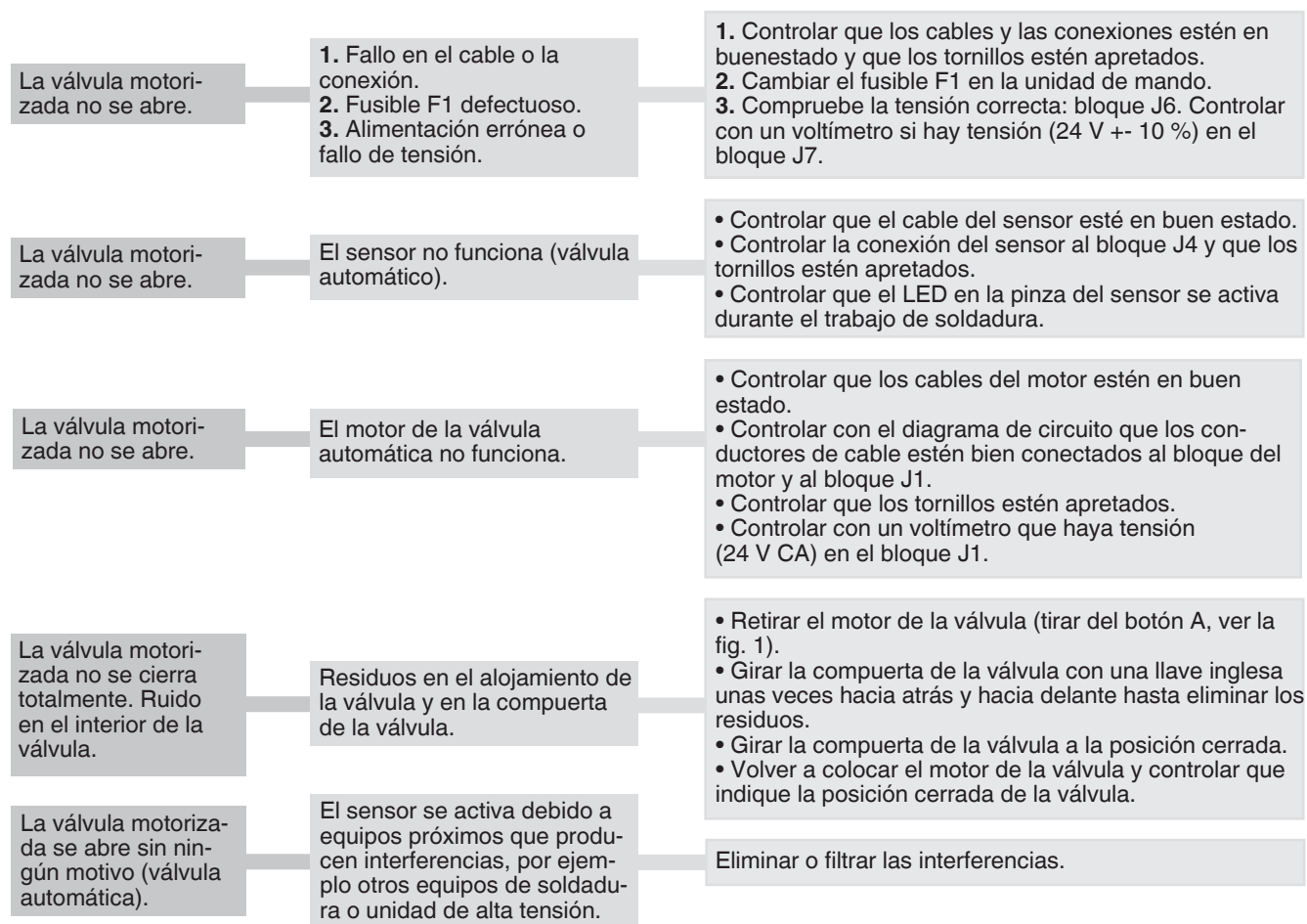
Peligro de daños personales.



- Controlar, después de haber instalado la válvula motorizada, que haya suficiente capacidad de aspiración en la canalización antes de iniciar cualquier trabajo. Controlar la dirección de rotación del aspirador y el funcionamiento de la válvula automática.
- El equipo no debe utilizarse en un entorno explosivo.

Diagrama de localización de averías

¡ADVERTENCIA! Peligro de daños personales. 110-120 / 220 - 240 V



Dati tecnici

Tensione primaria.....	110-120 V / 220-240 V
Fusibile primaria	max. 10 A
Tensione secondaria	24 V
Fase.....	1~
Frequenza	50-60 Hz
Trasformatore	30 VA
Corrente di saldatura	8-400 A
Tempo di ritardo*	0-5 min. $\pm$ 25% (1 minuto alla consegna)
Diametro raccordo	$\varnothing$ 125,160 oppure 200mm

* dalla fine della saldatura alla chiusura della serranda

Questo prodotto è costruito in conformità alle norme previste dalla direttiva CE. Per conservare queste condizioni, l'installazione, le riparazioni e la manutenzione devono essere eseguite solo da personale competente utilizzando ricambi originali. Contattare il rivenditore autorizzato più vicino o AB Ph. Nederman & Co. per consulenze in caso di interventi tecnici o di necessità di ricambi.

Istruzioni di montaggio - fig. ①

1. Controllare che la serranda sia completamente chiusa. Montare la serranda nel sistema di condutture sul lato d'ingresso dell'elettroventilatore. Per maggiore sicurezza, si raccomanda di fissare con 3 viti autofilettanti in corrispondenza di ciascun raccordo alla canalizzazione. Controllare che a serranda chiusa la posizione dell'albero corrisponda a quella mostrata in figura.
2. Tirare il pulsante (A). Montare il motore della serranda in posizione corretta come illustrato in figura. Premere il pulsante (A).
3. Montare il quadro di comando sulla parete più vicina all'area di lavoro.

AVVERTENZA!

Pericolo di lesioni personali.



Prima di qualsiasi lavoro sull'impianto elettrico, disinserire l'alimentazione elettrica al contattore dell'elettroventilatore ed al quadro di comando.

Collegamenti elettrici del motore della serranda ed accessori - fig. ②

I collegamenti elettrici del gruppo-serranda devono essere effettuati da un elettricista qualificato.

I collegamenti devono essere effettuati in conformità allo schema elettrico.

1. Collegare il cavo tra il motore della serranda ed il quadro di comando. Si raccomanda di utilizzare un cavo di sezione 3 x 1,0 mm².
2. Per gruppi serranda con sensore: collegare il cavo del sensore al quadro di comando.
3. Collegare eventuali set illuminanti o interruttore on/off con cui accessoriare i bracci di aspirazione Nederman.

Controllare tensione corretta: terminale J6.

D3 = LED lampeggia, tensione.

Tempo di ritardo

Il gruppo serranda con sensore disattiva automaticamente la serranda al termine della saldatura, con un ritardo di 1 minuto. Questo ritardo può essere regolato con il potenziometro posto nel quadro di comando (vedere figura). Il tempo può essere impostato tra 0 e 5 minuti $\pm$ 25%.

Collegamento di diversi quadri di comando - fig. ③

In caso di impianto di aspirazione centralizzato è possibile collegare diversi quadri di comando. Vedere lo schema elettrico.

Collegamento del contattore dell'elettroventilatore

Per l'avvio dell'elettroventilatore, all'apertura di una qualsiasi serranda, occorre collegare il contattore dell'elettroventilatore al terminale J2 di **uno** dei quadri di comando.

Alternativa A

Per il contattore (Nederman prodotto) dell'elettroventilatore viene utilizzata l'alimentazione interna di 24 V AC max 80 mA (2 VA).

Cavo 2 x 1,0 mm², A1 - J7:0 ed 96 - J2:B

Cavo 1 x 1,0 mm², J7:24V - J2:A

Alternativa B

L'alimentazione al contattore dell'elettro-ventilatore è fornita da una fonte esterna, max 48 V, 5 A.

Collegamento ad arrotolatori per gas di scarico motorizzati

I collegamenti agli arrotolatori per gas di scarico motorizzati Nederman devono essere effettuati in conformità allo schema elettrico 148346.

Si raccomanda di installare interruttori di sicurezza lucchettabili per l'intero impianto elettrico, elettroventilatore compreso.

NB! L'interruttore **B** (vedere fig. 4) deve essere rivolto verso l'alto prima di collegare l'alimentazione.



Istruzioni per l'uso - fig. ④

La serranda è progettata per l'utilizzo in ambiente secco in combinazione con prodotti Nederman per l'aspirazione di gas, fumi o polveri. Accertarsi che il motore della serranda indichi correttamente sia la posizione di apertura che di chiusura.

Regolazione automatica della serranda

(Solamente modelli con sensore).

Montare il morsetto del sensore sul cavo di saldatura. Prima della saldatura, verificare che il morsetto del sensore sia in posizione. Il sensore chiude automaticamente la serranda al termine della saldatura, con un ritardo di 1 minuto circa (regolabile, vedere Tempo di ritardo). Il sensore risponde a correnti di saldatura comprese tra 8 e 400 A ed è dotato di un LED (A) che indica quando il sensore ha ricevuto un segnale.

Regolazione manuale della serranda

La serranda può essere aperta o chiusa con l'interruttore **B** (vedere figura) oppure con l'interruttore posto sulla cappa del braccio aspirante.

AVVERTENZA!

Pericolo di lesioni personali.

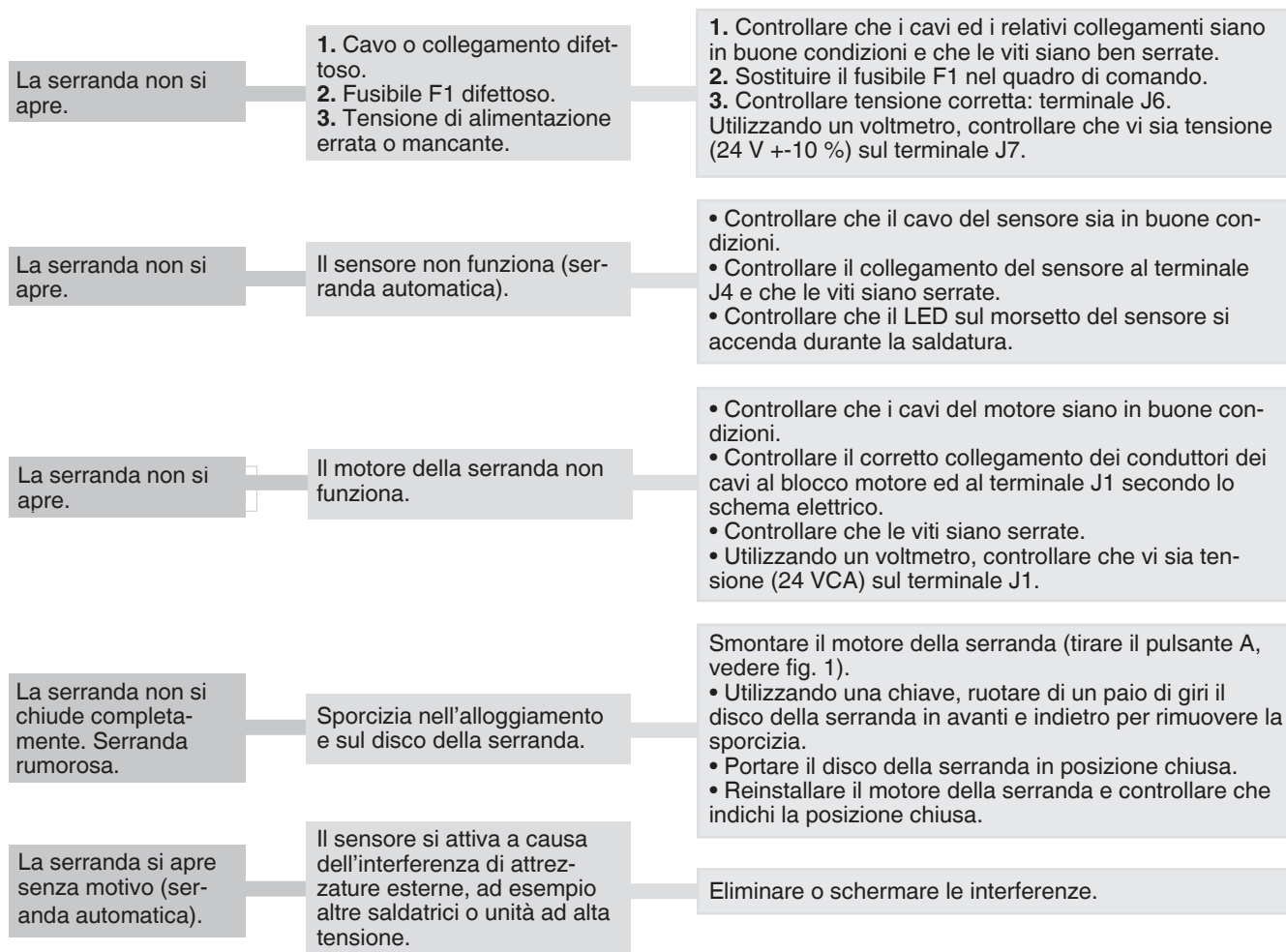


• Dopo aver installato la serranda, prima di iniziare qualsiasi lavoro controllare che il sistema di condutture sia stato correttamente dimensionato. Controllare il senso di rotazione della girante dell'elettroventilatore e il funzionamento della serranda.

• Non utilizzare l'apparecchio in ambiente esplosivo.

Schema di ricerca dei guasti

AVVERTENZA! Pericolo di lesioni personali. 110-120 / 220-240 V



Technische gegevens

Primaire spanning	110-120 V / 220-240 V
Primaire zekering	max. 10 A
Secundaire spanning	24 V
Fase	1~
Frequentie	50/60 Hz
Transformator	30 VA
Lasstroom	8-400 A
Vertragingstijd*	0-5 min. ± 25% (1 minuut bij levering)
Diameter verbinding	Ø125, 160 of 200 mm

* vanaf de beëindiging van de laswerkzaamheden tot de sluiting van de klep

Dit product is zo vervaardigd dat het voldoet aan de eisen in de EEG-richtlijnen. Om deze status te behouden mogen installatie, reparatie en onderhoud slechts worden uitgevoerd door vakkundig personeel en met gebruik van originele reserveonderdelen. Neem contact op met de dichtstbijzijnde geautoriseerde wederverkoper of AB Ph. Nederman & Co. voor adviezen bij technische service of voor reserveonderdelen.

Installatie-instructies - afb. ①

1. Controleer of het klepblad in de klep-behuizing volledig gesloten is. Installeer de klep vervolgens in het leidingsysteem aan de inlaatzijde van de ventilator. Ten behoeve van een veilige bevestiging raden wij aan 3 parkerschroeven in elke leidingverbinding te gebruiken. Controleer de positie van het aseinde om te zien of de klep is gesloten overeenkomstig de afbeelding.
2. Trek aan de knop (A). Installeer de klepmotor op de juiste plaats overeenkomstig de afbeelding. Druk op de knop (A).
3. Installeer de bedieningskast aan de muur dichtbij de werkplek van de gebruiker.

WAARSCHUWING!

Gevaar voor lichamelijk letsel.



Voordat u onderhoudswerkzaamheden aan het elektrische systeem verricht, dient u de stroom naar de Ventilator-schakelaar en de Bedieningskast altijd af te sluiten.

Elektrische installatie van klepmotor en accessoires - afb. ②

De elektrische installatie van het klep-systeem mag uitsluitend worden verricht door een bevoegde elektromonteur.

De aansluiting moet geschieden overeenkomstig het bedradingschema.

1. Sluit de kabel aan tussen de klepmotor en de bedieningskast. Een kabel van 3 x 1,0 mm² wordt aanbevolen.
2. Bij klepsystemen met sensor moet de sensorkabel op de bedieningskast worden aangesloten.
3. Sluit eventuele verlichting of schakelaars aan voor Nederman-afzuigarmen.

Controleer juiste spanning: blok J6.

D3 = licht-diode, spanning.

Vertragingstijd

Het klepsysteem met sensor sluit de klep automatisch na het lassen met een vertragingstijd van 1 minuut. Deze tijd kan worden geregeld met een potentiometer, die in de bedieningskast wordt geplaatst (zie afbeelding). De tijd kan worden ingesteld op 0 tot 5 minuten, +/- 25 %.

Aansluiting van verschillende bedieningskasten - afb. ③

U kunt verschillende bedieningskasten aansluiten als u een centrale ventilator gaat gebruiken. Zie bedradingschema.

Aansluiting van de ventilatorschakelaar

Om de ventilator te starten, wanneer een van de dempers geopend is, moet de ventilatorschakelaar worden aangesloten op blok J2 in een van de bedieningskasten.

Alternatief A

Voor de ventilatorschakelaar (Nederman product) wordt een interne voeding van 24 V AC, maximaal 80 mA (2VA) gebruikt.

Kabel 2 x 1,0 mm², A1 - J7:0 en 96 - J2:B

Kabel 1 x 1,0 mm², J7:24V - J2:A

Alternatief B

De voeding naar de ventilatorschakelaar wordt geleverd door een externe bron, maximaal 48 V, 5 A.

Aansluiting op mechanische uitlaatslanghaspels

Aansluiting op mechanische uitlaatslanghaspels van Nederman moet geschieden overeenkomstig bedradingschema nr. 148346.

Wij adviseren om het gehele elektrische systeem uit te rusten met vergrendelbare veiligheidsschakelaars.

Belangrijk! Schakelaar B (zie afb. 4) moet omhoog gericht zijn voordat de stroom wordt ingeschakeld.



Gebruiksaanwijzing - afb. ④

De klep is ontworpen voor gebruik in een droge omgeving in combinatie met andere Nederman-producten om dampen, rook of stof af te zuigen. Controleer of de klepmotor kan aangeven of de klep open of gesloten is.

Automatische regeling van klep

(Alleen producten met sensor).

Bevestig de sensorklem aan de laskabel. Voordat u gaat lassen moet u controleren of de sensorklem op zijn plaats zit. De sensor sluit de klep automatisch na beëindiging van het lassen met een vertragingstijd van ongeveer 1 min (kan worden ingesteld, zie afb. Vertragingstijd). De sensor reageert op lasstroomsterktes van 8 tot 400 A. De sensor heeft een LED (A), die aangeeft wanneer de sensor een signaal heeft ontvangen.

Handmatige regeling van klep

De klep kan worden geopend of gesloten met schakelaar B (zie afbeelding) of met de schakelaar op de afzuigkap.

WAARSCHUWING!

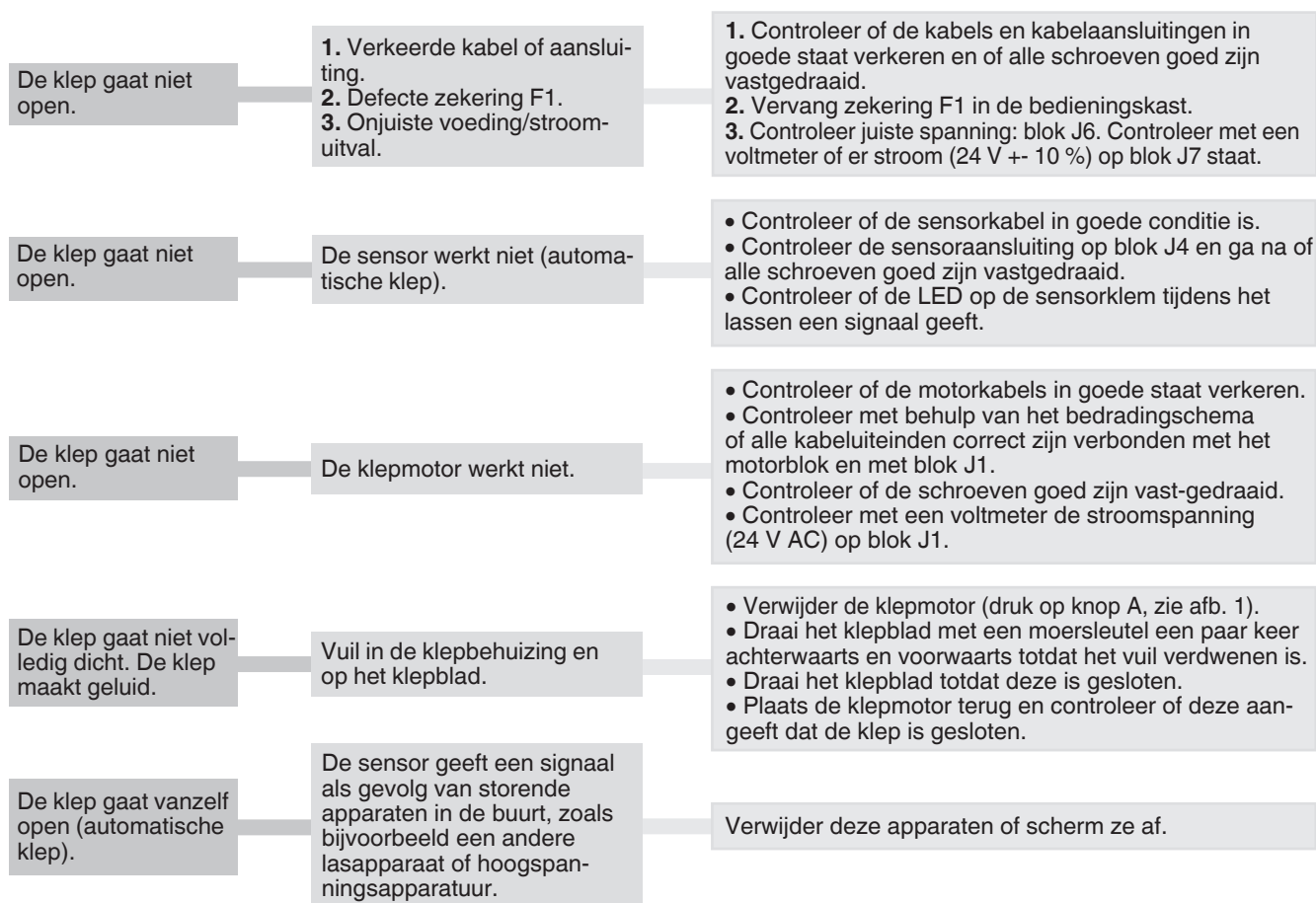
Gevaar voor persoonlijk letsel.



- Wanneer de klep is geïnstalleerd, moet u controleren of er voldoende aanzuigvermogen in het leidingsysteem is voordat u werkzaamheden gaat verrichten. Controleer de draairichting van het rotorblad van de ventilator en de werking van de klep.
- De apparatuur mag niet gebruikt worden in een omgeving met explosiegevaar.

Schema om storingen te verhelpen

WAARSCHUWING! Gevaar voor persoonlijk letsel. 110-120 / 220-240 V



Tekniske data

Primær spænding	110-120 V / 220-240 V
Ledningssikring (primær)	maks. 10 A
Sekundær spænding	24 V
Fase	1~
Frekvens	50/60 Hz
Transformer	30 VA
Svejsestrøm	8-400 A
Forsinkelsestid*	0-5 min. ± 25 % (1 minut ved levering)
Tilslutningsdiameter	Ø125, 160 eller 200 mm

* fra afslutning på svejsning til lukning af spjæld

Dette produkt er konstrueret til at opfylde kravene i de relevante EF-direktiver. For at bevare denne status skal alt installations-, reparations- og vedligeholdelsesarbejde foretages af uddannet personale vha. originale reservedele. Kontakt din nærmeste autoriserede forhandler eller AB Ph. Nederman & Co. for spørgsmål vedrørende teknisk service eller hvis du har brug for reservedele.

Monteringsvejledning - fig. ①

1. Kontroller, at spjældbladet i spjældhuset er i en helt lukket stilling. Monter så spjældet i kanalsystemet på ventilens ind-sugningsside. For sikker tilslutning anbefales 3 selvskruende skruer i hver kanalforbindelse. Kontroller akselendens stilling for lukket spjæld i henhold til billedet.
2. Træk i knappen (A). Monter spjældmotor i den korrekte stilling i henhold til billedet. Tryk på knappen (A).
3. Monter kontrolenheden på væggen nær operatørens arbejdsområde.

ADVARSEL!

Risiko for personskader.



Afbryd strømforsyningen til kontrolenheder og ventilatorkontaktor før påbegyndelse af ethvert el-arbejde.

Elektrisk installation af spjældmotor og tilbehør - fig. ②

Elektrisk installation af spjældsystemet bør foretages af en uddannet elektriker.

Tilslutningen bør foretages i henhold til ledningsdiagrammet.

1. Forbind kablet mellem spjældmotoren og kontrolenheden. 3 x 1,0 mm² kabel anbefales.
2. For spjældsystemer med føler; tilslut følerens kabel i kontrolenheden.
3. Tilslut forekommende projektør eller kredsløbsafbryder til Nederman punktudsugningsarme.

Kontroller, at der er koblet korrekt spænding til blok J6. D3 = lysdiode til spænding tilkoblet.

Forsinkelsestid

For spjældsystemet med føler lukker spjældet automatisk efter svejsning med en forsinkelsestid på 1 minut. Denne forsinkelsestid kan justeres med et potentiometer anbragt i kontrolenheden (se billede). Tiden kan indstilles på mellem 0 og 5 minutter +/- 25 %.

Tilslutning af flere kontrolenheder - fig. ③

Flere kontrolenheder kan forbindes, når en central blæser skal styres. Se ledningsdiagram.

Tilslutning af blæserkontaktor

For at starte blæseren, når et vilkårligt spjæld åbnes, skal blæserkontaktoren være koblet til blok J2 i en af kontrolenhederne.

Alternativ A

Den interne strømforsyning på 24 V vekselstrøm maksimum 80 mA (2 VA) anvendes til blæserkontaktoren (Nederman-produkt).

Forbind et kabel 2 x 1,0 mm² fra A1 to J7:0V og fra 96 til J2:B. Forbind et kabel 1 x 1,0 mm² fra J7:24V til J2:A.

Alternativ B

Strømforsyningen til blæserkontaktoren (ikke et Nederman-produkt) leveres fra en ekstern kilde, maks. 48 V, 5 A.

Tilslutning til motordrevne udblæsnings-slangespøler

Tilslutning til Nederman-motorbetjente udblæsnings-slangespøler skal foretages i henhold til ledningsdiagram nr. 148346.

Låsbare sikkerhedskontakter anbefales til hele det elektriske system inklusive blæseren.

Vigtigt! Kontakten B (se fig.4) skal pege opad før tilslutning af strøm.



Brugsvejledning - fig. ④

Spjældet er designet til anvendelse i et tørt miljø i kombination med Nederman-produkter til udsugning af dampe, røg eller støv. Kontroller, at spjældmotoren kan vise lukket og åben spjældstilling.

Automatisk regulering af spjældet

(Kun produkter med føler.)

Monter følerklemmen på svejsekablet. Før du begynder at svejse, kontrollér da, om følerklemmen er på sin plads. Føleren lukker spjældet automatisk efter endt svejsning med en forsinkelsestid på ca. 1. min. (kan justeres, se forsinkelsestid). Føleren reagerer på svejsestrøm fra 8 til 400 A. Føleren har en lysdiode (A) som viser, hvornår føleren har modtaget et signal.

Manuel regulering af spjældet

Spjældet kan åbnes og lukkes med kontakten **B** (se billede) eller med kontakten på røgudsugningshætten.

ADVARSEL!

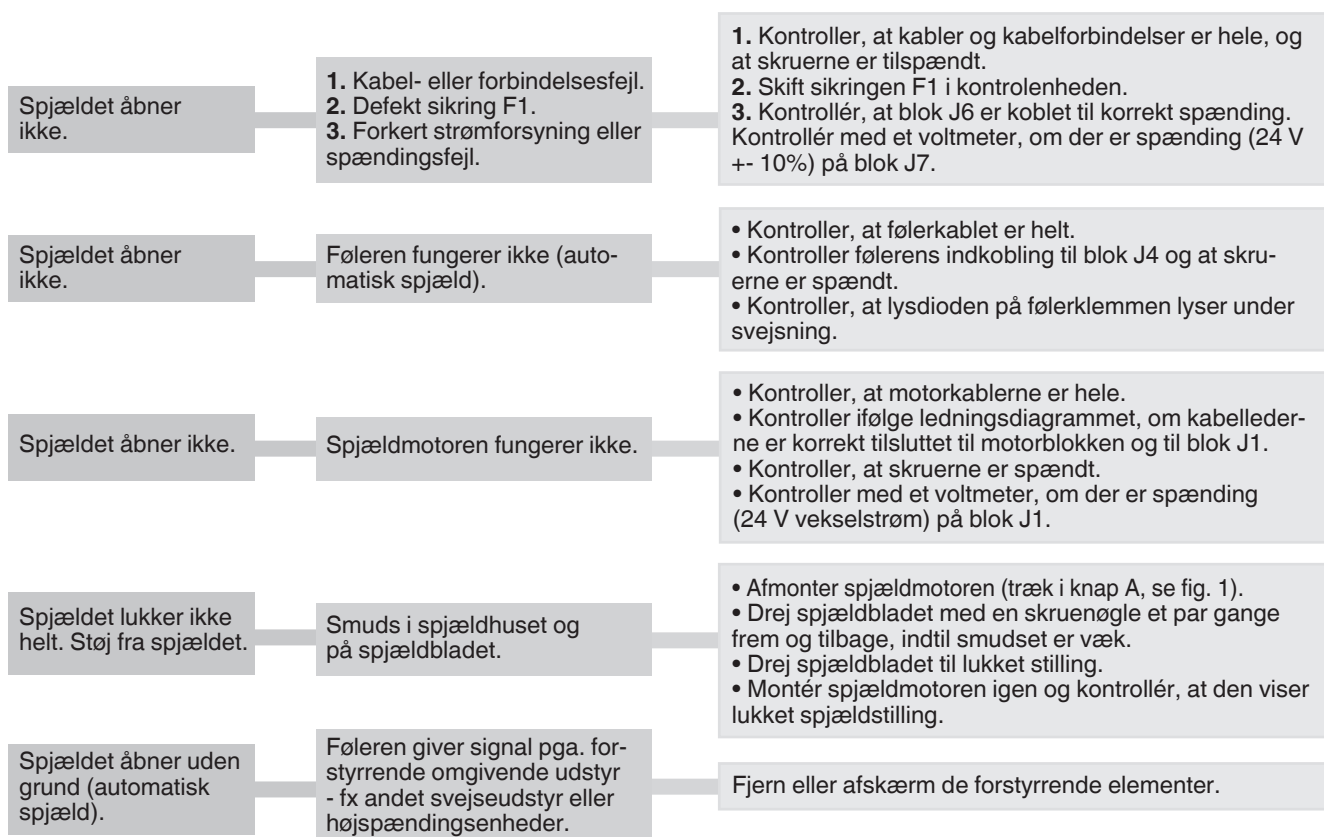
Risiko for personskader.



- Kontrollér efter installation af motorspjældet, at sugekapaciteten i kanalsystemet er tilstrækkelig, inden arbejde påbegyndes. Kontrollér blæserhjulets rotationsretning og spjældfunktionen.
- Udstyret må ikke anvendes i et eksplosivt miljø.

Fejlsøgningsskema

ADVARSEL! Risiko for personskader. Vær opmærksom på den primære spænding.



Tekniset tiedot

Ensiöjännite	110-120 V / 220-240 V
Ensiövaroke	max. 10 A
Toisiojännite	24 V
Vaihe	1~
Taajuus	50/60 Hz
Muuntaja	30 VA
Hitsausvirta	8-400 A
Viiveaika*	0-5 min. ± 25 % (1 minuutin toimitettaessa)
Liitäntähalkaisija	Ø125, 160 tai 200 mm

* hitsaamisen loppumisesta vaimentimen sulkeutumiseen

Tämä tuote on suunniteltu ja valmistettu täyttämään asianmukaiset EY-direktiivien vaatimukset. Tämän tason säilyttämiseksi on asennuksessa, korjauksessa ja huollossa käytettävä asiantuntevaa henkilöstöä ja alkuperäisiä varaosia. Valmistaja AB Ph. Nederman & Co, maahantuoja Oy Tecalemit Ab ja lähin jälleenmyyjä antavat teknistä neuvontaa ja toimittavat varaosia.

Asennusohjeet - kuva ①

1. Tarkista, että vaimentimen kotelossa oleva vaimennin-terä on kokonaan kiinniasennossa. Kiinnitä vaimennin sen jälkeen kanavajärjestelmään tuulettimen sisääntulopuolelle. Jotta liitäntä olisi turvallinen, suosittelemme käyttämään kolmea itsekierteittävää ruuvia jokaisessa kanavassa. Tarkista akselin pään asennosta, että vaimennin on suljettu (katso kuva).
2. Vedä painikkeesta (A). Asenna vaimentimen moottori oikeaan asentoon kuvan mukaisesti. Paina painiketta (A).
3. Kiinnitä ohjauskeskus seinään käyttäjän työskentelytilan läheisyyteen.

VAROITUS!



Loukkaantumisvaara.

Katkaise tuulettimen kontaktorin ja ohjauskeskuksen virran-syöttö ennen sähkötyöiden aloittamista.

Vaimentimen moottorin ja lisävarusteiden sähköasennukset - kuva ②

Vaimenninjärjestelmän sähköasennukset tulee antaa pätevän sähköasentajan tehtäväksi.

Suorita kytkennät kytkentäkaavion mukaan.

1. Liitä johto vaimentimen moottorin ja ohjauskeskuksen väliin. Suosittelemme 3 x 1,0 mm² johtoa.
2. Jos vaimenninjärjestelmä on varustettu anturilla, liitä ohjauskeskuksen anturijohto.
3. Liitä Nedermanin poistoimurin varsia varten mahdollinen kohdevalo tai katkaisin.

Tarkista oikealle jännitteelle: lohossa J6.

D3 = Valodiodi, jännite.

Viiveaika

Anturilla varustettu vaimenninjärjestelmä sulkee vaimentimen automaattisesti 1 minuutin viiveellä hitsauksen loputtua. Aika voidaan säätää ohjauskeskuksessa sijaitsevalla potentiometrillä 0 – 5 minuuttiin +/- 25 % (katso kuva).

Usean ohjauskeskuksen liittäminen - kuva ③

Useita ohjauskeskuksia voidaan asentaa, mikäli käytetään keskustuuletinta. Katso kytkentäkaavio.

Tuulettimen kontaktorin liittäminen

Jos tuuletin halutaan käynnistää jonkin vaimentimen ollessa auki, tuulettimen kontaktori on liitettävä **yhden** ohjauskeskuksen lohkoon J2.

Vaihtoehto A

Tuulettimen kontaktoriin (Nederman) käytetään 24 VAC:n ja korkeintaan 80 mA:n (2 VA) sisäistä virtalähdettä.

2 x 1,0 mm² johtoa, A1 - J7:0 ja 96 - J2:B

1 x 1,0 mm² johtoa, J7:24V - J2:A

Vaihtoehto B

Virta syötetään tuulettimen kontaktorille ulkoisesta lähteestä, maks. 48 V, 5 A.

Liittäminen moottorikäyttöisiin poistoletkukeloihin

Liitännät Nedermanin moottorikäyttöisiin poistoletkukeloihin tulee suorittaa kytkentäkaavion 148346 mukaisesti.

Lukittavaa turvakytintä suositellaan käytettäväksi koko sähköjärjestelmässä tuuletin mukaan lukien.

Tärkeää! Kytkimen **B** (katso kuva 4) tulee osoittaa ylöspäin ennen virran kytkemistä.



Käyttöohjeet - kuva ④

Vaimennin on tarkoitettu käytettäväksi kuivassa ympäristössä muiden Nedermanin tuotteiden kanssa savun, höyryn tai pölyn poistamiseen. Tarkista, että vaimentimen moottori pystyy ilmaisemaan suljetun ja avoimen vaimentimen asennon.

Vaimentimen automaattisäätö

(Ainoastaan anturilla varustetut tuotteet).

Kiinnitä anturin pidike hitsausjohtoon. Tarkista ennen hitsauksen aloittamista, että anturin pidike on paikallaan. Anturi sulkee vaimentimen automaattisesti noin yhden minuutin viiveellä hitsauksen lopettamisesta (voidaan säätää, katso Viiveaika). Anturi reagoi 8 – 400 A:n hitsausvirtaan. Anturissa oleva merkkivalo (A) ilmaisee, milloin anturi saa signaalin.

Vaimentimen manuaalinen säätäminen

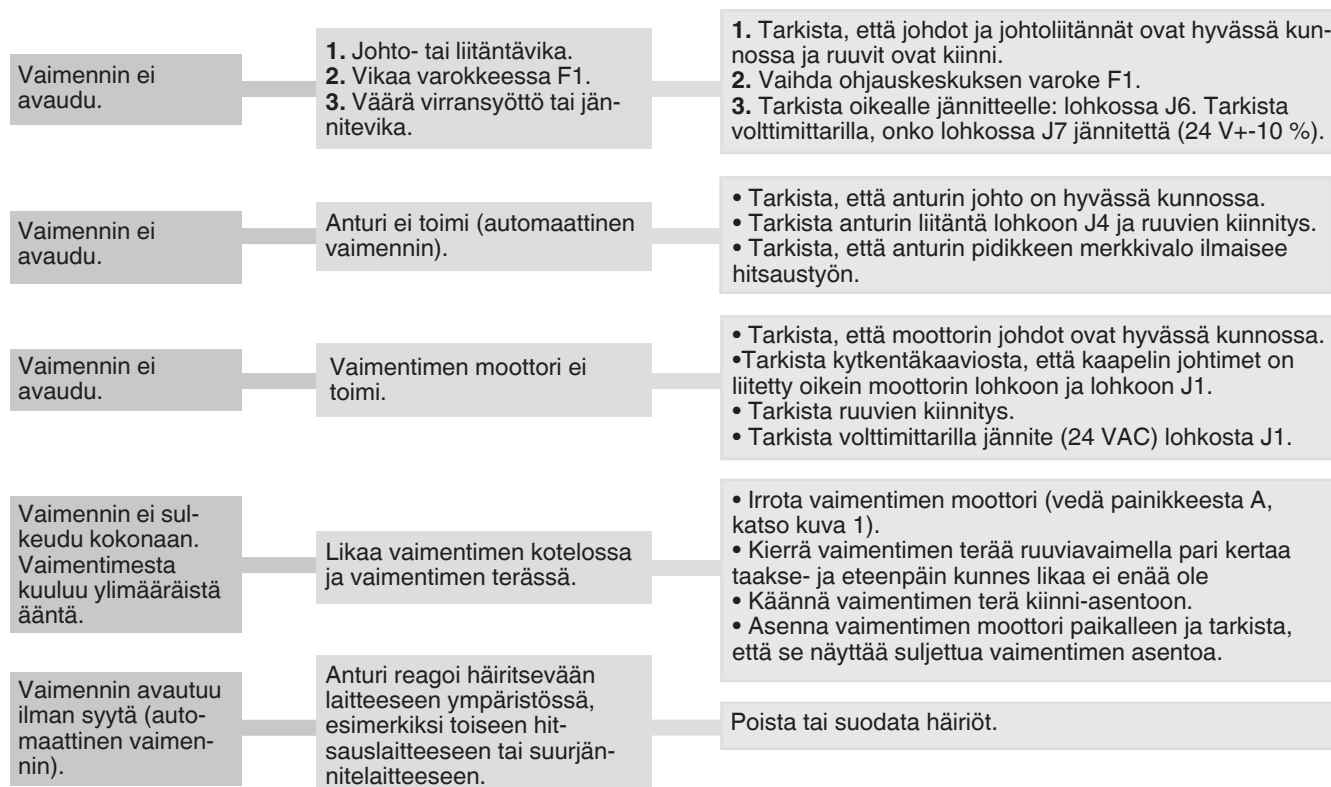
Vaimennin voidaan avata tai sulkea kytkimestä B (katso kuva) tai savunpoistoimurin vaipassa olevasta kytkimestä.

VAROITUS!**Loukkaantumisvaara.**

- Tarkista vaimentimen asennuksen jälkeen, että kanava-järjestelmässä on tarpeeksi imutehoa ennen kuin aloitat työt. Tarkista tuulettimen siivikon pyörimissuunta ja vaimentimen toiminta.
- Laitetta ei saa käyttää ympäristössä, jossa on räjähdysvaara.

Vianetsintäkaavio

VAROITUS! Loukkaantumisvaara. 110-120 / 220-240 V



Dane techniczne

Napięcie, uzw. pierwotne.....	110-120 V / 220-240 V
Bezpiecznik podł. szeregowo (uzwojenie pierwotne)...	max. 10 A
Napięcie, uzw. wtórne.....	24 V
Faza	1~
Częstotliwość.....	50/60 Hz
Transformator	30 VA
Prąd spawania	8-400 A
Opóźnienie*	0-5 min ± 25 % (fabrycznie 1 minuta)
Średnica połączenia.....	Ř125, 160 lub 200 mm

* od zakończenia spawania do zamknięcia przepustnicy

Produkt został zaprojektowany zgodnie z wymogami odpowiednich norm WE. Aby zachować ten status, konieczne jest dopilnowanie, by wszelkie prace montażowe, naprawcze konserwacyjne były wykonywane przez wykwalifikowane osoby korzystające wyłącznie z oryginalnych części. Aby uzyskać wsparcie techniczne lub zamówić części zamienne, należy skontaktować się z najbliższym autoryzowanym dealerem lub z firmą AB Ph. Nederman & Co.

Instrukcja montażu — rys. ①

1. Sprawdzić, czy topatka przepustnicy w obudowie przepustnicy znajduje się w położeniu całkowicie zamkniętym. Następnie zamocować układ przewodów przepustnicy po stronie wlotowej wentylatora. Aby połączenie było bezpieczne, zaleca się zastosowanie 3 wkrętów samogwintujących. Sprawdzić, czy położenie końca wału dla zamkniętej przepustnicy jest zgodne z rysunkiem.
2. Pociągnąć przycisk (A). Zamocować silnik przepustnicy w odpowiednim położeniu, zgodnie z rysunkiem. Nacisnąć przycisk (A).
3. Zamontować skrzynkę sterowania na ścianie w pobliżu obszaru roboczego operatorów.

OSTRZEŻENIE!

Niebezpieczeństwo odniesienia obrażeń ciała!



Przed rozpoczęciem wykonywania prac z układem elektrycznym należy odłączyć zasilanie skrzynek sterowania i stycznika wentylatora.

Instalacja elektryczna silnika przepustnicy i akcesoriów — rys. ②

Instalacja elektryczna układu przepustnicy powinna zostać wykonana przez wykwalifikowanego elektryka. Połączenia należy wykonać zgodnie ze schematem elektrycznym.

1. Połączyć przewodem silnik przepustnicy i skrzynkę sterowania. Zaleca się zastosowanie przewodu 3 x 1,0 mm².
2. W przypadku układów przepustnicy z czujnikiem należy podłączyć przewód czujnika do skrzynki sterowania.
3. Podłączyć reflektor punktowy lub wyłącznik automatyczny odpowiedni dla ramion odciągowych Nederman.

Sprawdzić napięcie na połączeniu (blok J6).

D3 = dioda elektroluminescencyjna podłączonego napięcia.

Opóźnienie

Układ przepustnicy z czujnikiem automatycznie zamyka przepustnicę po zakończeniu spawania; opóźnienie wynosi około 1 minuty. Czas opóźnienia można regulować za pomocą potencjometru umieszczonego w skrzynce sterowania (patrz rysunek). Czas można ustawiać w zakresie od 0 do 5 minut +/- 25 %.

Połączenie kilku skrzynek sterowania — rys. ③

Do obsługi centralnego wentylatora można podłączyć kilka skrzynek sterowania. Patrz schemat elektryczny.

Podłączanie stycznika wentylatora

Aby uruchomić wentylator, gdy któraś z przepustnic jest otwarta, należy podłączyć stycznik wentylatora do bloku J2 w jednej ze skrzynek sterowania.

Rozwiązanie A

Stycznik wentylatora korzysta z wewnętrznego źródła zasilania 24 V AC maks. 80 mA (2 VA) (produkt firmy Nederman). Za pomocą przewodu 2 x 1,0 mm² połączyć styk A1 i J7:0V oraz styk 96 i J2:B.

Połączyć przewodem 1 x 1,0 mm² styk J7:24V i J2:A.

Rozwiązanie B

Zasilanie do stycznika wentylatora (innego producenta) doprowadzane jest z zewnętrznego źródła, maks. 48 V, 5 A.

Podłączanie do sterowanych silnikiem zwijaczy węży odprowadzających

Połączenie ze zwijaczami węży odprowadzających sterowanych silnikiem firmy Nederman należy wykonać zgodnie ze schematem elektrycznym nr 148346.

W całym układzie elektrycznym, włączając wentylator, zaleca się zamontowanie blokowanych wyłączników bezpieczeństwa.

Ważne! Przed podłączeniem zasilania przełącznik B (patrz rys. 4) musi być skierowany w górę.



Wskazówki dot. sposobu użycia — rys. ④

Przepustnica przeznaczona jest do użytku w suchym środowisku w połączeniu z produktami firmy Nederman do odprowadzania oparów, dymu lub pyłów. Sprawdzić, czy silnik przepustnicy wskazuje położenie otwarte i zamknięte przepustnicy.

Automatyczna regulacja przepustnicy

(Tylko produkty z czujnikiem.)

Zamocować zacisk czujnika na przewodzie spawalniczym.

Przed rozpoczęciem spawania sprawdzić, czy zacisk czujnika znajduje się na miejscu. Po zakończeniu spawania czujnik automatycznie zamyka przepustnicę po upływie około 1 min. (czas opóźnienia można regulować, patrz Opóźnienie). Czujnik reaguje na prąd spawania z zakresu od 8 do 400 A. Dioda LED (A) wbudowana w czujnik wskazuje moment otrzymania sygnału przez czujnik.

Ręczna regulacja przepustnicy

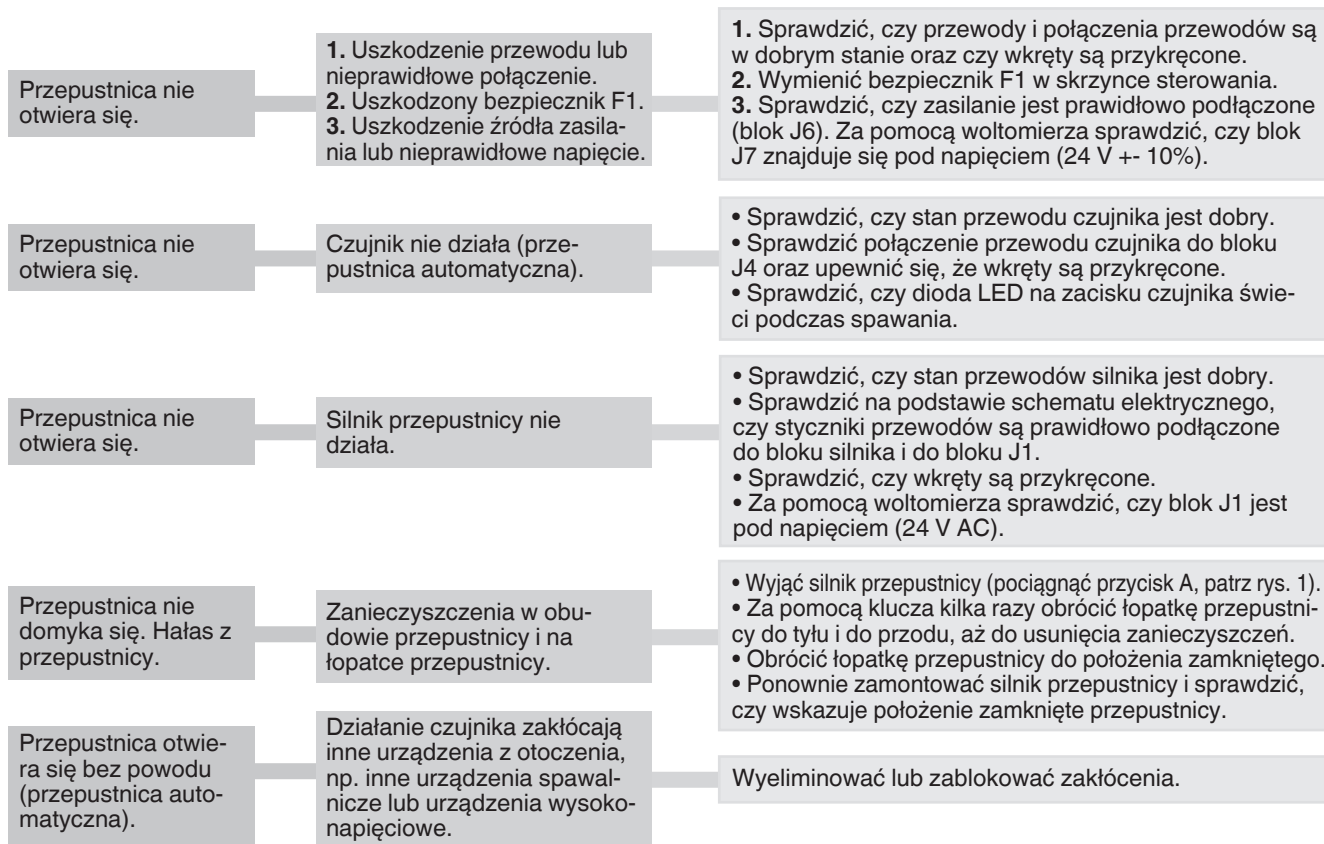
Przepustnicę można otwierać lub zamykać za pomocą przełącznika B (patrz rysunek) lub za pomocą przełącznika na klapie odciągu.

OSTRZEŻENIE!**Niebezpieczeństwo odniesienia obrażeń ciała!**

- Po zamontowaniu przepustnicy, a przed rozpoczęciem pracy należy sprawdzić, czy wydajność ssania układu odprowadzającego jest wystarczająca. Sprawdzić kierunek obrotów wirnika wentylatora oraz działanie przepustnicy.
- Sprzęt nie jest przeznaczony do użytku w środowisku wybuchowym.

Harmonogram wykrywania usterek

OSTRZEŻENIE! Ryzyko obrażeń ciała. Należy uważać na napięcie uzwojenia pierwotnego.



Technické údaje

Napětí primárního vinutí	110-120 V / 220-240 V
Jištění (primární vinutí)	max. 10 A
Napětí sekundárního vinutí	24 V
Počet fází 1, střídavý proud	
Frekvence	50/60 Hz
Transformátor	30 VA
Svařovací proud	8-400 A
Doba prodlevy*	0-5 min ± 25 % (1 minuta při dodávce)
Připojovací průměr	díla 125, 160 nebo 200 mm

* od dokončení svařování do uzavření klapky

Tento výrobek je navržen tak, aby vyhověl požadavkům příslušných směrnic Evropského Společenství. Pro udržení stavu musí být veškeré instalační, opravářské a údržbářské práce provedeny kvalifikovaným personálem a s použitím výhradně originálních náhradních součástí. Informace a rady o technickém servisu a náhradních součástech vám poskytne váš nejbližší autorizovaný dodavatel nebo společnost AB Ph. Nederman & Co.

Pokyny pro upevnění - obrázek ①

1. Zkontrolujte, zda lopatka klapky ve skříni je ve zcela uzavřené poloze. Pak klapku namontujte do systému kanálu na vstupní stranu ventilátoru. Pro bezpečné připojení se doporučuje použití 3 samořezných šroubů v každém spoji s kanálem. Zkontrolujte si polohu konce hřídele uzavřené klapky, zda odpovídá poloze na obrázku
2. Vytáhněte tlačítko (A). Namontujte motorovou klapku do správné polohy podle obrázku. Stiskněte tlačítko (A).
3. Namontujte ovládací skříň na stěnu vedle pracoviště obsluhy.

VÝSTRAHA!

Nebezpečí poranění osob!



Před započetím jakékoliv práce na elektrickém systému odpojte přívod napájení do ovládací skříně a stykače ventilátoru.

Elektrická instalace motorové klapky a příslušenství - obrázek ②

Elektrické instalace systému tlumiče by měly být provedeny kvalifikovaným elektrotechnikem.

Připojení je nutné provést podle následujícího schématu elektrického zapojení.

1. Připojte kabel mezi motor klapky a ovládací skříň. Doporučuje se kabel 3 x 1,0 mm².
2. V případě klapky se snímači připojte kabel snímače do ovládací skříně.
3. Připojte případné osvětlení nebo jistič ramen odsávače Nederman.

Zkontrolujte správné připojení napájecího napětí: blok J6 D3 = světelná dioda pro připojené napětí.

Doba prodlevy

Systém klapky se snímači uzavře klapku automaticky po svařování s prodlevou 1 minuta. Doba prodlevy může být nastavena pomocí potenciometru v ovládací skříni (viz obrázek). Čas je možné nastavit mezi 0 až 5 minutami, +/- 25 %.

Připojení několika ovládacích skříní - obrázek ③

Několik ovládacích skříní je možné připojit v případě, že používáte centrální ventilátor. Viz také schéma elektrického zapojení.

Připojení stykače ventilátoru

Chcete-li spustit ventilátor při některé klapce otevřené, stykač ventilátoru by měl být připojen k bloku J2 v **jedné** z ovládacích skříní.

Alternativa A

Ve stykači ventilátoru je použit vnitřní napájecí zdroj 24 V AC, maximálně 80 mA (2 VA) (výrobek Nederman).

Připojte kabel 2 x 1,0 mm² od A1 do J7:0V a od J6 do J2:B.

Připojte kabel 1 x 1,0 mm² od J7:24V do J2:A.

Alternativa B

Napájení stykače ventilátoru (není výrobek Nederman) je přiváděno z externího zdroje, maximálně 48 V, 5 A.

Připojení motorem ovládaných cívek pro navíjení výfukových hadic

Připojení motorem ovládaných cívek pro navíjení výfukových hadic Nederman by mělo být provedeno podle schématu zapojení č. 148346.

Pro celý elektrický systém včetně ventilátoru se doporučují uzamykatelné bezpečnostní spínače.

Důležité upozornění! Spínač B (viz obrázek 4) musí před připojením napájení směřovat vzhůru.



Pokyny pro použití - obrázek ④

Klapka je navržena tak, aby ji bylo možné používat v suchém prostředí v kombinaci s výrobky společnosti Nederman pro odsávání výparů, kouře anebo prachu. Zkontrolujte, zda motor klapky může indikovat uzavřenou a otevřenou polohu klapky.

Automatická regulace klapky

(Pouze výrobky se snímačem.)

Nasad'te sponu snímače na svařovací kabel. Před započetím svařování zkontrolujte, zda je na místě spona snímače.

Snímač uzavře klapku automaticky po dokončení svařování s prodlevou asi 1 minuta (lze nastavit, viz Časy prodlevy).

Snímač má odezvu na svařovací proudy 8 až 400 A. Snímač má diodu LED (A), která indikuje, že snímač má k dispozici signál.

Ruční regulace klapky

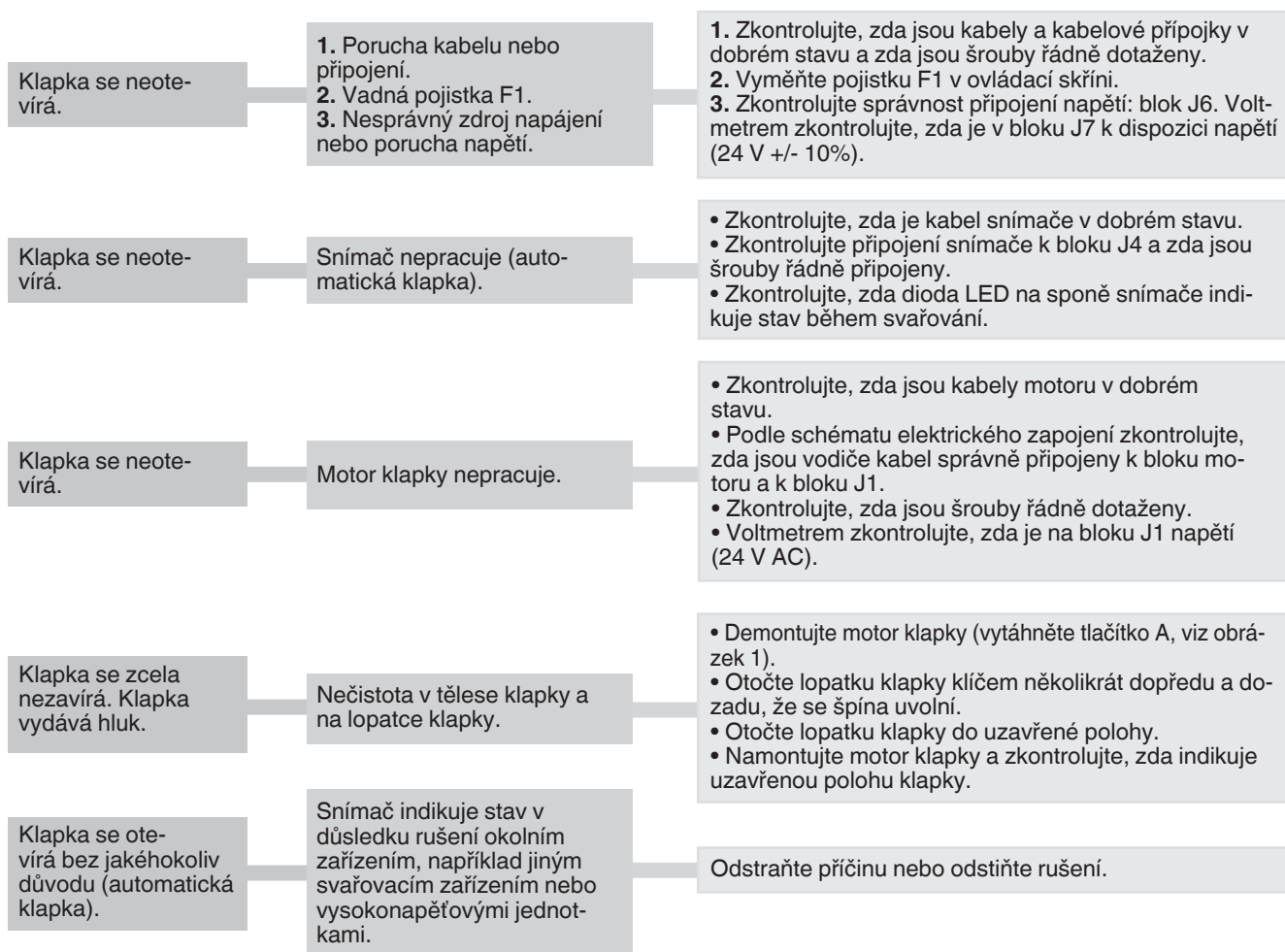
Klapku je možné otevřít nebo uzavřít spínačem B (viz obrázek) nebo se spínačem na krytu odsávacího výparů.

VÝSTRAHA!**Nebezpečí poranění osob!**

- Po nainstalování klapky zkontrolujte, zda je k dispozici dostatečný sací výkon v systému kanálu, až poté můžete se systémem začít pracovat. Zkontrolujte směr otáčení oběžného kola ventilátoru a funkci klapky.
- Zařízení se nesmí používat ve výbušném prostředí.

Vyhledávání poruch

VÝSTRAHA! Nebezpečí poranění osob. Vyvarujte se napětí na primárním vinutí.



Műszaki adatok

Primer feszültség	110-120 V / 220-240 V
Biztosíték (primer)	max. 10 A
Szekunder feszültség	24 V
Fázis	1~
Frekvencia	50/60 Hz
Transzformátor	30 VA
Hegesztőáram	8-400 A
Késleltetési idő*	0-5 perc ± 25 % (gyárilag 1 perc)
Csatlakozási átmérő... ..	Ø125, 160 vagy 200 mm

* a hegesztés befejezésétől a csillapító zárásáig

Ezt a terméket úgy fejlesztették ki, hogy megfeleljen az EK vonatkozó előírásainak. Ennek az állapotnak a fenntartása érdekében minden szerelési, javítási és karbantartási munkát szakképzett személynek kell végeznie, és csak eredeti pótalkatrészek használhatóak. Ha műszaki szervizzel kapcsolatos tanácsadásra, vagy pótalkatrészre van szükség, lépjen kapcsolatba a legközelebbi illetékes forgalmazóval vagy az AB Ph. Nederman & Co. vállalattal.

Szerelési útmutató - ①. ábra

1. Ellenőrizze, hogy a csillapítóházban lévő csillapítólemez teljesen zárt helyzetben van-e. Ezután illessze a csillapítót a ventilátor szívó oldalán lévő csővezetékrendszerre. A biztonságos csatlakozás érdekében minden csőcsatlakozáshoz 3 önfűró csavar javasolt. Ellenőrizze, az ábra alapján, hogy a tengelyvég helyzet zárt csillapítóhelyzetben van-e.
2. Húzza fel az (A) gombot. Állítsa a csillapítómotort megfelelő állásba, az ábra alapján. Nyomja le az (A) gombot.
3. Szerelje a kezelődobozt a falra, a gépkezelő munkaterülete közelében.

FIGYELEM!

Személyi sérülés veszélye.



Minden elektromos munka megkezdése előtt le kell kapcsolni a kezelődobozok és a ventilátorcsatlakozó áramellátását.

Csillapítómotor és szerelvények elektromos berendezése - ②. ábra

A csillapító rendszer elektromos beszerelését szakképzett villanyszerelőnek kell végeznie.

A csatlakozást a kapcsolási rajznak megfelelően kell elvégezni.

1. Csatlakoztassa egy kábellel a csillapítómotort és a kezelődobozt. 3 x 1,0 mm² átmérőjű kábel javasolt.
2. Az érzékelővel felszerelt csillapítórendszereknél csatlakoztassa az érzékelő kábelét a kezelődobozhoz.
3. Csatlakoztasson egy lehetséges spotlámpát vagy megszakítót a Nederman elszívó karoknál.

Ellenőrizze a megfelelő feszültségcsatlakozást: J6 blokk. D3 = LED a csatlakoztatott feszültséghez

Késleltetési idő

Az érzékelővel ellátott csillapítórendszer hegesztés után automatikusan, 1 perces késéssel, lezárja a csillapítót. Ezt a késleltetési időt a kezelődobozban elhelyezett potenciométerrel (lásd ábra) lehet beállítani. Az idő 0 és 5 perc (+/- 25%) között állítható be.

Több kezelődoboz csatlakoztatása - ③. ábra

Központi ventilátor működtetése esetén több kezelődoboz csatlakoztatható. Lásd a kapcsolási rajzot.

Ventilátor védőrelé csatlakozása

A ventilátor indításához, ha bármelyik csillapító nyitva van, a ventilátor védőrelét csatlakoztatni kell az **egyik** kezelődobozban lévő J2 blokkhoz.

A változat

A ventilátor védőreléhez 24 V-os, max 80 mA váltakozó áramú, belső tápegységet (2 VA) használnak (Nederman termék).

Csatlakoztassanak egy 2 x 1,0 mm² átmérőjű kábelt az A1 és J7:0V, illetve a 96 és J2:B közé.

Csatlakoztassanak egy 1 x 1,0 mm² átmérőjű kábelt az J7:24V és a J2:A közé.

B változat

A ventilátor védőrelé (nem Nederman termék) energiaellátása külső forrásból történik, maximum 48 V, 5 A.

Csatlakozás a motorhajtású kipufogótömlődobokhoz

A Nederman motorhajtású kipufogótömlődobokhoz való csatlakozást a 148346. számú kapcsolási rajz szerint kell elvégezni.

A teljes elektromos rendszerhez, beleértve a ventilátort is, zárható biztonsági kapcsolók javasoltak.

Fontos tudnivaló! Az áramcsatlakozás előtt a Bkapcsolónak (lásd 4. ábra) felfelé kell állnia.



Használati irányok - ④. ábra

A csillapítót száraz környezetben, Nederman termékekkel kombinált használatra tervezték, füstgázok, füst vagy por elszívására. Ellenőrizze, hogy a csillapítómotor képes zárt és nyitott csillapítóállást mutatni.

Csillapító automata szabályozása

(Csak érzékelővel felszerelt termékeknel.)

Szereljék fel az érzékelő kapcsát a hegesztőkábelre. A hegesztés megkezdése előtt ellenőrizze, hogy az érzékelő kapcsa a helyén van. Az érzékelő, a hegesztés befejeződése után, kb. 1 perces késleltetési idővel automatikusan zárja a csillapítót (a késleltetési idő állítható, lásd vonatkozó fejezet-rész). Az érzékelő a 8-400 A-es hegesztési áramerősségre válaszol. A szenzoron lévő LED (A) jelzi, ha az érzékelő jelet fogad.

Csillapító kézi szabályozása

A csillapító a B kapcsolóval (lásd ábra), vagy a füstgáz elszívó fedelén lévő kapcsolóval nyitható vagy zárható.

FIGYELEM!

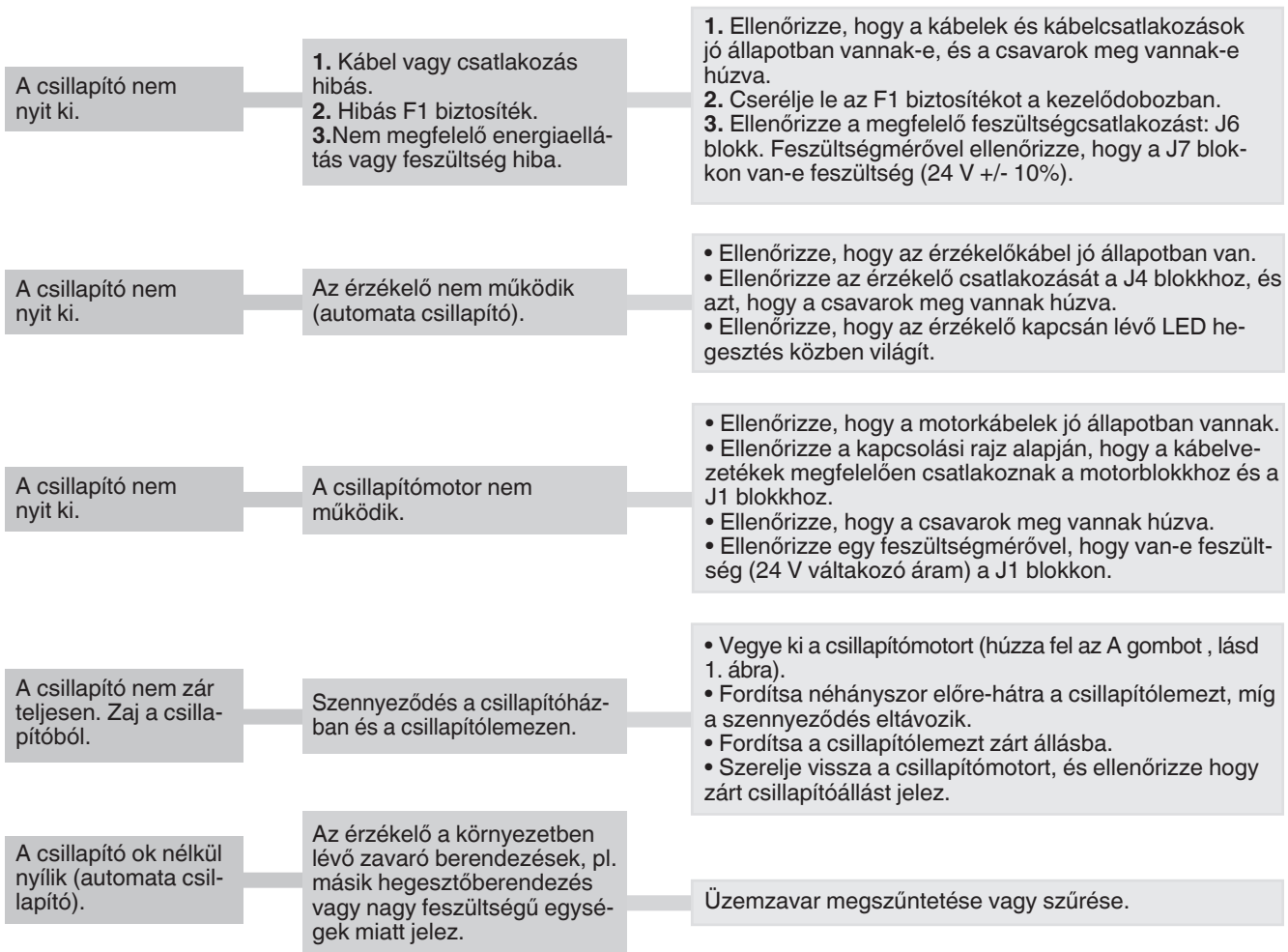
Személyi sérülés veszélye.



- A csillapító beszerelését követően, még a munka megkezdése előtt ellenőrizze, hogy a csővezeték-rendszerben elegendő-e a szívókapacitás. Ellenőrizze a ventilátor munkakerek forgásirányát és a csillapító működését.
- Robbanásveszélyes környezetben a berendezés nem használható.

Hibakeresési jegyzék

FIGYELEM! Személyi sérülés veszélye. Vigyázat, primer feszültség!





Nederman

www.nederman.com

Nederman is represented in:

Australia, Austria, Bahrain, Belgium, Brazil, Bulgaria, Canada, China, the Czech Republic, Cyprus, Denmark, Egypt, Estonia, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, India, Iran, Ireland, Italy, Japan, Korea, Latvia, Lithuania, Malaysia, the Netherlands, Norway, Philippines, Poland, Portugal, Romania, Russia, Saudi Arabia, Serbia & Montenegro, Singapore, Slovenia, South Africa, Spain, Sweden, Switzerland, Taiwan R.O.C., Thailand, Turkey, United Arab Emirates, United Kingdom, USA.



Source Capture Systems

Operation and Maintenance Manual

1500 Series Exhausting Arm - Wall Mount

Models: 15076/15106/15146



MONOXIVENT - SOURCE CAPTURE SYSTEMS

1306 Mill St., Rock Island, IL 61201
877-608-4383 - info@monoxivent.com
monoxivent.com

Assembly Information

Receiving

Check all packages for shipping damage. If damage is found then you as the receiver must note the damage at the time of receipt or contact the carrier and file a damage receipt claim. **As the receiver, this is your responsibility.**

General information for the 15000 arm wall/column mounting

There will be some assembly required for the arm, elbow, and mounting bracket. Please check for all components before starting.

1. Check all components for wall/column mount arm.

1. Black steel wall/column mount bracket
2. Swivel 90 degree elbow with mounted nylon pivot ring
3. Steel 360 degree clam with rubber seal
4. Arm complete with hood, hose, and base
5. Duct connection flange or direct mount fan

2. Select desired mounting location. Be sure to inspect the structure where the arm is to mount. Structure should be secure and solid.

3. First take the mounting bracket and be sure to bolt solid to support structure. Be sure and make bracket square using levels.

4. Slide hose away from the white base bracket. Please note there is a bolt with a red-painted head. This bolt is in a hole marked 2. Remove this bolt and pivot the white bracket 90 degrees so the hole marked 1 will line up with the hole in the bracket. Now replace the red bolt and nut and bring to a snug fit. (*see attached drawing*)

5. Attach the 90 degree elbow to the white arm bracket. Note the elbow and the white bracket have small mating flanges. There is a rubber gasket that seals the flanges of the elbow and white bracket. Install the steel metal clamp over the rubber gasket and flanges. **Be sure that the elbow and arm are in perfect vertical position before tightening clamp.**

6. With assistance, mount the assembled arm and elbow to the mounting bracket. The elbow has a mounted 8-hole black nylon swivel collar. Locate and bolt the arm, elbow, and black nylon collar to the bracket by the 8 holes. Snug the bolts to hold the elbow to the mounting bracket. **Do not over tighten bolts.** Be sure elbow/arm swivel freely at the bracket.

Assembly Information

7. The arm will need final adjustment/tuning for easiest movement and to stay in place upon positioning. You will find friction pads and adjustment pivot joints in four (4) places. 1. Pivot point at the white bracket. 2. Pivot point in the center of the arm. 3 & 4. Pivot points at the hood location. Only put enough tension on these pivot joints to hold the arm in any position it is placed. The arm final adjustment is key to the arm being user friendly. **Do not over tighten the pivot joint friction disks.** Depending on arm usage and movement, occasional adjustments may be required. Based upon the arm's application, cleaning of the internal support structure may require scheduled cleaning.

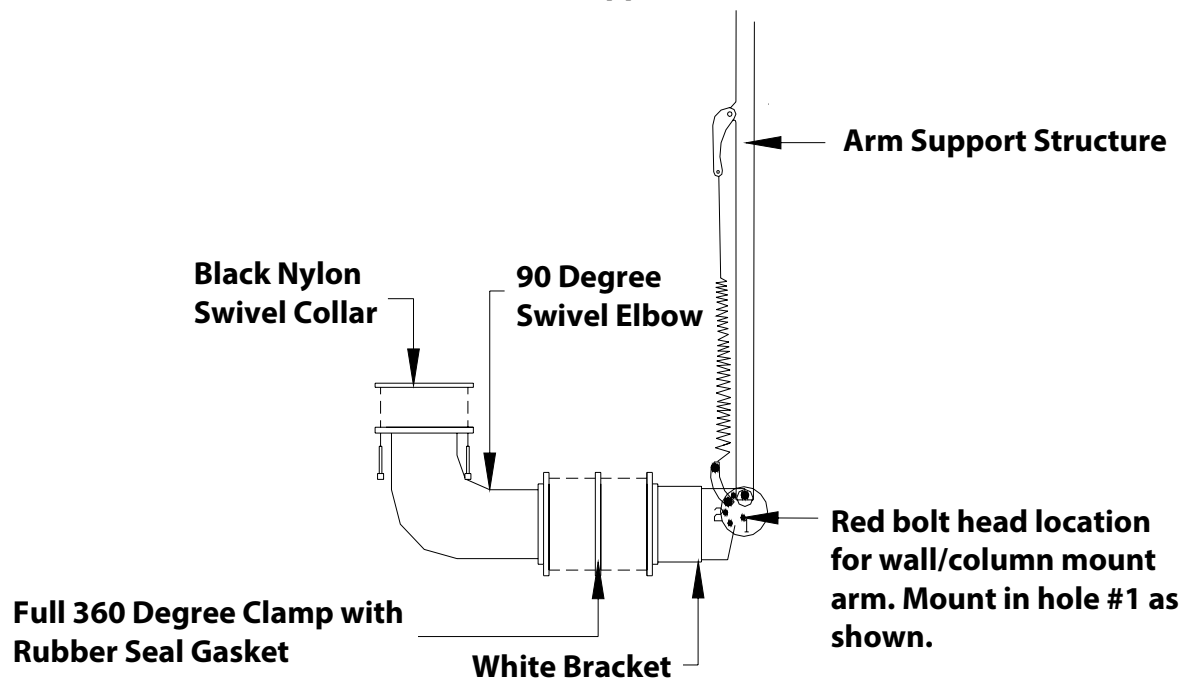
8. The arm has been ordered to either connect to a central duct system or to have its own direct mount fan to mount directly on top of the wall bracket. (*see enclosed data on the flange & direct mount fan*)

Please contact the factory for any questions or further assistance.

Assembly Installation Drawing

The drawing shows the 90-degree elbow clamped to the white bracket base for the arm. The drawing also shows how the white bracket has been re-positioned so the bracket is 90-degrees to the arm support structure. The arm may have been supplied with the white bracket as shown, or it may be in a different position. Step 4, of the instructions, states how to locate the red bolt and remove from Hole 2 and rotate the bracket 90-degrees; Line up Hole 1 and replace the red bolt into Hole 1. This drawing shows proper positioning of white bracket.

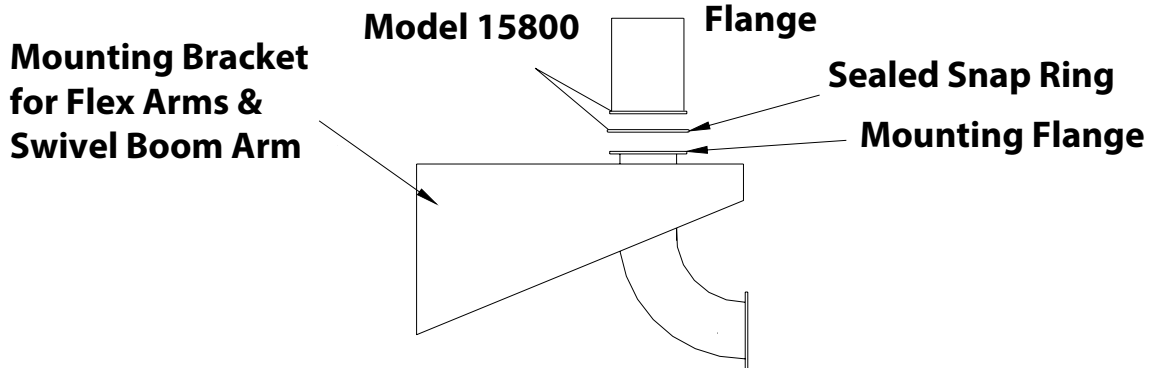
Note: Black 90-degree elbow mounts to the wall/column bracket or to vertical duct (for Series 15000-D applications).



**This is the new location for the red bolt.
This is how the joint should look when
it is ready to be mounted.**

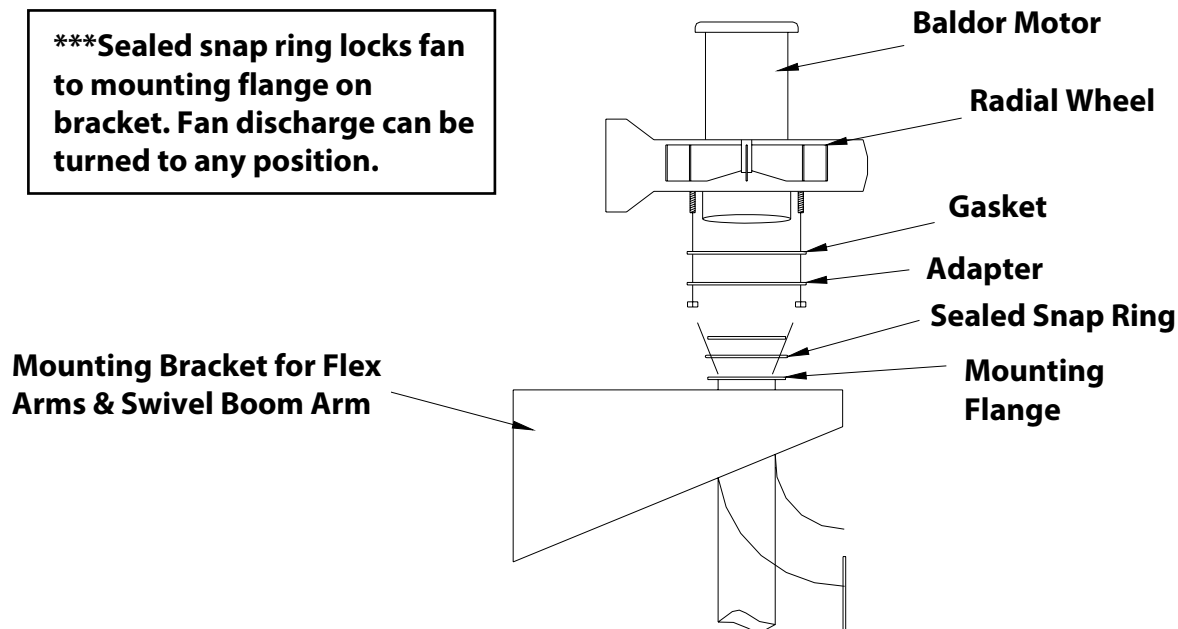


Connecting Hard Duct from Arm to Main Duct

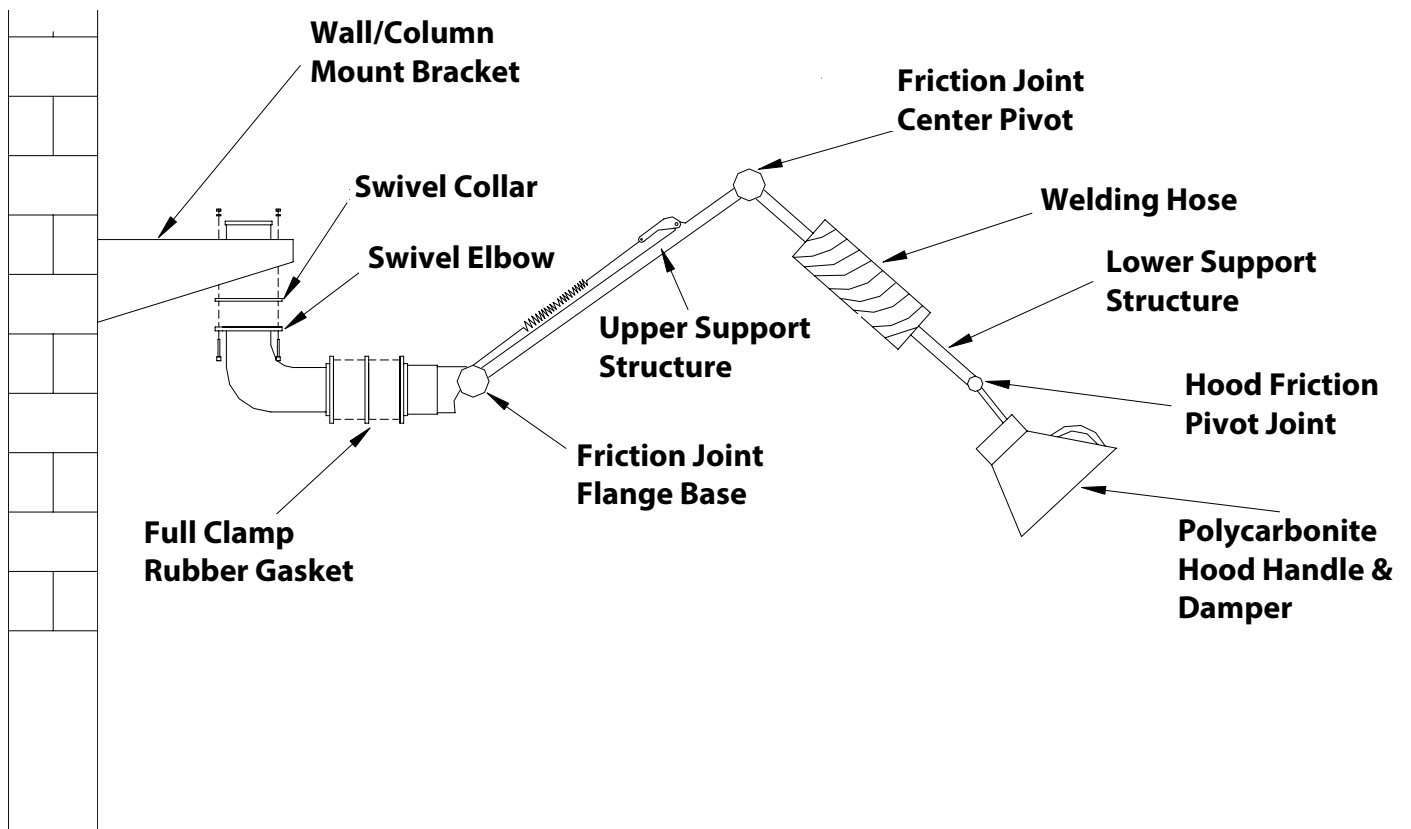


Connecting Direct Mount Fan to Arm & Boom

***Sealed snap ring locks fan to mounting flange on bracket. Fan discharge can be turned to any position.



Exploded View of Series 15000 Arm for Wall/Column Mount





**THE AN104
SPARK DETECTION
AND EXTINGUISHING SYSTEM**

by
HANSENTEK
(Division of Neola Corp.)

INSTALLATION AND OPERATIONS MANUAL
IMA-1041SY2

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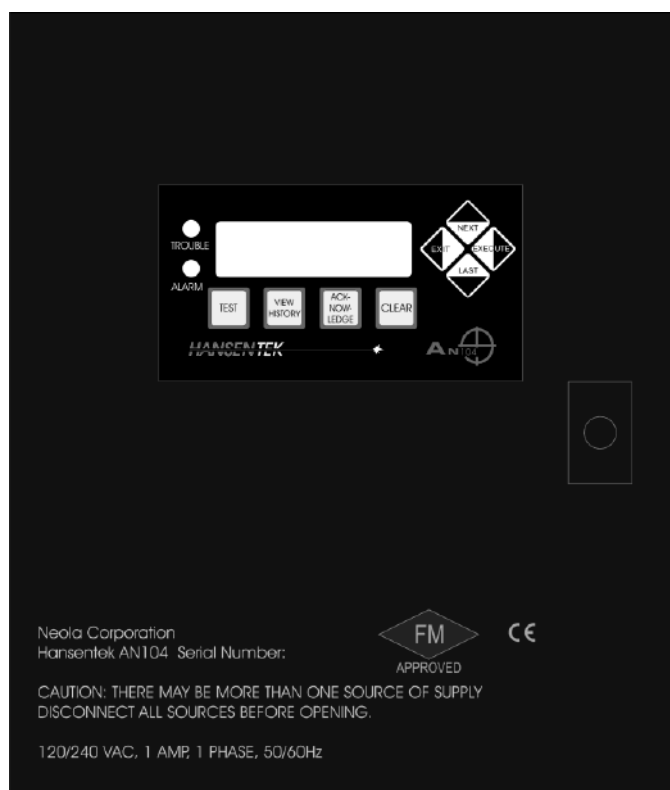


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OPERATIONS MANUAL

IMA-1041SY2

1 THE AN104 DETECTION SYSTEM



The AN104 is a single zone Spark Detection and Extinguishing System. It is designed to protect a single dust collector with either one or two main pneumatic lines. The basic function is to detect sparks or embers in the pneumatic air duct and spray water to extinguish the sparks or embers. The system provides other functions such as closing an abort damper, shutting down the dust collector system and controlling an auxiliary device such as an auxiliary baghouse deluge system.

The AN104 Spark Detection and Extinguishing System is a full featured, single zone system capable of protecting a single dust collector. The AN104 has either two or four spark detectors which may be set to test their sensitivity approximately every six hours. It also has the capability



to monitor a variety of other sensing devices such as heat detectors. The system provides a water spray in the duct on detection of sparks, as well as the capability to provide a deluge water spray in the dust collector on activation of the heat detectors. There are also capabilities to close an abort damper and shut down the dust collector system.

This single zone system is extremely flexible and provides all the features of the big multi zone systems but at a very low cost. It maintains a history of up to 2000 time stamped events and it can also monitor flow switches, heat detectors, shutoff valves, etc.

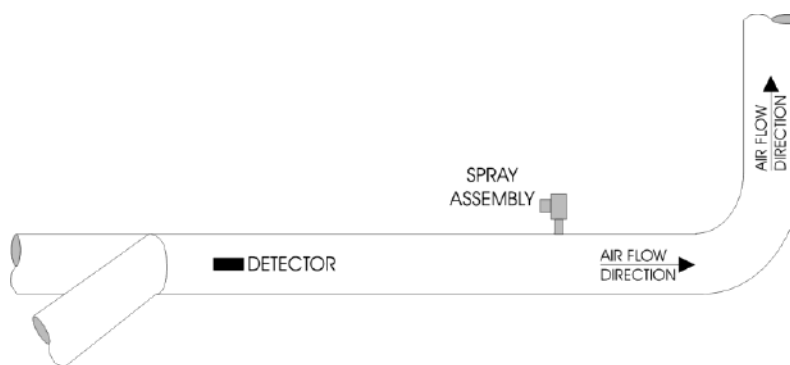
All input and output wiring is supervised for shorts or opens – even the return air abort damper wiring for solenoid controlled abort dampers.

2 SYSTEM DESIGN

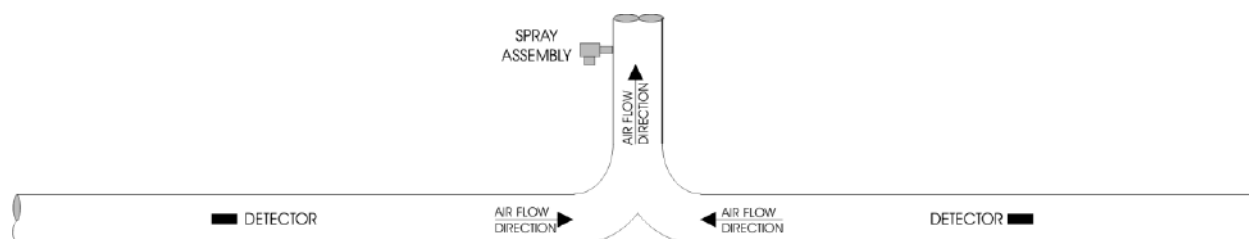
2.1 SYSTEM LAYOUT

The AN104 can be laid out in three general configurations:

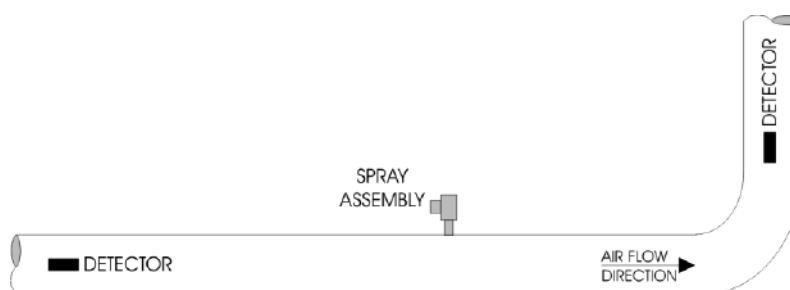
- Two detectors, spray, shutdown and abort



- Four detectors, spray, shutdown and abort



- Two detectors and spray; 2 detectors, shutdown and abort





An effective spark detection system must monitor all potential paths of a spark or ember through all branches of ducts and once a spark or ember is detected, it must establish a curtain of water through which the spark must pass.

The air in the ducts is traveling at a high velocity and therefore carries a spark or ember very rapidly. Air transport speeds are normally about 20 meters per second or 4000 feet per minute but speeds of 30m/s or 6000 ft/min. are possible, which means a spark can be carried 30 meters or 100 feet in one second. Detecting the spark; turning on the water and establishing a spray curtain across the entire duct, can take as much as 0.3 seconds or 0.005 minutes. If the spark is traveling at 30 m/s or 6000 ft/min, we will therefore require the detector to be placed at least 9 meters or 30 feet ahead of the water spray nozzle, since that is how far the spark will travel in 0.3 seconds. If there is insufficient length available on the main duct, detectors can be placed on the branch lines or the main duct must be extended.

NOTE: These are minimum distances.

NOTE: Ducts over 42 inches with multiple spray nozzles require even more distance.

2.2 AIR VELOCITY

The air velocity must be greater than two m/s or 500 ft/ min and less than 50 m/s or 10,000 ft/min to ensure proper operation and detection. The air velocity is generally known prior to installation, but Hansentek highly recommends that the air velocity be measured and confirmed prior to installation. If the air velocity is not known, you can simply calculate the velocity based on the dust collector capacity and the size of the duct (area of a cross section of the duct).

$$\text{Velocity (ft/min)} = \frac{\text{Cubic Feet per Minute (CFM)}}{\text{Area of duct in Square Feet (SQ.FT)}}$$

$$\text{Velocity (m/s)} = \frac{\text{Cubic Meters per Hour}}{\text{Area of duct in Square Meters (SQ.M)}}$$

The following table provides the duct cross section area in square feet or square meters:

DUCT SIZE	AREA (SQ.FT)		DUCT SIZE	AREA (SQ.M)
8 inch	0.3491 Square Feet		200mm	0.0314 m ²
10 inch	0.5454 Square Feet		250mm	0.049 m ²
12 inch	0.7854 Square Feet		300mm	0.071 m ²
14 inch	1.069 Square Feet		350mm	0.096 m ²
16 inch	1.396 Square Feet		400mm	0.126 m ²
18 inch	1.767 Square Feet		450mm	0.159 m ²
20 inch	2.182 Square Feet		500mm	0.196 m ²
22 inch	2.640 Square Feet		550mm	0.238 m ²
24 inch	3.142 Square Feet		600mm	0.283 m ²
26 inch	3.687 Square Feet		650mm	0.332 m ²
28 inch	4.276 Square Feet		700mm	0.385 m ²
30 inch	4.909 Square Feet		750mm	0.442 m ²
32 inch	5.585 Square Feet		800mm	0.503 m ²
34 inch	6.305 Square Feet		850mm	0.567 m ²
36 inch	7.069 Square Feet		900mm	0.636 m ²
38 inch	7.876 Square Feet		950mm	0.709 m ²
40 inch	8.727 Square Feet		1000mm	0.785 m ²
42 inch	9.621 Square Feet		10050mm	0.866 m ²
44 inch	10.56 Square Feet		1100mm	0.950 m ²
46 inch	11.54 Square Feet		1150mm	1.04 m ²
48 inch	12.57 Square Feet		1200mm	1.13 m ²

2.3 DETECTOR LOCATION

WARNING: Connect detector only to a Hansentek Control Unit Initiating Device Circuit or the detector Will Not Operate. This Detector has a proprietary interface and will only work with a Hansentek Control Unit such as the AN104.

NOTE: The detectors are extremely sensitive to visible and near infrared light. The detector must be mounted on the pneumatic duct and be completely shielded from any light or modulated heat source or false alarms will occur. There can be no screw holes, open seams or cracks of any sort. Prior to operation, ensure any cracks or holes are sealed with metal foil tape. Duct tape is not acceptable as they may pass infrared light and cause false alarms.

NOTE: Due to the extreme sensitivity and the fast response of the detectors, it is possible that large voltage induced surge transients can cause false alarms.

The detectors are housed in an outdoor NEMA 4 rated aluminum enclosure. They are equipped with a press fit mounting flange and set screw. The mounting arrangements allow for easy periodic cleaning of the lens surface.

The Hansentek detectors react rapidly to sparks and embers and the water spray command is sent to the nozzle assembly very quickly but there are a number of factors which affect the time required. Since these factors are variable, we must allow the maximum time in our calculations to ensure the curtain of water is fully developed before the spark arrives.

The maximum delay factors involved yield a worst case Total System Reaction Time of 0.3 seconds or 0.005 minutes.

With a known velocity we simply calculate the distance ahead of the spray for placement of the detectors using the formula:

Distance = (Total System Reaction Time) * (Velocity). For example, with a velocity of 5000 ft/min, we require the detectors to be placed 0.005(minutes) X 5000 ft/min) = 25 feet ahead of the water spray.

Distance = (Total System Reaction Time) * (Velocity). For example, with a velocity of 20 m/s, we require the detectors to be placed 0.3(sec) X 20 = six meters ahead of the water spray.

NOTE: This is a minimum distance. A distance of 1.5 times this minimum is preferable.

The following table provides various calculated minimum values:

Velocity	Distance (Ds)		Velocity	Distance (Ds)
3000 ft/min	15 ft		15 m/s	4500 mm
3500 ft/min	17.5 ft		17.5 m/s	5250 mm
4000 ft/min	20 ft		20 m/s	6000 mm
4500 ft/min	22.5 ft		22.5 m/s	6750 mm
5000 ft/min	25 ft		25 m/s	7500 mm
5500 ft/min	27.5 ft		27.5 m/s	8250 mm
6000 ft/min	30 ft		30 m/s	9000 mm
6500 ft/min	32.5 ft		32.5 m/s	9750 mm
7000 ft/min	35 ft		35 m/s	10500 mm

Detectors should not be located close to branch lines or they may become obscured by dust due to turbulent air flow. Detectors must be placed 2.5 X last branch diameter downstream from that branch.

2.4 NUMBER OF DETECTORS

Normally round ducts only require two detectors; one on each side of the duct. If the duct diameter is greater than 1200 mm or 48 inches, then four detectors are recommended and situated as shown in the installation section of the manual. The detectors must be mounted



opposite each other in the same vertical plane in order to perform their required sensitivity testing function. NEVER MOUNT A DETECTOR ON THE BOTTOM OF A DUCT.

NOTE: For Installations using detectors that are not opposite each other, Sensitivity Checking cannot be done.

2.5 WATER SUPPLY

The minimum water pressure for the Hansentek 901-1 Spray Assembly is a minimum of 340 kPa or 50 PSI and the maximum is 700 kPa or 100 PSI in order for proper operation to take place. A booster pump should be installed if pressure could fall below the minimum, and a pressure reducer should be installed if water pressure exceeds the maximum.

The absolute minimum water pressure required at entry to the Assembly is 310.0 kPa or 44.96 PSI. Water flow through the Assembly at 340 kPa or 50 PSI is 74 liters per minute or 19.5 gallons per minute.

Domestic water line supply is preferred over sprinkler lines, as sprinkler lines can have rust or scale that may foul the solenoid valve. This can cause the solenoid valve to fail to properly close and result in water leaking into the air duct.

2.6 NUMBER OF SPRAY ASSEMBLIES

The number of nozzles required is a function of both the duct size and air speed. Normally, only one spray nozzle is required but, for ducts larger than 38 inches, more nozzles are needed (for larger ducts and higher air speeds please consult Hansentek).

2.7 PLACEMENT OF SPRAY ASSEMBLIES

The Spray Assembly must be mounted on the top of the duct and a proper distance away from any elbows (Dc). If two spray assemblies are required, one should be mounted between 2 o'clock and 3 o'clock and the other between 9 o'clock and 10 o'clock in order to allow the nozzle to properly drain. All nozzles must be mounted in the same plane of vertical circumference.

The nozzles must have straight ducts (constant diameter) past their placement in order to guarantee a proper cone of spray. The distance that the Spray Assembly must be maintained from any elbow is a function of the air velocity. Minimum distance to the closest bend is calculated as $(Dc) = 0.001 \times \text{velocity of air flow (in feet per minute)}$ or $(Dc) = 0.06 \times \text{velocity (in meters per second)}$. Therefore if velocity is 5000 ft/min (25 m/s), the minimum distance to the nearest elbow after the spray assembly is $.001 \times 5000 = 5.0$ feet or $0.06 \times 25 = 1.5$ meters.

Water pipes, strainers, valves and nozzles installed outside must be heat traced and insulated. Heat tracing and insulation must be adequate to withstand the temperature extremes and environmental conditions of the area where it is installed.

WARNING: Glycol loop must not be used.

3 EQUIPMENT INSTALLATION

3.1 MAIN CONTROL UNIT

The Main Control Unit is housed in an industrial NEMA 12/IP54 rated cabinet, 12 inches wide X 14 inches high X 5.5 inches deep. It consists of the Control Electronics, Backup Batteries and the Keypad/Display.

The Main Control Unit should be mounted on a wall, at least 1200 millimeters (48 inches) away from any high voltage sources (sources greater than 400 volts) with the four provided sealing washers to meet NEMA 12 requirements. The cabinet is dust resistant and can generally be installed directly in manufacturing areas, however we recommend that the cabinet be installed in a clean environment in an area free from vibration and extreme temperature swings. The control panel is designed to work indoors within a temperature range of 5C to 40C (do not mount the control panel near an outside door where it would be subject to temperatures beyond this range).

The control panel must be mounted in an area of easy access for regular use of the Keypad/Display. The Keypad/Display is required to test detector sensitivity and easy access will encourage regular testing. For optimum viewing of the diagnostic LCD on the front, the middle of the control panel should be mounted between 160 to 170 centimeters above the floor (63 to 67 inches).

A clean source of single phase AC power (minimum 110 volts to a maximum 250 volts) is required. This should be provided from a dedicated, lockable 15 amp circuit breaker. The “LINE” wire connects to the “L” on the power supply, the “NEUTRAL” wire connects to the “N” on the power supply and the “GROUND” wire connects to the cabinet ground lug.

Connect the Red battery wire to the positive battery terminal and the Black wire to the negative battery terminal. After AC power has been connected, close the cabinet before energizing the dedicated circuit breaker. It is highly recommended that all field wiring be completed before power is turned on.

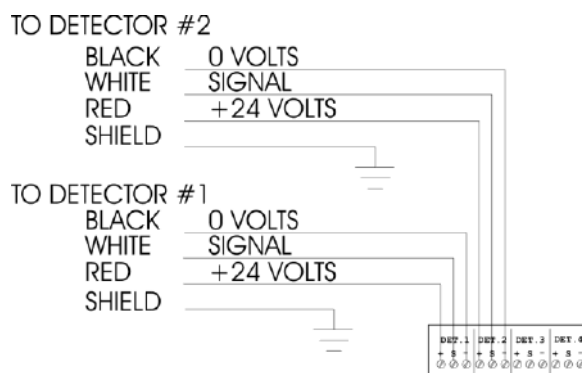
3.1.1 System Wiring

All wiring from the Main Control Unit should be installed in conduit. The terminal strip for the remote wiring is located on the top of the main control board.

DET. 1	DET. 2	DET. 3	DET. 4	FLOW	HEAT	AUX	AN104	SPRAY 1	SPRAY 2	HORN	ALARM RELAY	TROUBLE RELAY	SHUT DOWN	ABORT DAMPER	VAC ABORT POWER
+ S -	+ S -	+ S -	+ S -	+ -	+ -	+ -		+ -	+ -	+ -	N/C C M/O	N/C C M/O		N L	N L
② ② ②	② ② ②	② ② ②	② ② ②	② ② ②	② ② ②	② ② ②		② ② ②	② ② ②	② ② ②	② ② ②	② ② ②	② ② ②	② ② ②	② ② ②

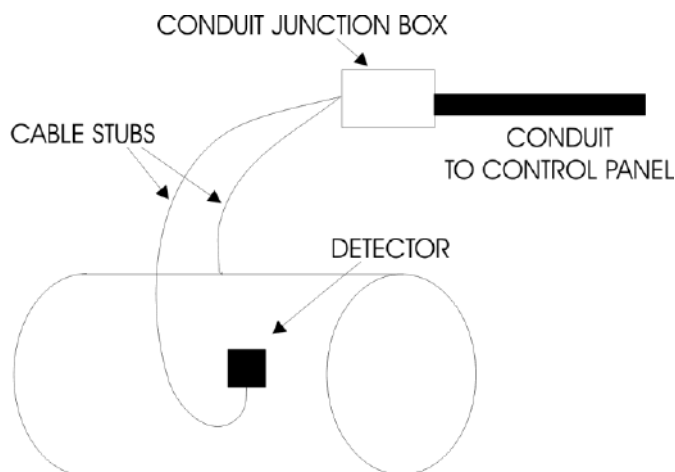
3.1.2 Detector Wiring

Up to four Spark Detectors are wired to inputs DET 1 – DET 4 and are normally installed in pairs in order to “see” every possible path of a spark as well as to facilitate sensitivity testing of the detectors.



The Detector wiring must be three wire shielded of at least 18 AWG. At the control panel end, the red wire of the detector connects to the “+” terminal; the white wire connects to the “S” terminal; and the black wire connects to the “-” terminal.

At the detector end of the wiring, an electrical connector is pre-terminated and provided with a three meter (10 foot) cable stub to simplify local installation. This cable runs from the detector to a conduit junction box. Cable from the conduit junction box to the control panel must be three wire shielded 18 AWG and must be run in its own metallic conduit a minimum of one meter (36 inches) away from high voltage sources (greater than 400 volts). The cable stub should be connected to the control panel cable via a terminal block or mechanical crimping device (marrette type connectors are not recommended).



We recommend leaving one meter (three feet) of extra cable at the detector in case they need to be moved at a future date because of changes in air speed due to air handling equipment upgrades.

Pin 1 is (+), Red Wire 24VDC

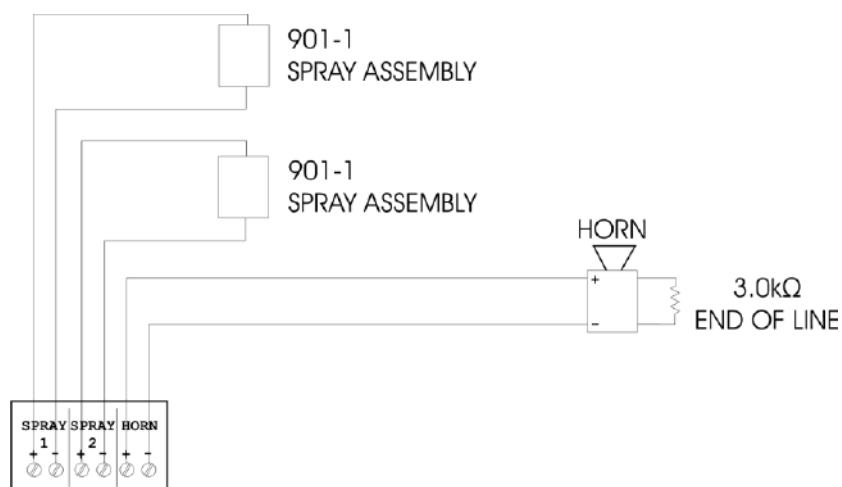
Pin 2 is SIG, White Wire signal

Pin 3 is (-), Black wire 0VDC

Pin 4 is Shield, Shield Wire

3.1.3 Spray and Horn Output Connections

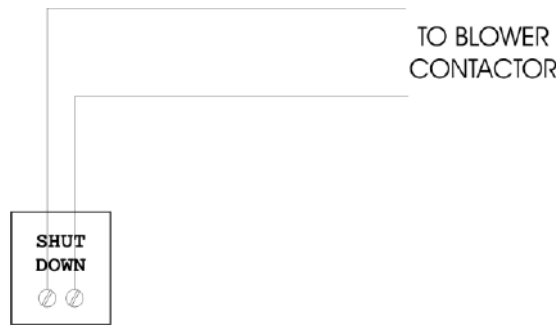
Two supervised outputs (SPRAY 1 and SPRAY 2) which are normally used for the 901-1 Water Spray Assembly are provided on the AN104 main control board. No end of line supervision device is required. An auxiliary device or flood nozzle for the dust collector may alternatively be connected to SPRAY 2. Program Switch 5 determines the function of SPRAY 2.



The Horn or Horn/Strobe is connected to the “HORN”. Polarity must be observed and a 3000 Ohm resistor must be fitted at the end of the line for End Of Line supervision (the EOL resistor is normally fitted on the Horn when shipped from the factory)

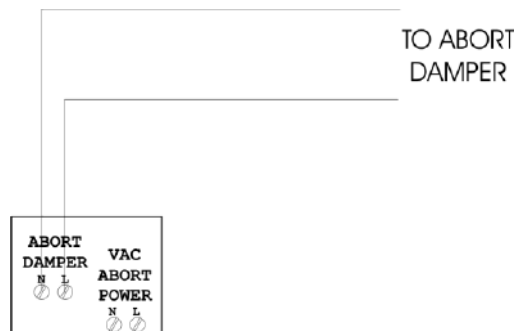
3.1.4 Fan Shutdown Wiring

A normally closed dry contact is provided to shut down the fan blower motor. This must be for control wiring only and can not be for direct motor wiring. This is a safety feature and the control wiring contact will open on detection of a spark or ember. Some authorities may prefer to keep the fans running, in which case this input is not used.



3.1.5 Abort Damper Wiring

An Abort Damper is intended to divert clean air from the dust collector away from inside, occupied spaces. When activated, the gate drops to the closed or diverting position. The Abort Damper is normally powered by single phase AC power. The AC power is connected to the ABORT VAC input.

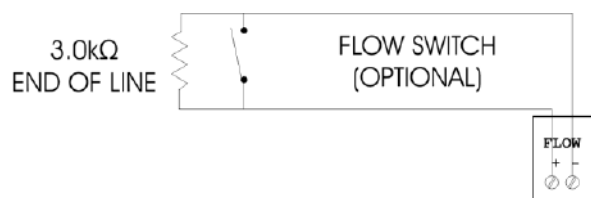


The Abort Damper is connected to the ABORT terminals. There are two types of abort dampers: solenoid latched dampers and magnetic attached dampers. The more common solenoid latched damper is un-powered when idle and is energized to activate, while the magnet latched damper is powered when idle and de-energized when activated. The coil of the solenoid latched abort damper must be supervised to ensure it is available.

A jumper on JP2 is used to select normally open (SOLENOID) or normally closed (MAGNET) for the ABORT contacts. For magnetic latched dampers or no abort damper, a jumper must be added to JP3 to disable the supervision.

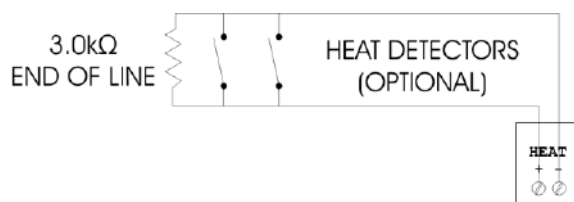
3.1.6 Flow Wiring

A supervised input marked FLOW is provided to monitor an optional Water Flow Switch. A 3000 Ohm End Of Line resistor must be fitted at the end of the last device. A trouble condition will be generated if there is water flow or contact closure when there is no spark detected or if a spark is detected, but there is no water flow. Program Switch 4 is set to indicate if the optional flow switch is fitted or not fitted.



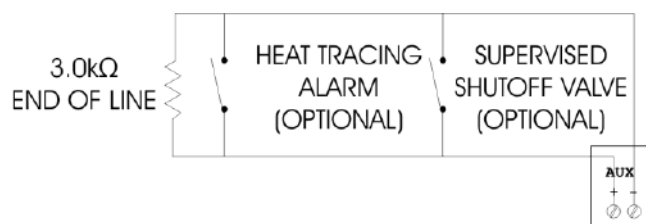
3.1.7 Heat Detector Wiring

The HEAT input is used to monitor a Heat Detector. Activation of the Heat Detector will activate the Fan Shutdown Relay until cleared and the Abort Damper relay for 10 seconds. It may also activate output SPRAY 2 to control a baghouse deluge spray based on the setting of Program Switch 5. A 3000 Ohm End of Line resistor must be fitted at the end of the wires to ensure proper supervision on the circuit. A break, cut or ground on any wire will generate a trouble condition.



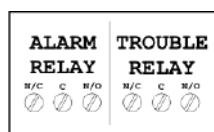
3.1.8 Auxiliary Wiring

A supervised input marked AUX is provided to monitor optional Auxiliary inputs such as a Supervised Shutoff Valve, Heat Tracing or a Water Pressure Switch. A 3000 Ohm End of Line resistor must be fitted at the end of the wires to ensure proper supervision on the circuit. A break, cut or ground on any wire will generate a trouble condition.

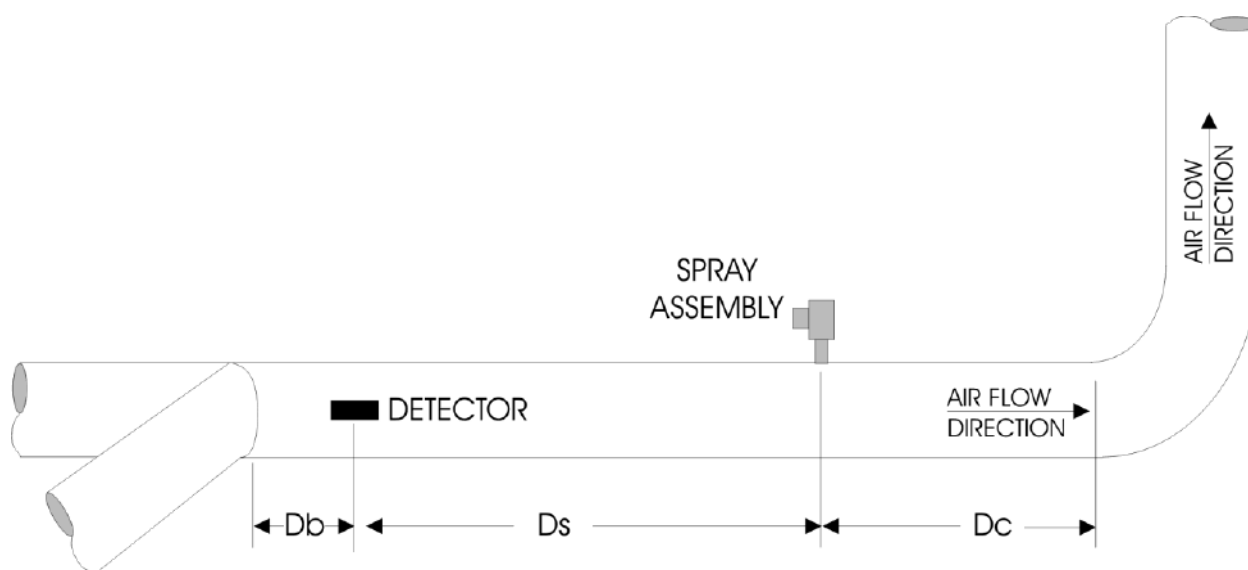


3.1.9 Alarm and Trouble Wiring

Dry contacts are provided to indicate alarm or trouble conditions to other monitoring facilities such as a Fire Alarm Control Panel or a Programmable Logic Controller. The connections are labeled “ALARM” and “TROUBLE”. Connect any wiring to normally open or normally closed contacts to accommodate the requirements of the monitoring facility.



3.2 DETECTOR AND NOZZLE PLACEMENT



The spray assembly must have a straight pipe after it (downstream) to develop a proper water spray pattern. The required distance is determined as follows:

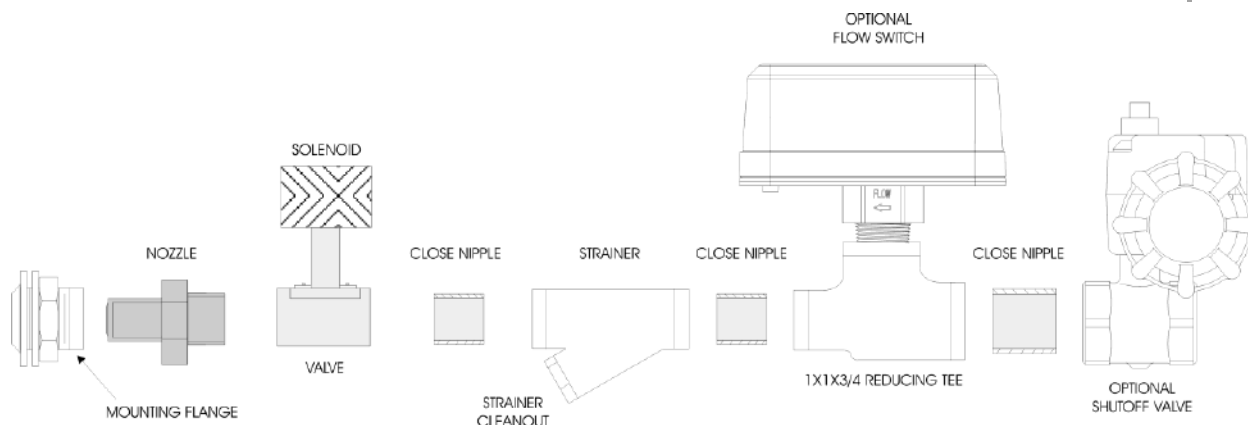


- (Dc) is defined as the minimum distance that a spray nozzle may be located to a bend. In feet $(Dc) = 0.001 \times \text{velocity of air flow (in feet per minute)}$; in meters $(Dc) = 0.06 \times \text{velocity of air flow in meters per second}$.
- The distance between the detector and the spray nozzle does not need to be a straight pipe. (Ds) is defined as the minimum between the detector and the spray nozzle. In feet, $(Ds) = 0.005 \times \text{velocity of airflow (in feet per minute)}$; in meters, $(Ds) = 0.3 \times \text{velocity in meters per second}$.
- Detectors should not be located close to branch lines or they may become obscured by dust due to turbulent air flow.
- (Db) is defined as the distance between the last branch and the detector. $(Db) = 2.5 \times \text{last branch diameter}$
- Detectors should not be mounted in bends; they must be mounted in a straight portion of the duct work.

3.3 VALVE AND NOZZLE SPRAY ASSEMBLY

A water supply capable of supplying 74 l/m (19.5 g/min) at minimum pressure of 340 kPa (50 PSI) must be maintained at each nozzle spray. A booster pump should be installed if pressure could fall below the minimum and a pressure reducer should be installed if water pressure exceeds the maximum.

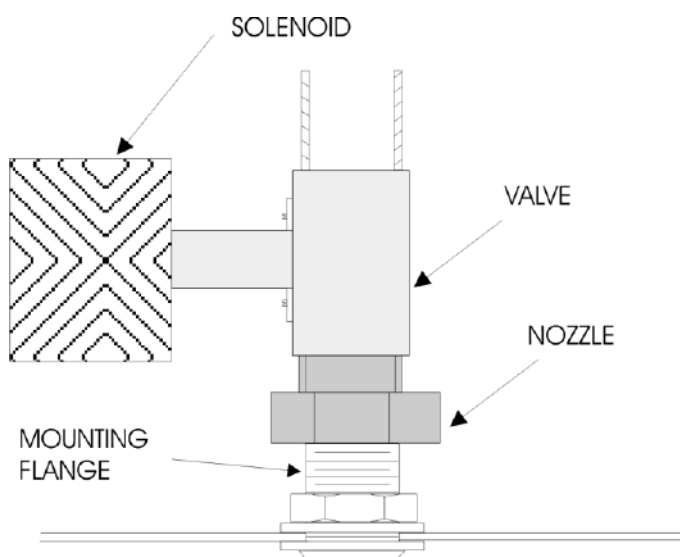
The absolute minimum water pressure required at entry to the assembly is 310.0 kPa or 44.96 PSI. Water flow through the Assembly at 340 kPa or 50 PSI is 74 l/min or 19 gal/min.



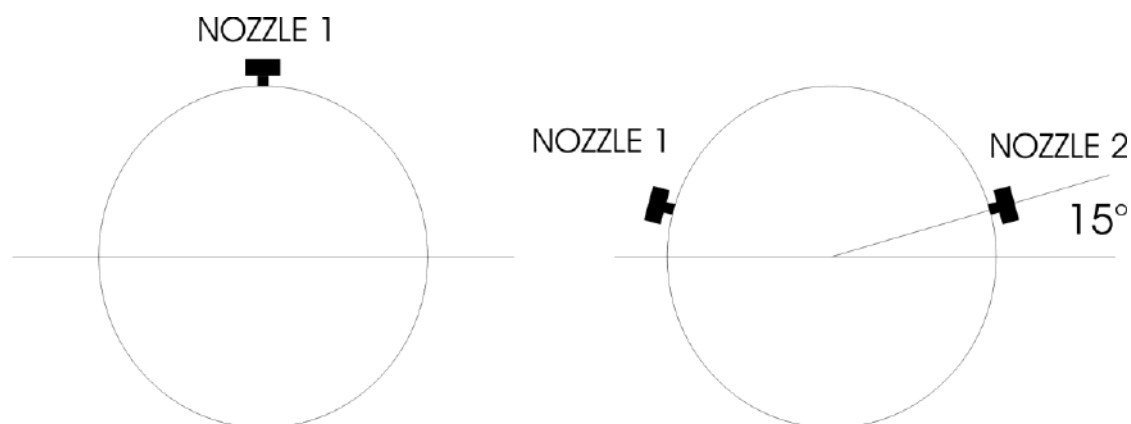
A strainer with a maximum of a 20 mesh stainless steel screen must be installed immediately in front of the valve and nozzle spray assembly. The strainer is installed as shown above. The valve should connect directly to the nozzle or within 75 mm (three inches).

Water pipes, strainers, valves and nozzles installed outside must be heat traced and insulated. Heat tracing and insulation must be adequate to withstand extreme temperature and environmental conditions of the area where it is installed.

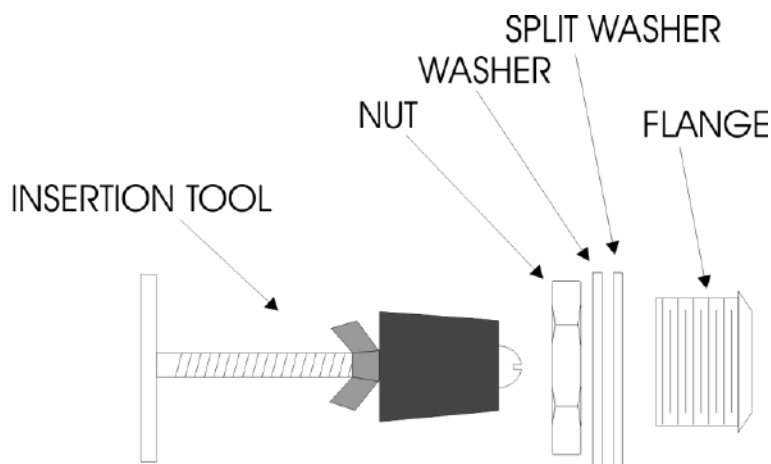
Install the nozzle all the way into the mounting flange.



All nozzles must be mounted in the same plane of vertical circumference. Single nozzles should be mounted at the top of the duct. If two nozzles are required, they should be mounted 15 degrees above the center of the ducts to ensure drainage after spray.



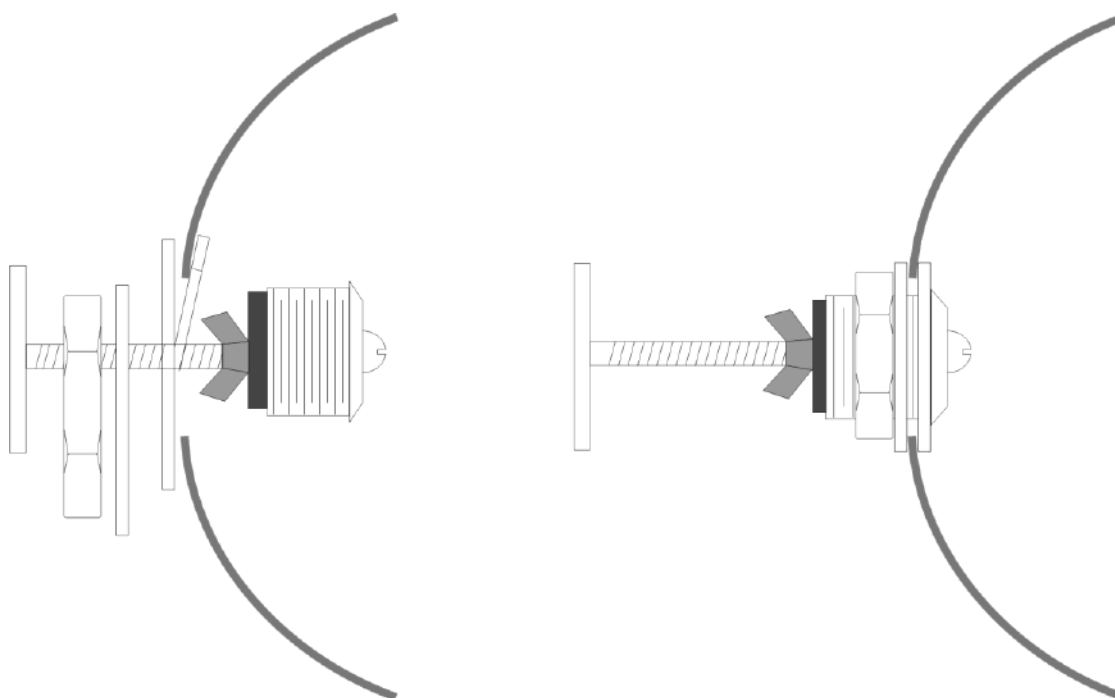
Locate the nozzle positions and drill the duct to accept the mounting flange.



If you have access to the inside of the duct, you can drill a 38 mm (1.5 inches) diameter hole in the duct, push the flange and the split washer through the hole from the inside and then fasten the washer and nut on the outside of the duct.

If you do not have access to the inside of the duct, you will need to use an insertion tool to mount the detector mounting flange through a blind hole in the duct. The duct hole in this case must be 40 mm (1 9/16 inches) diameter as you will need to pass the flange through the hole from the outside.

First, slip the nut, washer, split washer and then the flange onto the mounting tool. Turn the wing nut on the insertion tool until the tool fits tightly to the flange - the nut and washers should be loose on the shaft of the tool.



Secondly, push the mounting flange completely through the hole in the duct and insert the split washer by rotating it into the inside of the duct.

Thirdly, gently pull the flange back through the hole with the insertion tool so it rests against the split washer inside the duct. Make sure the flange is centered in the oversized hole and tighten the washer and nut onto the flange. It is very important that no light can get between the flange and the duct, or it will cause false alarms. Remove the insertion tool by loosening the wing nut and pulling straight back and twisting if required.

The nozzle screws all the way into the flange.

A two conductor, 14 AWG cable is required to connect Spray One to the valve and nozzle spray assembly. 14 AWG is adequate for distances up to 1000 feet - for greater distances, consult with Hansentek. The valve and nozzle spray assembly is not polarity sensitive.

3.4 DETECTORS

NOTE: The detectors are extremely sensitive to visible and near infrared light. The detector must be mounted on the pneumatic duct and be completely shielded from any light or modulated heat source or false alarms will occur. There can be no screw holes, open seams or cracks of any sort. Prior to operation, ensure any cracks or holes are sealed with a metal foil tape. Duct tapes are not acceptable as they may pass infrared light and cause false alarms.

NOTE: Due to the extreme sensitivity and the fast response of the detectors, it is possible that large voltage induced surge transients can cause false alarms.

The detectors are housed in an outdoor NEMA 4 rated aluminum enclosure. They are equipped with a quick-release mounting bracket for mounting onto the surface of a duct or a press fit mounting flange. The mounting arrangement allows for easy periodic cleaning of the lens surface.

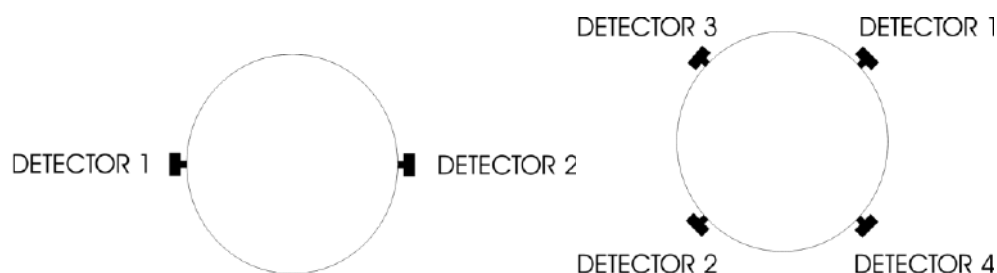
Each detector is equipped with an infrared light source located behind the protective lens. This light source is used to test the opposing detector when more than one detector is used in a duct. In this way each detector can verify the sensitivity of the opposing detector.

The specifications of the Hansentek detectors are:

	<u>120 Detector</u>	<u>121 Detector</u>
Sensitivity:	100nW/cm ²	150 nW/cm ²
Response Time:	.5msec	.5msec
Cone of Vision:	100 degrees	70 degrees
Spectral Response:	0.4 - 1.1 μ m	0.4 - 1.1 μ m
Response Peak:	1.0 μ m	1.0 μ m
Temperature Range:	-40°C to 60°C (-40°F to 140°F)	-40°C to 60°C (-40°F to 140°F)
Max Probe Temperature:	N/A	260°C (500°F)
Current:	15 mA	15 mA

3.4.1 Model 120 Detector

Locate the detector positions and drill the duct to accept the mounting flange.

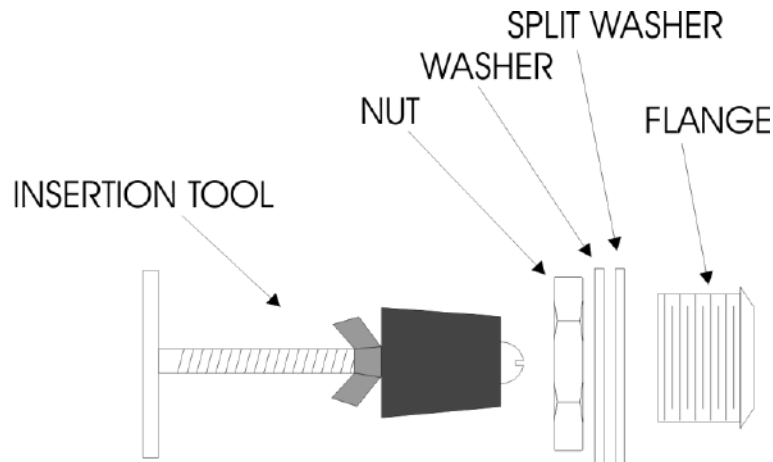


If you have access to the inside of the duct, you can drill a 32 mm (1.25 inch) diameter hole in the duct, push the flange and the split washer through the hole from the inside and then fasten the washer and nut on the outside of the duct.

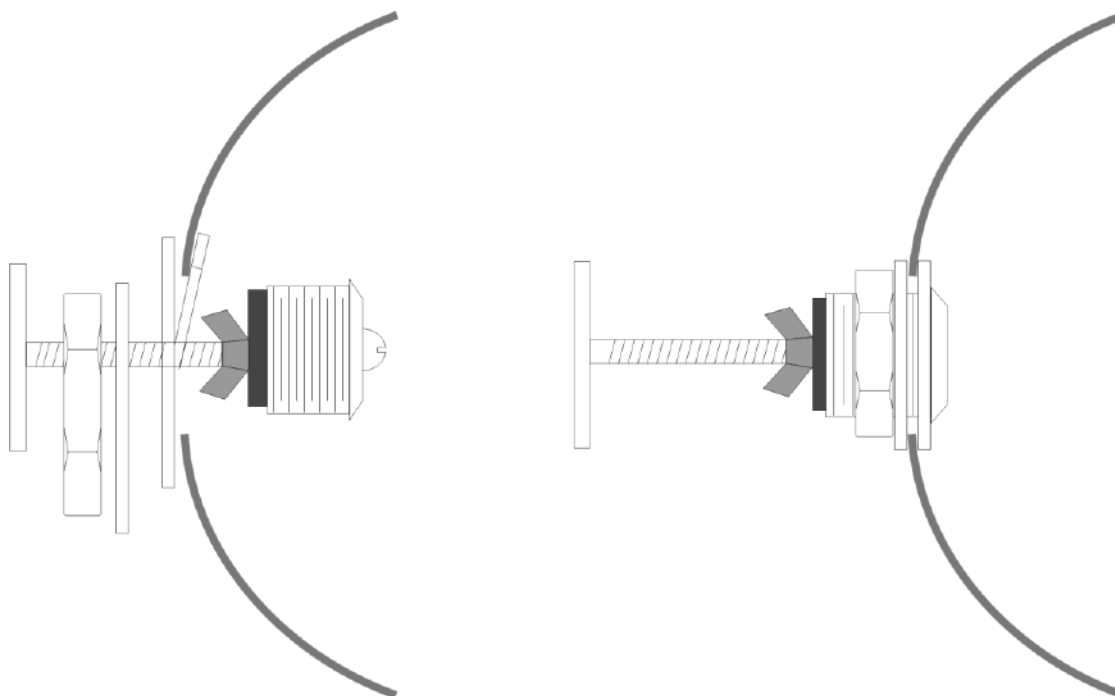
If you do not have access to the inside of the duct, you will need to use an insertion tool to mount the detector mounting flange through a blind hole in the duct. The duct hole in this case must be

(1.5 inches) 38 mm diameter as you will need to pass the flange through the hole from the outside.

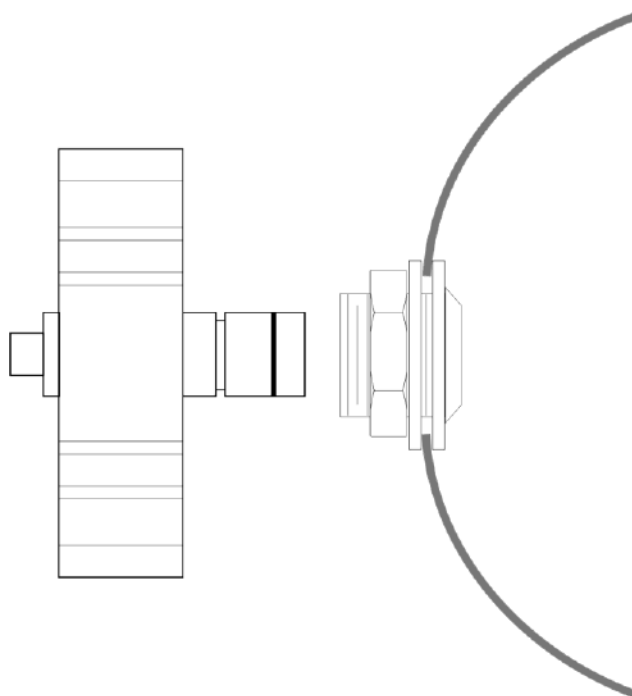
First, slip the nut, washer, split washer and then the flange onto the mounting tool. Turn the wing nut on the insertion tool until the tool fits tightly to the flange - the nut and washers should be loose on the shaft of the tool.



Secondly, push the mounting flange completely through the hole in the duct and insert the split washer by rotating it into the inside of the duct.



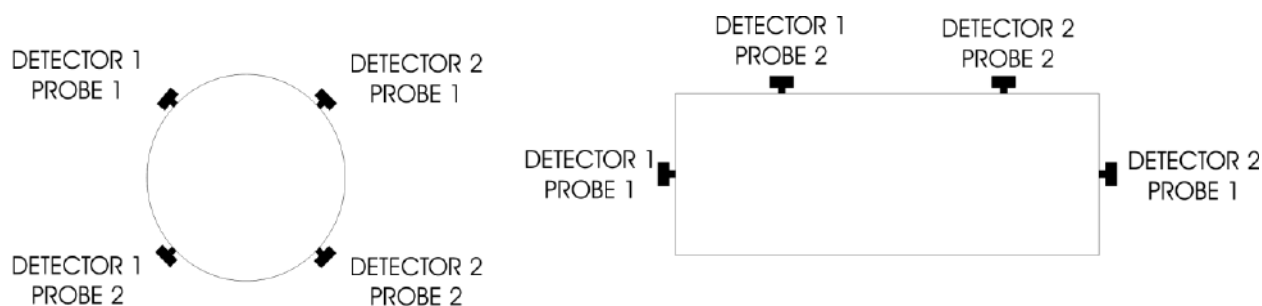
Thirdly, gently pull the flange back through the hole with the insertion tool so it rests against the split washer inside the duct. Make sure the flange is centered in the oversized hole and tighten the washer and nut onto the flange. It is very important that no light can get between the flange and the duct or it will cause false alarms. Remove the insertion tool by loosening the wing nut and pulling straight back and twisting if required.



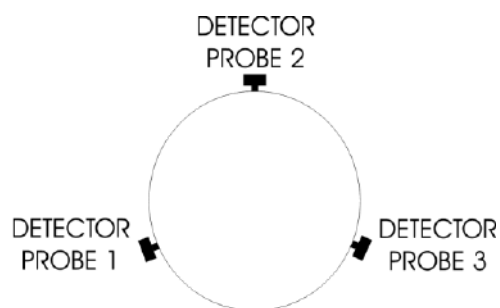
The 120 detector lens assembly slides snugly into the flange. A set screw is provided to hold the detector in place.

3.4.2 Model 121 Fiber Optic Detectors

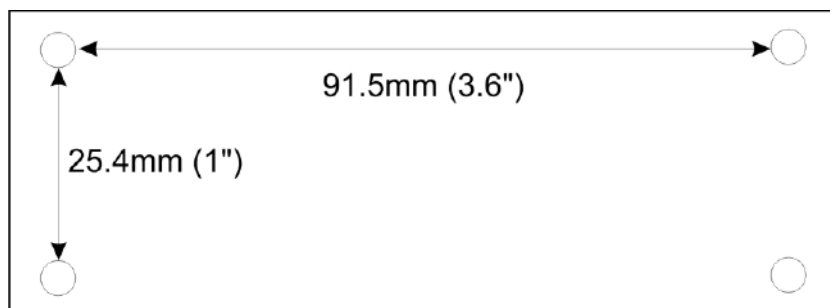
The Model 121 has two lenses and there are normally two detectors installed at each location. The four lenses of the two detectors should be mounted at 90 degree intervals or at approximately 1:30 o'clock, 4:30 o'clock, 7:30 o'clock and 10:30 o'clock. For square or rectangular ducts, we recommend one lens on the top and one on the side for each detector as shown. The larger fiber probe of each detector must be mounted on the sides, opposite each other.



The Model 121-3 has three lenses which should be mounted at 120 degree intervals or at approximately 12:00 o'clock, 4 o'clock and 8 o'clock.



The detector itself is mounted away from the duct and the lenses are attached to the duct through steel clad fiber optic cables. The mounting hole spacing for the detector is shown below.

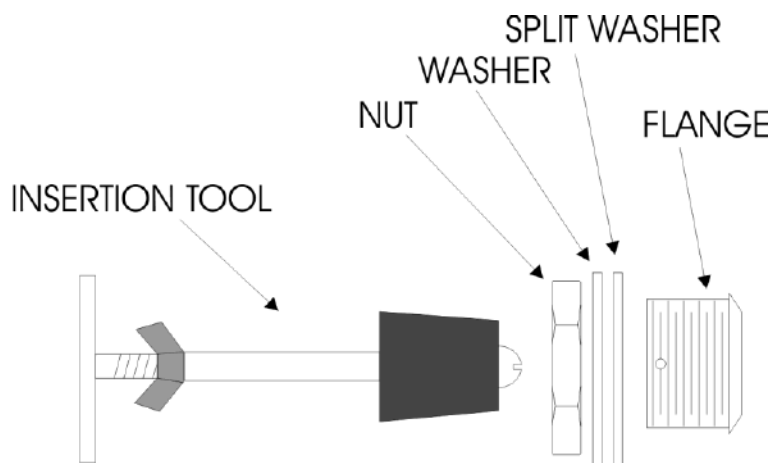


Locate the detector lens positions and drill the duct to accept the mounting flange.

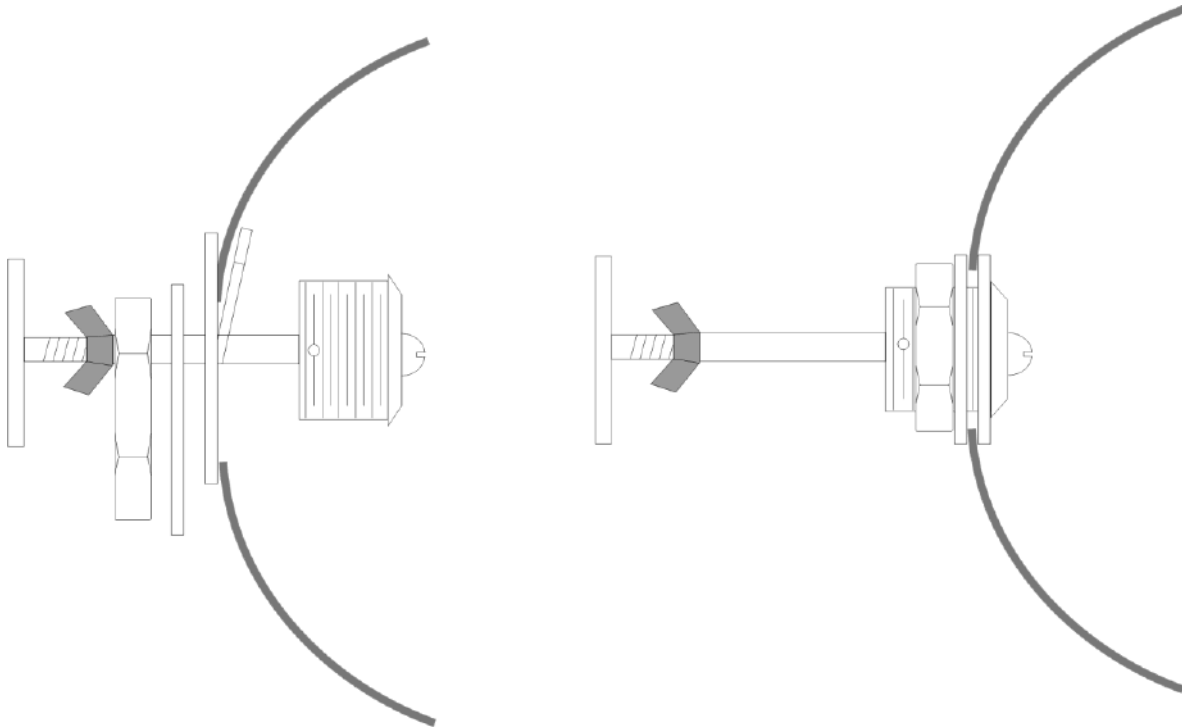
If you have access to the inside of the duct, you can drill two 20 mm (0.75 inch) diameter holes in the duct for each detector. Push the flanges and the split washers through each hole from the inside and then fasten the washers and nuts on the outside of the duct.

If you do not have access to the inside of the duct, you will need to use an insertion tool to mount the detector mounting flanges through blind holes in the duct. The duct holes in this case must be 25 mm (one inch) diameter as you will need to pass the flanges through the holes from the outside.

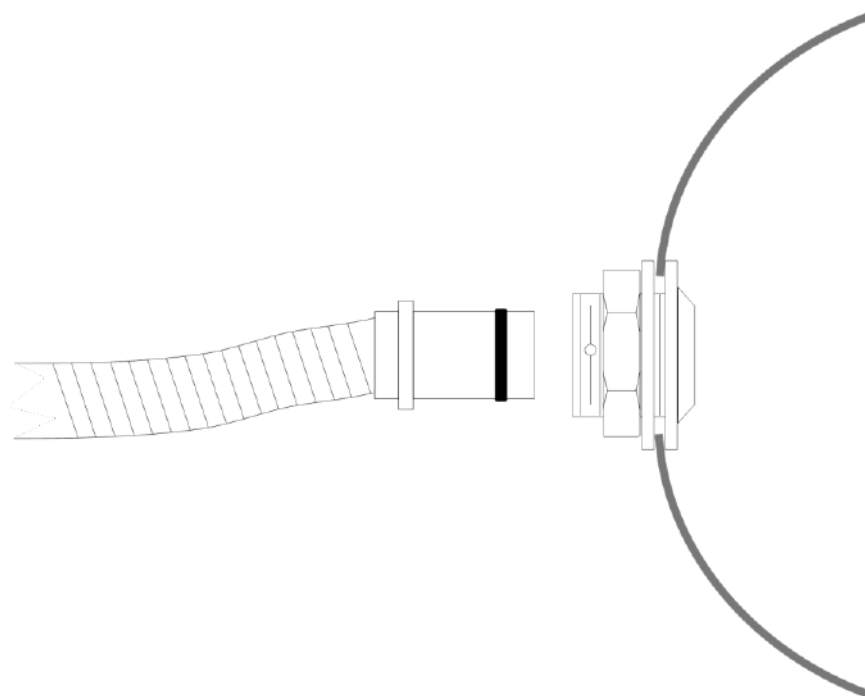
First, slip the nut, washer, split washer and then the flange onto the mounting tool. Turn the wing nut on the insertion tool until the tool fits tightly to the flange - the nut and washers should be loose on the shaft of the tool.



Secondly, push the mounting flange completely through the hole in the duct and insert the split washer by rotating it into the inside of the duct.



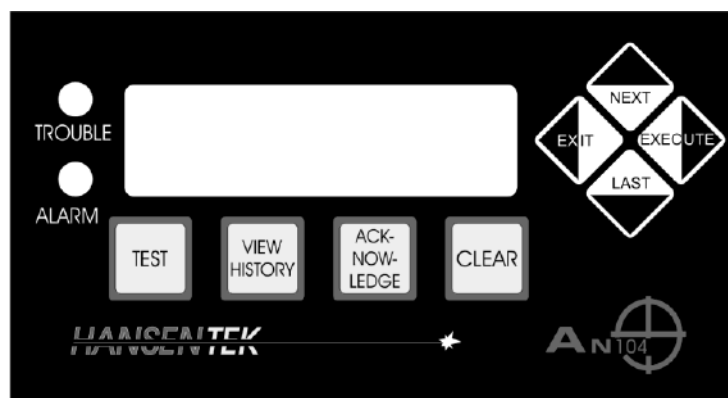
Thirdly, gently pull the flange back through the hole with the insertion tool so it rests against the split washer inside the duct. Make sure the flange is centered in the oversized hole and tighten the washer and nut onto the flange. It is very important that no light can get between the flange and the duct or it will cause false alarms. Remove the insertion tool by loosening the wing nut and pulling straight back and twisting if required.



The Model 121 detector lens assembly slides snugly into the flange. A set screw is provided to hold the lens in place.

NOTE: Sensitivity Checking cannot be done when using the 121-3 detector.

4 SYSTEM PROGRAMMING



4.1.1 SET TIME AND DATE



The **TEST** key together with the **VIEW HISTORY** key are used to set the time and date on a 24 hour clock.

NOTE: The system will not adjust for daylight savings time and this must be adjusted manually using the following procedure. Procedure: Press the **TEST** key and **VIEW HISTORY** key together at the same time. The display will respond:

SET TIME
HHMMSS: 13:24:05



Press the **NEXT** key to advance the number above the cursor and the **LAST** arrow key to decrement the number. Press the **EXECUTE** key to save this number and move the cursor to the next position. When you press **EXECUTE** from the last digit position, the display will change to the following:

SET DATE
MMDDYY: 01/05/13

NOTE: The system clock operates on a 24 hour basis. Therefore 1 o'clock in the afternoon is entered as 13:00:00 and 10 o'clock in the evening is entered as 22:00:00. Press the **NEXT** key to advance the number above the cursor and the **LAST** arrow key to decrement the number. Press the **EXECUTE** key to save this number and move the cursor to the next position. When you press **EXECUTE** from the last digit position, the display will return to the normal mode.

5 TESTING AND TROUBLESHOOTING

5.1 TEST



The Hansentek Spark Detectors have a unique built-in test system. This test checks the sensitivity of the detector across the complete full width of the duct and through the lenses. The detector mounted opposite the one under test flashes an Infra Red light. The test procedure starts at Detector One. Press the **EXECUTE** key to perform the test. The display will indicate a PASS or FAIL. Use the **NEXT** arrow to increment through all the detectors.

NOTE: It is recommended that these tests be performed when the dust collector is off as particles in the air stream can affect the accuracy of the test results.

To test all other functions of the system, the **SERVICE** Switch on the main control circuit board must be set to **SERVICE**. Under individual control, you can also test and verify the Spray Assemblies as well as the Horn, the Alarm Relay, the Trouble Relay, the Shutdown Relay and the Abort Damper Relay by stepping through with the **NEXT** and **LAST** arrow keys. Press the **EXECUTE** key to perform any of these tests. These outputs and relays are activated for only one second during this test in order to minimize water flow or system interruptions. The **SERVICE** Switch must be returned to the **NORMAL** position after all the testing of these functions.

5.2 VIEW HISTORY



The AN104 records a history in chronological order of the last 2000+ alarm and trouble conditions that have occurred, complete with the time and date of the occurrence.

Press the **VIEW HISTORY** key. The display will respond with the last alarm or trouble activity with a description as well as a time and date (the time and date are displayed on a second screen).

You may use the **NEXT** and **LAST** arrow keys to step through the 2000+ most recent occurrences. To clear History, press the **CLEAR** and **HISTORY** keys at the same time. The Display will ask you to “PRESS EXECUTE TO CLEAR HISTORY” and you must press **EXECUTE** to clear History.

5.3 VIEW PROGRAM SWITCH SETTINGS



The **TEST** key together with the **ACKNOWLEDGE** key is used to read 12 program switch settings of the AN104. Procedure: Press the **TEST** key and **ACKNOWLEDGE** key together at the same time. The display will respond with “SWITCH SETTINGS: such as “010110011101”, which indicates the settings of the 12 program switches.

There are a total of 12 programming switches located on the main control circuit board.

The table following the list of options provides details on how to set the switches.

- **Spray Time:** Switch 1 and 2 set the water spray time. The Water Spray Assembly sends a curtain of water across the duct that any detected sparks must pass through. The spray time is normally set at 5 seconds but may be set longer.
- **Number of Detectors:** Switch 3 sets how many detectors are fitted on the zone. Detectors are fitted in pairs of either 2 or four.
- **Water Flow Monitoring:** Switch 4 is used to monitor a Water Flow Switch when a flow switch is installed in the water line to the spray assembly. With Switch 4 set as “0”, a trouble condition will be generated if there is a spark and no flow. Set the switch to “1” if no Flow Switch is fitted.
- **Second Water Spray:** Switch 5 selects whether Output S2 is used for a second Water Spray Assembly or used as a deluge spray in the dust collector controlled by the Heat Detector.
- **Deluge Spray Time:** If Output 2 is set as a deluge spray as above, Switch 6 determines the spray time which may be set at 10 minutes or continuous until the “Clear” button is pressed.



- **Shutdown:** Switch 7 determines whether the air conveyance system is shutdown when a spark is detected or whether only multiple sparks (four in a five minute period) will shut the system down (switch shutdown contacts).
- **Second Detection:** Switch 8 can be set to provide a second detection point on the air conveyance. This allows you to detect with detectors one and two and then detect again with detector 3 and 4 after the spray to confirm extinguishment. If detector three or four sees the spark, it activates the shutdown and abort functions.
- **Auto Self Test:** Switch 9 enables or disables the Auto Self Test feature. When enabled, the detectors will self test at approximately six hour intervals. A trouble condition is reported if any detector pair fails the self test.
- **Language:** Switch 10 allows for the selection of language to be displayed. Either English or French (or another substituted language can be selected).
- **Spray One Disable:** Output S1 (SPRAY 1) can be disabled with Switch 11.
- **Spray Two Disable:** Output S2 (SPRAY2) can be disabled with Switch 12.

SWITCH	1	2	3	4	5	6	7	8	9	10	11	12
Spray 2 Seconds	0	0										
Spray 5 Seconds	0	1										
Spray 10 Seconds	1	0										
Spray 30 Seconds	1	1										
Two Detectors			0									
Four Detectors			1									
Flow Monitoring				0								
No Flow Monitoring				1								
Output 2 (S2) is Second Spray					0							
Output 2 (S2) is Deluge					1							
Deluge 10 Minutes						0						
Deluge Continuous until reset						1						
Shutdown on 1 spray							0					
Shutdown on 4 sprays in 5 minutes							1					
Shutdown/Abort on D3, D4 only								0				
Shutdown/Abort on D1, D2, D3 or D4								1				
Auto Self Test On									0			
Auto Self Test Off									1			
Language - English										0		
Language - French (other)										1		
Enable Spray 1											0	
Disable Spray 1											1	
Enable Spray 2												0
Disable Spray 2												1

5.4 COMMISSIONING

Commissioning of the AN104 spark detection system should be done by a factory trained representative of Hansentek or one of its authorized distributors. When the system is placed in service, the representative will completely test the spark detection and extinguishing system to demonstrate that it is properly installed and functional.

To conduct the test and start up procedure, the representative will need:

- The assistance of one plant employee (preferably the person who will be responsible for the operation and maintenance of the system).
- Access to the control panel, horn, detectors, nozzles and abort gates. The representative will probably require ladders or a lift to get access to the equipment.

During testing, all equipment will be demonstrated to work properly. Generally, this means spraying water, sounding horns and shut down of the dust collection system. Every effort will be made to minimize production interruptions, however all test system functions must be demonstrated for acceptance of the system.

6 MAINTENANCE PROCEDURES

6.1 GENERAL

In order to ensure that your spark detection system is in a fully operational condition at all times it must be inspected and tested on a regular basis by a trained, competent, service personnel. It is recommended that a Service & Maintenance contract be established with a manufacturer trained Service Company or with an approved Hansentek Representative.

6.2 WEEKLY CHECKS

- A) Visually check all pipe work and detectors to ensure no damage has occurred.
- B) Check the control panel to ensure the system is displaying the current time and date.
- C) Check sensitivity of detectors at the control panel by doing the following:



Press the **TEST** key to test the detectors. The test procedure starts at Detector One. Press the **EXECUTE** key to perform the test. The display will indicate a “PASS” or “FAIL”. Use the **NEXT** arrow key to increment through all the detectors. Press the **EXIT** key after testing the last detector. If any detectors fail the test, all detector lenses must be cleaned and the test repeated.

NOTE: Set the toggle switch on the printed circuit board to **SERVICE** position when cleaning the lenses in order to avoid discharge of water or system shutdown or abort. This test is best performed when the air conveyance system is off and there is no obscuration of the light path due to heavy particle counts in the airstream. Water does not flow and all outputs are inhibited during this test.



6.3 SEMI-ANNUAL INSPECTIONS

- Check system components for mechanical damage and tampering. All systems lead and wire seals should be intact.
- Ensure that there are no obstructions that would prevent system operation.
- Check water supply to spray assembly and ensure that the strainer is clear of any debris to allow a clean flow of water.
- Keep records of all test procedures for the authority having jurisdiction.
- Testing is best accomplished during non-production periods.
- If applicable, manually activate and reset your abort damper when the exhaust system has been turned off.

6.4 ANNUAL INSPECTIONS

(By Authorized Representative)

- Complete testing of the control panel, detectors, spray assembly and all other functions such as the abort dampers, shut-down, and fire alarm connections.
- Operation of input/output circuits.
- Sensitivity testing of each detector.
- Inspect and clean all control equipment.
- Issue report as per NFPA 72 code.

UPON COMPLETION OF ALL TESTING, ENSURE ALL EQUIPMENT IS RESET AND THAT ALL COMPONENTS ARE LEFT IN A NORMAL "STANDBY" CONDITION. KEEP DOCUMENTS AND RECORDS OF ALL TEST PROCEDURES THAT MAY BE REQUIRED BY THE AUTHORITY HAVING JURISDICTION.

7 WARRANTY AND RETURN POLICY

WARRANTY ON SPARK DETECTION & EXTINGUISHING SYSTEMS:

Hansentek (Division of Neola Corporation) warrants that equipment will perform in accordance with Hansentek's specifications and will be free from defects in materials and workmanship under normal use for a period of one year from the date of shipment.

Hansentek's warranty is valid only on the following conditions: The equipment is installed in accordance with approved installation drawings and manual and in accordance with all applicable codes, regulations, and safety requirements.

Hansentek's sole obligation and customer's sole remedy under this warranty is the replacement or repair, (at Hansentek's option), of the defective components. Such obligation and remedy are conditional upon the equipment not having been altered, mishandled, misused, repaired or damaged. Defective components shall be shipped, freight prepaid, to Hansentek's offices. Customer shall pay inbound and outbound freight and insurance on all components returned to Hansentek for repair or replacement.

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, MERCHANTABLE QUALITY, FITNESS FOR A PARTICULAR PURPOSE AND THOSE ARISING BY STATUE OR OTHERWISE IN LAW OR FROM THE COURSE OF DEALING WITH USAGE OR TRADE. CUSTOMER ACKNOWLEDGES THAT THE SYSTEM DOES NOT PRECLUDE THE POSSIBILITY OF FIRE OR EXPLOSION. INSTEAD, THE PURPOSE OF THE SYSTEM IS TO DETECT AND ATTEMPT TO EXTINGUISH AT THE SOURCE OF DETECTION. ITS USE IN CONJUNCTION WITH OTHER EXPLOSION SUPPRESSION SYSTEMS, FLAME BARRIERS OR EXPLOSION VENTING MAY REDUCE THE DEGREE OF DAMAGE.



Reasonable efforts have been made to ensure reliability of the system to the extent possible under accessible current technology. Customer acknowledges however, that the technology is of such complexity that it may have inherent or latent defects. In addition, machine and operator variables will influence performance of the system. Hansentek cannot and will not warrant 100 percent detection or elimination of sparks.

Customer releases Hansentek from, and agrees that, in no event, shall Hansentek be liable for any direct, indirect, special, incidental or consequential damages, including loss of profits, death or personal injury, or loss of use of other economic loss, arising in tort, contract or otherwise. For any cause of action whatsoever and regardless of the form of action, shall be limited to customer's actual direct, provable damages in an amount not to exceed the total amount paid to Hansentek in respect of the Spark Detection and Extinguishing System.