



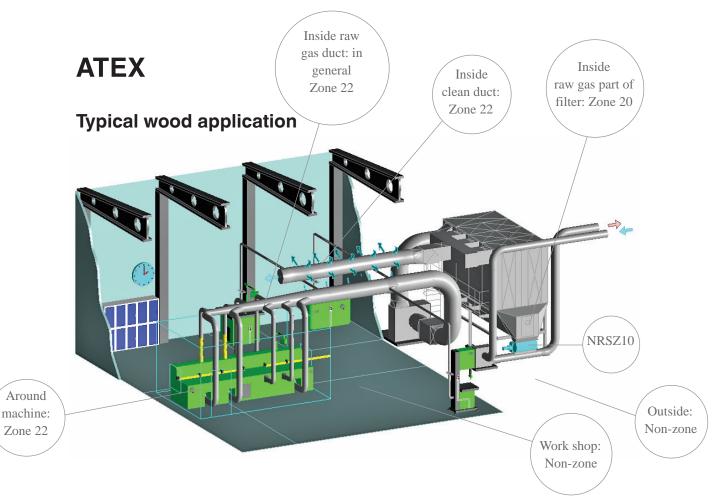


### Typical applications and industries:

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- Wood working industry Sawmill Planing Joinery (eg. Windows & doors) Furniture Board production (Playwood, MDF/HDF, OSB)

- Plastic industry Machining (eg. Sawing & routing) in plastic material
- Paper industry Edge, trimming & cutting Paperprocessing
- Recycling industry Paper Rubber



Nederman can supply ATEX compliant components such as filter units and fans; ATEX certified protective systems such as rotary valves, explosion relief doors, and back pressure flaps are also available according to ATEX directive 94/9.

#### A dust extraction system from Nederman fulfills the ATEX demands:

- The explosion strength of the filter has been proven
- The pressure in the filter is cotrolled by explosion relief doors or panels. These components are ATEX approved
- The risk of an explosion spreading has to be prevented by installing safety equipment such as rotary valves, back pressure flaps, etc. Nederman can supply these components
- Fans, etc. are certified when handling potentially explosive dust

#### ATEX Directive 99/92

Since 1st July 2003 any new equipment installed for use with potentially explosive dusts or in a zoned area must be ATEX certified.

Since 1st July 2006 any existing equipment handling potentially explosive dusts or in a zoned area must be Risk Assessed.

# NFZ3000 Features



The NFZ3000 filter is a compact filter, well suited for any air flow with heavy material content.

The NFZ3000 filter is designed with a basic module size of 1200 x 1200 mm (47.24 x 47.24 inch). The design makes it possible to add modules if the capacity is increased.

The filter is self-supporting; it has tele-scopic supporting legs and is suitable for outdoor locations.

Each module (either 1200 or 2400 mm (47.24 or 94.49 inch) wide) of the filter construction is fitted with a combined inspection and explosion relief door. Regeneration fans are fitted for easy and effective cleaning of the filter bags. The NFZ3000 filter is fitted with the unique patented Nederman SUPERBAG filter bag.

The filter hopper and the inlet section (optional) separate the particles and distribute the air to the filter bags. The collected material can be removed through a wide range of discharge and waste handling options.

- Full filter range covering air flows from 1,500 to 500,000 m<sup>3</sup>/h (1.000 to 300.000 cfm)
- Modular galvanized steel construction
- Easy to install on site and extend if required
- ATEX certified for St1 and St2 dust with a Kst value up to 300 bar m/s.
- Available for positive or negative pressure operation
- Low power consumption
- Powerful on-line cleaning by efficient regeneration fans
- Patented polyester SUPERBAG filter bags
- Wide range of discharge and waste handling options

Specifications	
Temperature	Max. 75°C (167°F)
Over pressure	Max. 800 Pa (3.2" WG)
Vacuum	Max. 5000 Pa (20" WG)
Power supply	<ul> <li>· 230 / 400 V</li> <li>· Chain motor – 1.1 kW (1.48hp)(for NFKZ3000 filter)</li> <li>· Regeneration fan – 1.1 kW (1.48hp) (option 2.2 kW (2.95hp))</li> </ul>
Door switch	<ul> <li>At the inspection doors in the filter hopper</li> <li>At one filter module door per each 5 modules</li> <li>At each inlet module door</li> </ul>
Filter element	Superbag 2000 XT15 with ø200 mm (7.874")collar
Filter area per module	HJ: 85m² (914.9 ft²) - LJ: 40 m² (430 ft²)- HE: 42 m² (452.1 ft²)- LE: 20 m² (215.3 ft²)

### NFKZ3000 Chainfilter - How it works

#### ....during normal operation

1. During normal operation, the dust laden air from the plant travels down the supply duct 1.

2. The dirty air then enters the filter 2.

3. As the dust laden air enters the inlet section of the filter <sup>15</sup>, the air decelerates and heavier dust and shavings settle on the hopper floor <sup>3</sup>.

4. The heavier dust and shavings collected on the hopper floor are conveyed to the discharge end <sup>11</sup> of the filter by the scrapers on the chain conveyor <sup>8</sup>.

5. At the discharge end of the filter, the dust is removed 11.

6. The remaining dust then travels up into the inside of the filter bags **5**. Each filter module **1**4 has 25 filter bags.

7. The air, which originated from the plant, is now clean <sup>6</sup> and passes through the filter bag and out the exhaust port <sup>7</sup>.

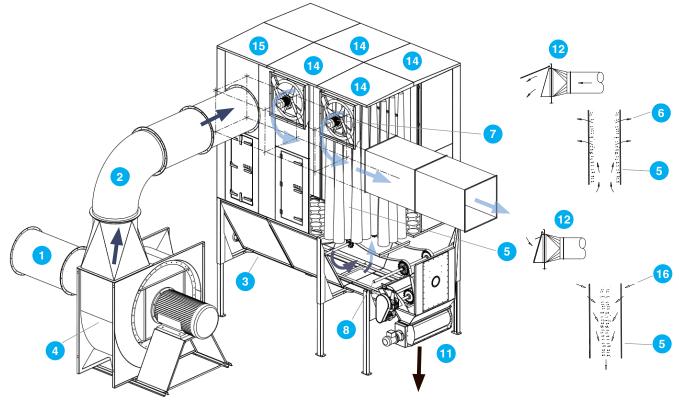
#### ....while cleaning

1. The filter cleans the bags during operation (on-line cleaning) and when the unit is shut down (off-line cleaning). The off-line cleaning period starts after the COMBIFAB fan 4 has stopped rotating.

2. A PLC control in the electrical panel regulates the cycle of the reverse air regeneration fan.
7 The regeneration fan shakes the filter bags
5 causing the dust cake, which hangs on the inside of the filter bag, to fall into the hopper section 3.

3. Any dust that remains on the inside of the filter bag after the initial "shake" is removed by the airflow 16 generated by the regeneration fan.

4. The dust that is removed during the cleaning cycle falls on the floor of the hopper <sup>3</sup>, and is then transported to the discharge section of the filter <sup>1</sup> by the chain conveyor <sup>8</sup>.



**NOTE:** The back pressure flap <sup>12</sup> is open during normal operation of the filter but closes when the fan is shut down and the filter starts in an off-line cleaning cycle. During the off-line cleaning period, the back pressure flap <sup>12</sup> acts as a barrier to prevent the air generated from the regeneration fan from travelling back down the supply duct <sup>1</sup>.



# NFKZ3000 Filter with chain conveyor

The NFKZ3000 filter with chain conveyor is a compact filter, suited for handling large air flows with heavy material content.

The filter hopper and the inlet section (optional) separate the medium/ large particles and distribute the air to the filter bags. A double chain conveyor in the bottom of the hopper moves the collected material to a rotary valve for outfeeding.

The filter can be supplied for either continuous operation or with a pause for cleanting of the filter bags every four hours.

- Handles air flows from 10,000

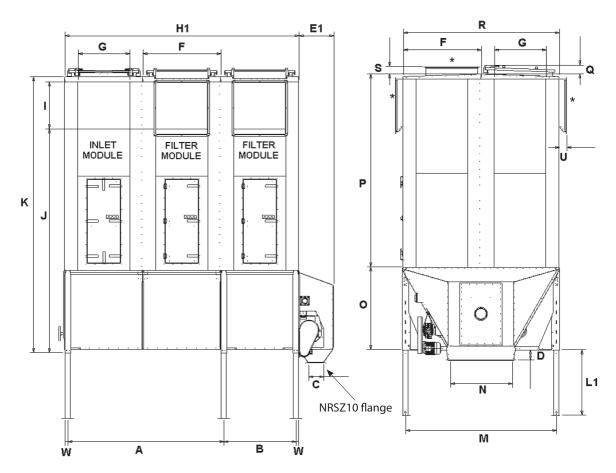
   500,000 m<sup>3</sup>/h (5.900 294.000 cfm)
- Compact design
- ATEX certified for St1 or St2 dust
- · Easy to extend
- To be mounted either on the ground or on the roof
- Available for positive or negative pressure operation
- Explosion venting upwards or at side
- Available in J module size (1200 x 2400 mm (47.24 x 94.49 inch)



View from the inside of the hopper

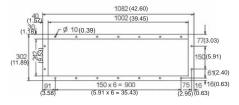
# NFKZ3000 Filter with chain conveyor

#### **Geometric dimensions**



Example: NFKZ3000 2+1 HJ

Туре		A#	В	С	D	E1***	F	G	H1	I	J**	K**	L1	М	Ν	0	P**	Q	R	S	U	w
J	mm	2400	1106	245	153	583	1200	800	3600	720	3420	4230	See	2321	952	1260	2960	135	2400	115	150	47
	(inch)	(94.49)	(43.54)	(9.65)	(6.02)	(22.95)	(47.24)	(31.50)	(141.73)	(28.35)	(134.65)	(166.54)	below	(91.38)	(37.48)	(49.61)	(116.54)	(5.31)	(94.49)	(4.53)	(5.91)	(1.85)



NRSZ10 flange

L1 - Telescopic Filter Legs										
Туре	Min.Adjust	Max. Adjust.								
L=1596 mm	555	1250								
(62.83")	(21.85")	(49.21")								
L=2195 mm	1155	1850								
(86.42")	(45.47")	(72.83")								
L=2596 mm	1555	2250								
(102.20")	(61.22")	(88.58")								

- \* Optional position of outlet /reg. fan. 800 x 800 mm (31.50 x 31.50 inch) or 600 x 600 mm (23.62 x 23.62 inch) (LJ version: not on door side)
- \*\* Height of LJ version reduce 1440 mm (56.69 inch)
- # Optional 1200 mm (47.24 inch)

All dimensions in mm.and inch



# NFSZ3000 Filter with rotary valve

The NFSZ3000 filter with rotary valve is designed for small and medium-sized air flows with large material content.

The medium/large particles are separated in the filter hopper (inlet section optional) and the air is afterwards distributed to the filter bags. The collected material is discharged through the rotary valve.

The filter is typically used in situations requiring non-pressurised material discharge directly into a silo, container or separate material transport system.

The filter can be supplied for either continuous operation or with a pause for cleaning of the filter bags every four hours.

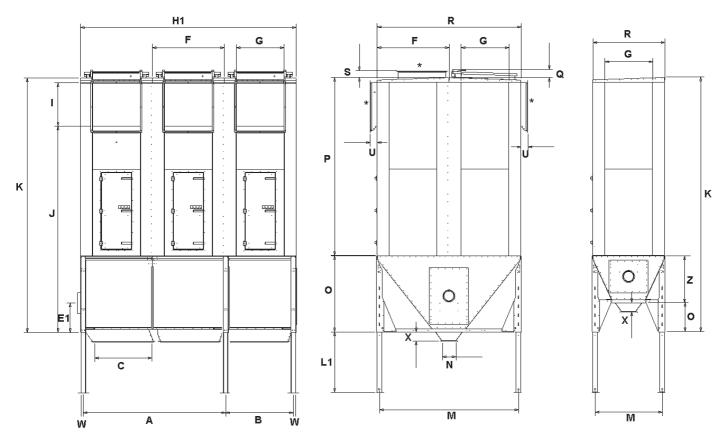
- Handles air flows from 5,000

   60,000 m<sup>3</sup>/h (2.950 35.300 cfm)
- Available for positive or nega tive pressure operation
- Easy installation of preassembled top and hopper on site
- ATEX certified for St1 or St2
   dust
- Wide range of rotary valves for discharge
- Available in two widths, type E and J



# NFSZ3000 Filter with rotary valve

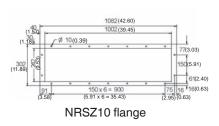
### **Geometric dimensions**



Example: NFSZ3000 3 HJ

Type J (1200 x 2400 mm) (47.24 x 94.49 inch) Type E (1200 x 1200 mm) (47.24 x 47.24 inch)

Туре		A#	В	С	E1***	F	G	H1	1	J**	K**	L1	М	N	0	P**	Q	R	S	U	W	х	Z
E	mm (inch)	2400 (94.49)	1106 (43.54)	952 (37.48)	485 (19.09)	1200 (47.24)	800 (31.50)	3600 (141.73)	720 (28.35)	2937 (115.63)	3737 (147.13)	See below	1121 (44.13)	240 (9.45)	780 (30.71)	2960 (116.54)	135 (5.31)	1200 (47.24)	115 (4.53)	115 (4.53)	47 (1.85)	115 (4.53)	480 (18.90)
J	mm (inch)	2400 (94.49)	1106 (43.54)	952 (37.48)	485 (19.09)	1200 (47.24)	800 (31.50)	3600 (141.73)	720 (28.35)	3420 (134.65)	4220 (166.14)	See below	2321 (91.38)	240 (9.45)	1260 (49.61)	2960 (116.54)	135 (5.31)	2400 (94.49)	115 (4.53)	115 (4.53)	47 (1.85)	115 (4.53)	



L1 - Telescopic Filter Legs										
Type Min.Adjust Max. Adjust.										
L=1196 mm	155	850								
(47.09)	(6.10)	(33.46)								
L=1596 mm	555	1250								
(62.83)	(21.85)	(49.21)								
L=2195 mm	1155	1850								
(86.42)	(45.47)	(72.83)								
L=2596 mm	1555	2250								
(102.20)	(61.22)	(88.58)								

No. of modules	H1	No. of modules	H1
1 HJ & LJ	1200 (47.24)	1 HE & LE	1200 (47.24)
2 HJ & LJ	2400 (94.49)	2 HE & LE	2400 (94.49)
3 HJ & LJ	3600 (141.73)	3 HE & LE	3600 (141.73)
4 HJ & LJ	4800 (188.98)	4 HE & LE	4800 (188.98)
5 HJ & LJ	6000 (236.22)		
6 HJ & LJ	7200 (283.6)		

- # Optional 1200 mm (47.24 inch)
- \* Optional position of outlet /reg. fan. 800 x 800 mm (31.50 x 31.50 inch) or 600 x 600 mm (23.62 x 23.62 inch) (LJ version: not on door side)
- \*\* Height of LJ version reduce 1440 mm (56.69 inch)
- \*\*\* 400 mm (15.75 inch) over internal bottom (max. diameter 350 mm (13.78 inch). Larger diameters are special)



# NFSZ3000 Filter with screw conveyor

The NFSZ3000 filter with screw conveyor is designed for small and medium-sized air flows with large material concentration.

The medium/large particles are separated in the filter hopper (inlet section optional) and the air is afterwards distributed to the filter bags. The collected material is discharged through the screw conveyor.

The filter is typically used in situations requiring non-pressurised material discharge directly into a silo, container or separate material transport system.

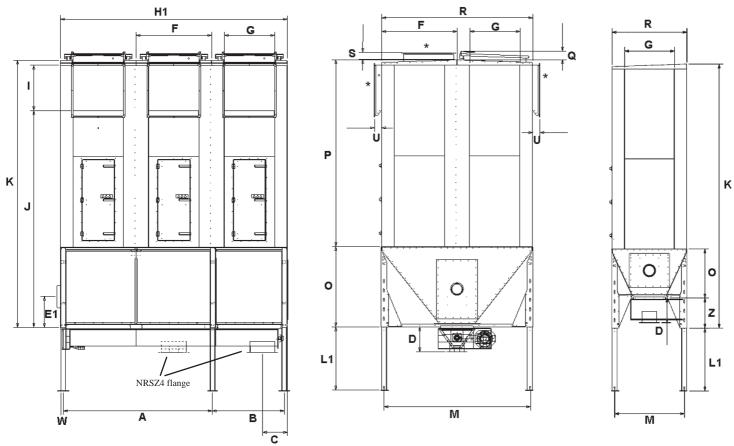
The filter can be supplied for either continuous operation or with a pause for cleaning of the filter bags every four hours.

- Handles air flows from 5,000 – 60,000 m<sup>3</sup>/h (2.950 – 35.300 cfm)
- Available for positive or negative pressure operation
- Easy installation of pre-assembled top and hopper on site
- ATEX certified for St1 and St2 dust
- Wide range of screw conveyors for discharge
- Available in two widths, type E and J



### NFSZ3000 Filter with screw conveyor

#### **Geometric Dimensions**

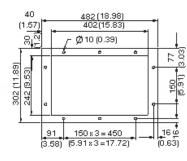


Example: NFSZ3000 3 HJ

Type J (1200 x 2400 mm) (47.24 x 94.49 inch)

Type E (1200 x 1200 mm) (47.24 x 47.24 inch)

Туре		A#	В	с	D	E1***	F	G	H1	I	J**	K**	L1	м	0	P**	Q	R	S	U	w	z
E	mm (inch)	2400 (94.49)	1106 (43.54)	393 (15.47)	400 (15.75)	485 (19.09)	1200 (47.24)	800 (31.50)	3600 (141.73)	720 (28.35)	2937 (115.63)	3737 (147.13)	See below	1121 (44.13)	780 (30.71)	2960 (116.54)	135 (5.31)	1200 (47.24)	115 (4.53)	115 (4.53)	47 (1.85)	480 (18.90)
J	mm (inch)	2400 (94.49)	1106 (43.54)	393 (15.47)	400 (15.75)	485 (19.09)	1200 (47.24)	800 (31.50)	3600 (141.73)	720 (28.35)	3420 (134.65)	4220 (166.14)	See below	2321 (91.38)	1260 (49.61)	2960 (116.54)	135 (5.31)	2400 (94.49)	115 (4.53)	115 (4.53)	47 (1.85)	



L1 - Telescopic Filter Legs										
Type Min.Adjust Max. Adjus										
L=1196 mm	155	850								
(47.09)	(6.10)	(33.46)								
L=1596 mm	555	1250								
(62.83)	(21.85)	(49.21)								
L=2195 mm	1155	1850								
(86.42)	(45.47)	(72.83)								
L=2596 mm	1555	2250								
(102.20)	(61.22)	(88.58)								

No. of modules	H1	No. of modules	H1
1 HJ & LJ	1200 (47.24)	1 HE & LE	1200 (47.24)
2 HJ & LJ	2400 (94.49)	2 HE & LE	2400 (94.49)
3 HJ & LJ	3600 (141.73)	3 HE & LE	3600 (141.73)
4 HJ & LJ	4800 (188.98)	4 HE & LE	4800 (188.98)
5 HJ & LJ	6000 (236.22)		
6 HJ & LJ	7200 (283.46)		

- # Optional 1200 mm (47.24 inch)
- \* Optional position of outlet /reg. fan. 800 x 800 mm (31.50 x 31.50 inch) or 600 x 600 mm (23.62 x 23.62 inch).
   (LJ version: not on door side.
- \*\* Height of LJ version reduce 1440 mm (56.69 inch)
- \*\*\* 400 mm (15.75 inch) over internal bottom (max. diameter 350 mm (13.78 inch). Larger diameters are special)



#### NFPZ3000 Filter with bins

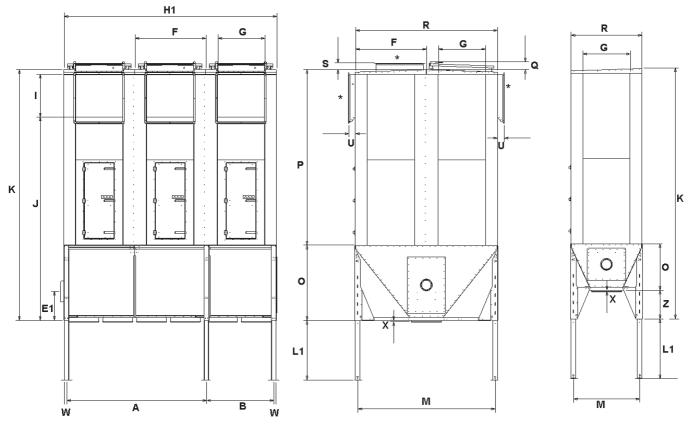
The NFPZ3000 filter is designed for small air flows with limited material content. The extracted material is separated in the filter hopper and collected in metal bins.



- Handles air flows from 1,500 – 33,000 m<sup>3</sup>/h (900 – 9.500 cfm)
- Available for positive or negative pressure operation
- Easy installation of preassembled top and hopper on site
- ATEX certified for St1 or St2
   dust
- Available in two widths, type E or J

# NFPZ3000 Filter with bins

### **Geometric dimensions**

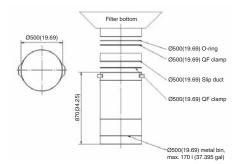


Example: NFPZ3000 3 HJ

Type J (1200 x 2400 mm) (47.24 x 94.49 inch)

Type E (1200 x 1200 mm) (47.24 x 47.24 inch)

Туре		A#	В	E1***	F	G	H1	1	J**	K**	L1	N	0	P**	Q	R	S	U	w	х	z
E	mm (inch)	2400 (94.49)	1106 (43.54)	485 (19.09)	1200 (47.24)	800 (31.50)	3600 (141.73)	720 (28.35)	2937 (115.63)	3737 (147.13)	See below	1121 (44.13)	780 (30.71)	2960 (116.54)	131 (5.16)	1200 (47.24)	115 (4.53)	150 (5.91)	47 (1.85)	23 (0.91)	480 (18.90)
J	mm (inch)	2400 (94.49)	1106 (43.54)	485 (19.09)	1200 (47.24)	800 (31.50)	3600 (141.73)	720 (28.35)	3420 (134.65)	4220 (166.14)	See below	2321 (91.38)	1260 (49.61)	2960 (116.54)	131 (5.16)	2400 (94.49)	115 (4.53)	150 (5.91)	47 (1.85)	23 (0.91)	



L1 - Telescopic Filter Legs											
Туре	Max. Adjust.										
L=1196 mm	155	850									
(47.09)	(6.10)	(33.46)									
L=1596 mm	555	1250									
(62.83)	(21.85)	(49.21)									
L=2195 mm	1155	1850									
(86.42)	(45.47)	(72.83)									
L=2596 mm	1555	2250									
(102.20)	(61.22)	(88.58)									

No. of modules	H1	No. of modules	H1
1 HJ & LJ	1200 (47.24)	1 HE & LE	1200 (47.24)
2 HJ & LJ	2400 (94.49)	2 HE & LE	2400 (94.49)
3 HJ & LJ	3600 (141.73)	3 HE & LE	3600 (141.73)
4 HJ & LJ	4800 (188.98)	4 HE & LE	4800 (188.98)

- # Optional 1200 mm
- \* Optional position of outlet / reg. fan. 800 x 800 mm (31.50 x 31.50 inch) or 600 x 600 mm (23.62 x 23.62 inch).
   (L version: not on door side.
- \*\* Height of L version reduce 1440 mm (56.69 inch)
- \*\*\* 400 mm (15.75 inch) over internal bottom (max. diameter 350 mm (13.78 inch). Larger diameters are special)



# Regeneration fans and explosion relief doors

Each module of the NFZ3000 filter may be fitted with inspection door(s), explosion relief door(s) and regeneration fan(s).

As standard the filter is fitted with side venting due to the combined inspection and explosion relief door. Regeneration fan for cleaning the filter is as standard mounted on the roof of the filter.

Optional the filter can be fitted with top venting or venting type UP and regeneration fans on the side.

- One explosion relief door per module for St1 dust
- Two explosion relief doors per module for St2 dust
- Regeneration fans on top or side
- Combined inspection and explosions relief doors as standard
- Top venting (optional)
- UP venting (optional)

### **Positioning of regeneration** fans and explosion relief doors

#### St1 dust



Ex. doors and regeneration fans at same side (not L type).



Locked doors (only for inspection). Regeneration fans at same side. Top venting (not L type).



Locked doors (only for inspection). Regeneration fans at same side. Venting type UP (not L type).

### St2 dust

11



Ex. doors at both sides. Regeneration fans left or right (not L type).



Ex. doors and regeneration fans at same side. Top venting (not L type).



Ex. doors and regeneration fans at same side. Venting type UP (not L type).



Doors locked (only for inspection). Regeneration fans on top. Venting type UP and top venting.





Ex. doors and regeneration fans opposite each other.



Locked doors (only for inspection). Regeneration fans opposite the doors. Top venting.



Locked doors left or right (only for inspection). Regeneration fans on top. Top venting.



Ex. doors at both sides. Regeneration fans left or right (not L type).



Ex. doors and regeneration fans opposite each other. Top venting.



Doors locked (only for inspection). Regeneration fans at same side. Venting type UP and top venting (not



Doors locked (only for inspection). Regeneration fans opposite the locked doors. Top venting.



Ex. doors and regeneration fans opposite each other.



Locked doors (only for inspection). Regeneration fans opposite the doors. Top venting.



Locked doors (only for inspection). Venting type UP opposite the doors. Regeneration fans on top.



Ex. doors at both sides. Regeneration fans on top.



Ex. doors and regeneration fans opposite each other. Top venting.



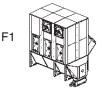
Doors locked (only for inspection). Regeneration fans at same side. Venting type UP and top venting (not L type).



Doors locked (only for inspection). Regeneration fans opposite the locked doors. Top venting.



Ex. doors left or right. Regeneration fans in top.



Locked doors (only for inspection). Regeneration fans at same side. Venting type UP (not L type).



Locked doors (only for inspection). Venting type UP opposite the doors. Regeneration fans on top.



Ex. doors at both sides. Regeneration fans on top.



Ex. doors and regeneration fans at same side. Venting type UP. (not L type).



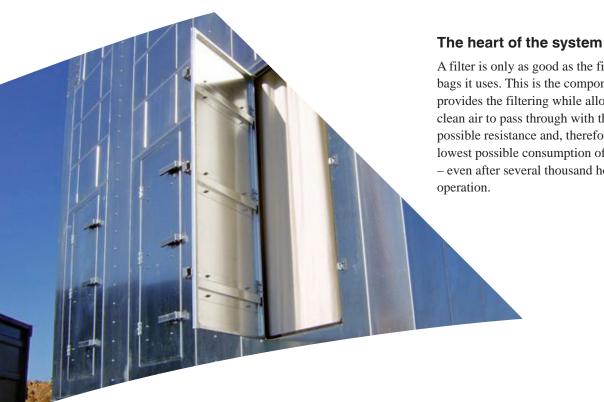
Doors locked (only for inspection). Regeneration fans on top. Venting type UP and top venting.



Doors locked (only for inspection). Regeneration fans at same side. Top venting (not L type).

J1

### Superbag filter material



A filter is only as good as the filter bags it uses. This is the component that provides the filtering while allowing clean air to pass through with the least possible resistance and, therefore, the lowest possible consumption of energy - even after several thousand hours of

#### Efficiency and low energy consumption

Superbag is Nederman's own polyester filter bag. A patented weaving technique in tubular format gives the filter bag a surface which can cope with varying dust loads and with virtually any type of dust. Better filtering efficiency is achieved with this unique filter media which provides low pressure drop, and low energy consumption.

#### Strength and durability

The special shape of the SUPERBAG helps to ensure that the high efficiency and effectiveness of the NFZ3000 filter system is maintained even after long periods of operation. The durability is the result of the patented construction, strong polyester fibre and seamless body. These features also make cleaning of the filter bag very easy.





#### Antistatic

SUPERBAG's interwoven carbon fibre wire provides higher anti-static properties - both on the surface and inside than traditional filter bags. This reduces the risk of fire and explosion as fine particles are removed.

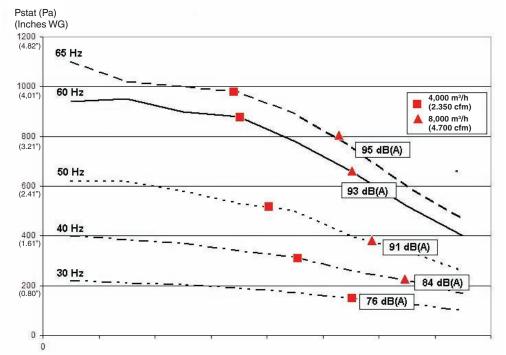
# **Regeneration fan**

The regeneration fan for reverse air cleaning of the NFZ3000 filter operates at time intervals dependant on filter load and dust level. The regeneration fan can be mounted either in the roof or on the side of the filter.

The fan is an axial type fan (800 x 800 mm (31.50 x 31.50 inch )). The regeneration fan is available in a 1.1 kW (1.48 hp)and a 2.2 kW (2.95 hp) version.

The regeneration fan is designed for high pressure in the working mode and low air resistance in the stop mode. The regeneration fan is braked in the stop mode, minimizing noise.

The pressure resistance is 100 Pa (0.4" WG) at 10,000 m<sup>3</sup>/h (5.900 cfm).



### **Rotary valves**

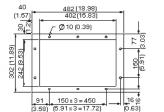


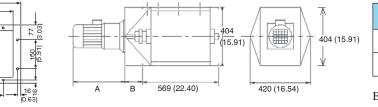


The NRSZ type rotary valve is used to transfer material between two separate systems. In pneumatic conveying systems, discharge is usually required from the filter or cyclone to the silo or conveying system, at atmospheric pressure. This is an ideal application for the NRSZ type rotary valve.

The rotary valve can be used for most material types, also explosive (St1 or St2), though the particle size must not exceed  $13 \times 13 \times 13$  mm (0.51 x 0.51 x 0.51 inch).

- The rotary valve is a barrier against spreading of an explosion
- Simple design and proven strength
- Available in different lengths and capacities





Motor	A	B
kW (hp)	mm (inch)	mm (inch)
0.18	651	115
(0.24)	(25.63)	(4.53)
0.75	430	68
(1.01)	(16.93)	(2.68)

404

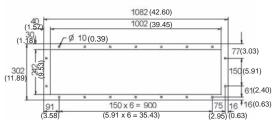
404 (15.91)

420 (16.54)

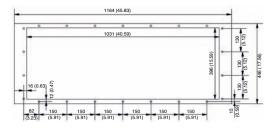
Both NRSZ 4 and NRSZ 10

NRSZ 10

NRSZ 4



NRSZ 10-Q

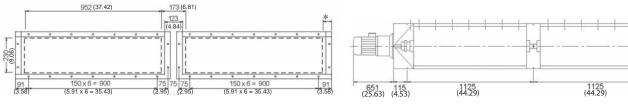


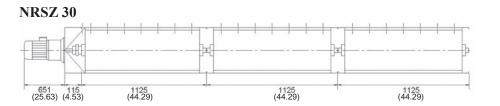
1125 (44.29)

в

Α

NRSZ 20

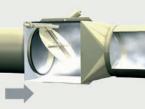




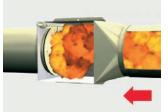
### **CARZ Back pressure flap valve**



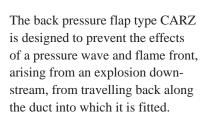




Suction direction.



Explosion direction.



The CARZ back pressure flap is effective up to a maximum declared reduced explosion pressure within the protected enclosure (typically ATEX zone 20 internally) and acts as an isolating valve during the explosion event. In normal operating mode it is held open against gravity by the dust laden air stream flowing in the direction opposite to that of the explosion pressure wave.

Minimum 2 metres (78.7 inch) straight duct are required before the CARZ back pressure flap to fulfill ATEX. For dimensions 560-1000 mm (22.05 x 39.37 inch), minimum 5 metres (196.85 inch) straight duct are required.

- ATEX certified for St1 dust
- Available in all sizes from ø160 mm (6.30 inch) to ø1000 mm (39.37 inch)
- Prevents unwanted effects of an explosion from spreading
- Prevents stray dust return ing along the duct when operation is stopped
- Simple and robust design

### Soluzioni KOMSA per le vostre necessità di aspirazione

Vi mostriamo qui di seguito alcuni esempi di sistemi di aspirazione che fanno parte della nostra ampia gamma di prodotti.

Per maggiori informazioni potrete visitare il nostro sito internet: www.komsa.it

Bracci di aspirazione



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