RotoClone® N

POWERED BY

REDClean® Technology

Design | Engineering | Manufacturing | Maintenance | Spare Parts

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AAF INTERNATIONAL

Bringing clean air to life.®

The RotoClone® advantage

The RotoClone® N combines high efficiency with low water usage to maximise performance. The RotoClone® N has solved thousands of dust collection problems around the world, offering the following key benefits:

- Low maintenance
- Low water usage
- Efficient
- Robust
- Proven
- Flexible
- Versatile

The RotoClone® N is a flexible design for a wide range of operating conditions with minimal servicing requirements. Collection efficiencies, including the most challenging particle sizes, are equal to or better than any wet dust collector with comparable energy consumption.

Optimised performance to maximise return on investment

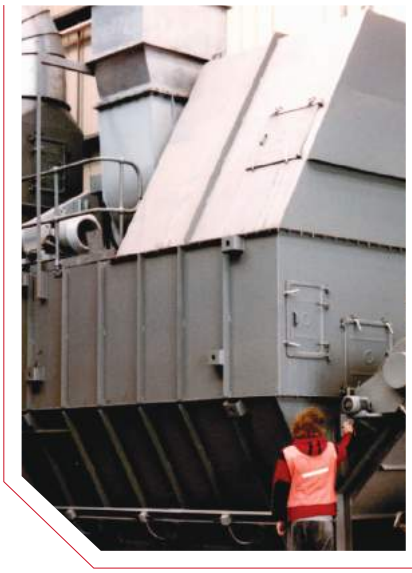
Reliability guaranteed

The RotoClone® N is available for automatic sludge ejection, manual clean-out, or sluicing; in sizes from 2,550 to 81,600m³/h and with or without a top mounted fan. It can be tailored to meet your needs, operating at a medium or high efficiency and using only the energy required to suit your requirements.

Designed for continuous operation with minimum service, the absence of intricately shaped surfaces and narrow air passages minimises the build-up of dust deposits or the blocking of restricted openings. Access doors with quick-opening handles provide accessibility to the interior of the RotoClone® N.

The RotoClone® N is available for both normal and heavy-duty service. Heavy-gauge hot rolled steel is used for the standard model. For corrosive environments, a coal-tar epoxy coating or stainless steel construction is available.

Thousands of RotoClone® N collectors have been in service on a wide variety of applications since the design concept was first introduced, with many models remaining in service for several decades.



RotoClone® N arrangements

The leader in wet dust collection technology

The RotoClone® N can be engineered to accommodate special conditions or space limitations.

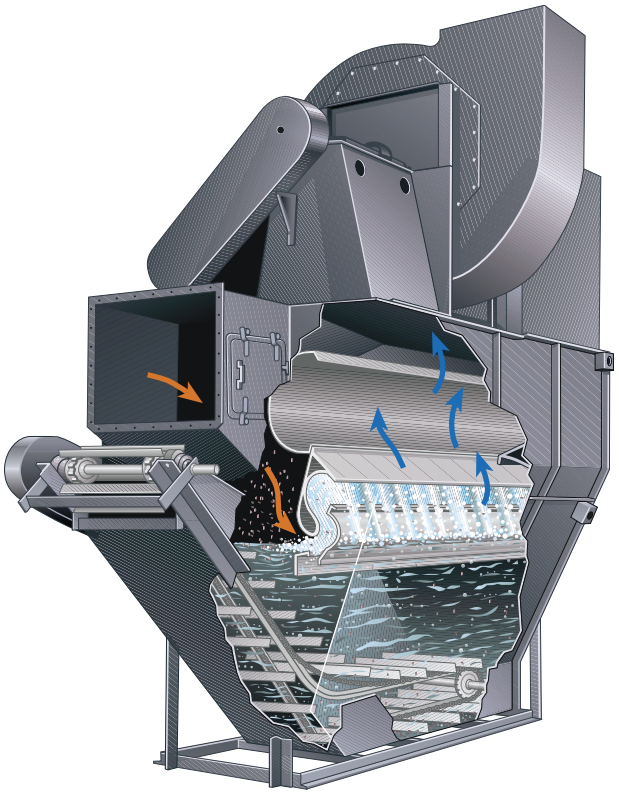
Arrangement B
Flat bottom design for manual removal of collected material.

Arrangement C
Hopper with drag-type sludge ejector for automatic dewatering and sludge removal.

Arrangement D
Pyramid hopper for sluicing collected material to a process or disposal point.

Arrangement B - Manual sludge removal

The RotoClone® N, arrangement B, is designed for reduced height and low initial cost. Since collected material must be removed manually, this arrangement is appropriate for applications where dust loadings are light. In units with a single impeller, one side of the reservoir is sloped to facilitate removal of the collected material. With the double impeller units, it is usually necessary to drain the reservoir for sludge removal. (Shown right)

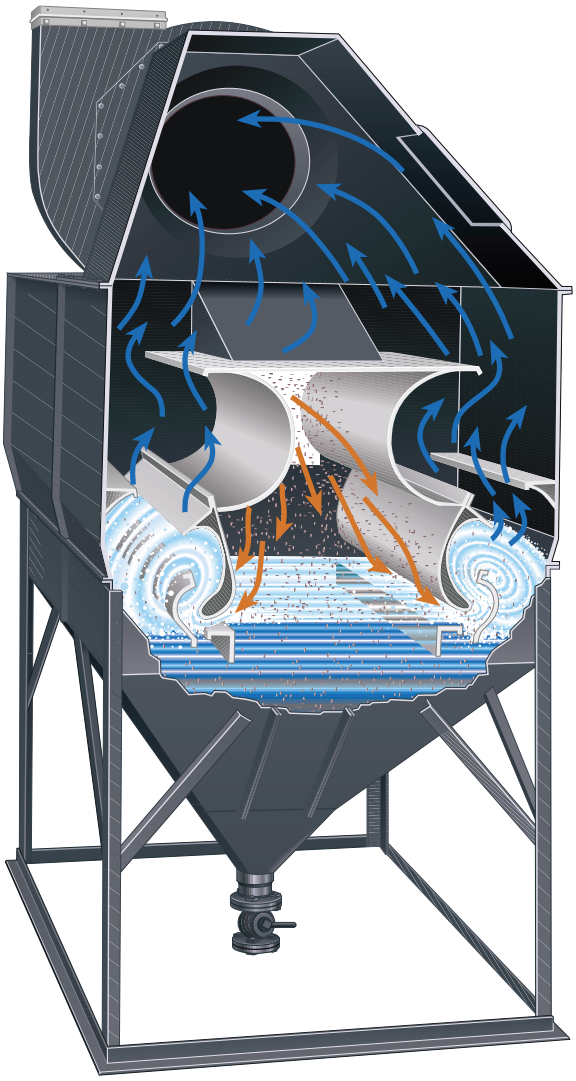


Arrangement C - Automatic sludge removal

The RotoClone® N, arrangement C, is designed to reduce manual removal of collected material. It is recommended for moderate and heavy dust loads, for applications requiring continuous 24-hour service, and where manual removal of the sludge would be unreliable or cost prohibitive. Steep sides in the hopper minimise material build-up, while the sludge ejector mechanism provides easy removal of collected material.
(Shown left)

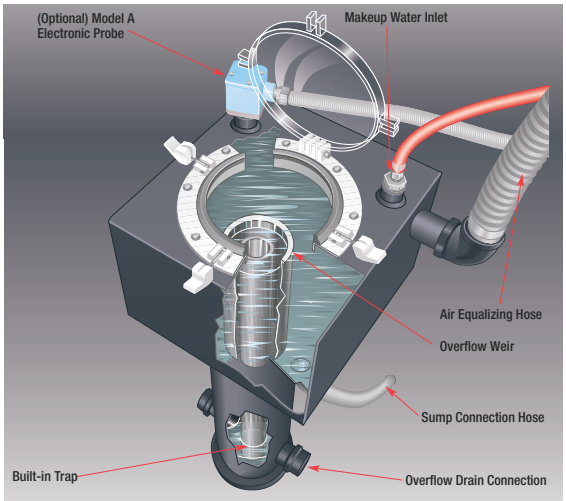
Arrangement D - Continuous sluicing

RotoClone® N, Arrangement D, is designed to sluice collected material through the hopper into a process or disposal point. Sluicing may be continuous or intermittent. This arrangement is recommended for material handling applications in the chemical and rock products industries; and dust abatement on crushers, screens and transfer points for mining and rock products. To maintain the scrubbing water at the proper operating level, a constant supply of make-up water and drainage is required.



Water level controls

The sophisticated water level controls keep water usage to a minimum. In fact, with the optional Model A water level controller, there is no water overflow, and water is added only to make up for that lost to evaporation or discharged with the sludge. If efficiency requirements change, a simple modification to the water level control, along with appropriate adjustment to the exhauster, allows the RotoClone® N to operate at higher or lower efficiency. Three types of water level controls are available; model SV, model SV with low water safety control and model A.

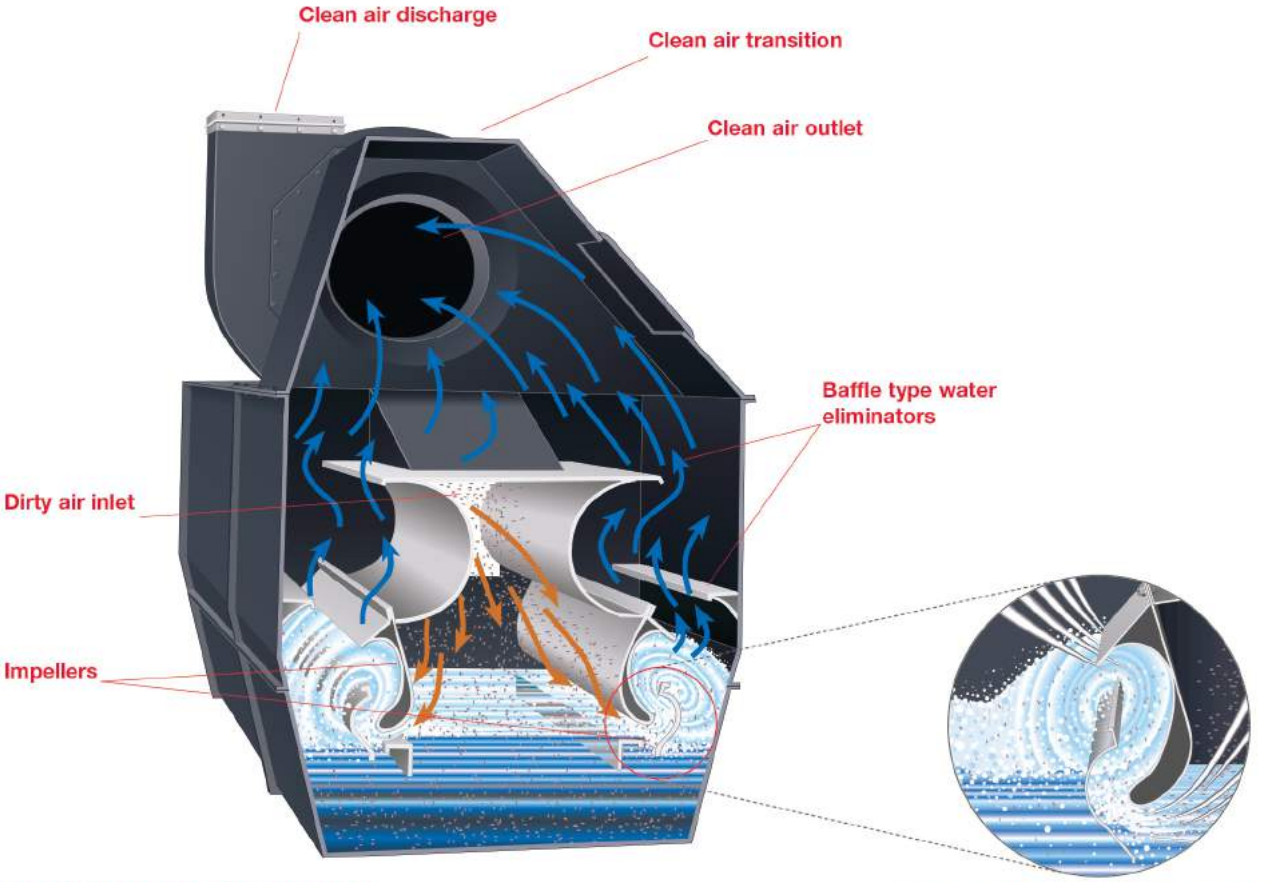


- **Model SV (solenoid valve) control**
  This is the standard water level control. It prevents operation of the RotoClone® when there is insufficient water supply pressure.
- **Model SV with low water safety control**
  This control is suitable for magnesium and other explosive dusts. In addition to the standard controls available on the model SV control, this model contains a low level electrode and a timing relay.
- **Model A control**
  This water supply system contains a fill valve, strainer, solenoid valve, level electrode, and a timing relay.
  The electrode is used to open and close the solenoid valve to maintain a constant water level.

Principles of operation

The RotoClone® N is engineered to give years of efficient service through a highly productive operational process:

- Dust is separated from the air by means of a water curtain
- Air flowing through the impeller at a high velocity conveys water with it in a very turbulent sheet
- Additional water is introduced at the narrowest portion of the impeller, thus increasing collection efficiency
- The centrifugal force exerted causes the dust particles to penetrate the water film and become permanently trapped
- Entrained water droplets in the clean air are removed
- The dust settles in the bottom of the collector and the water is reused



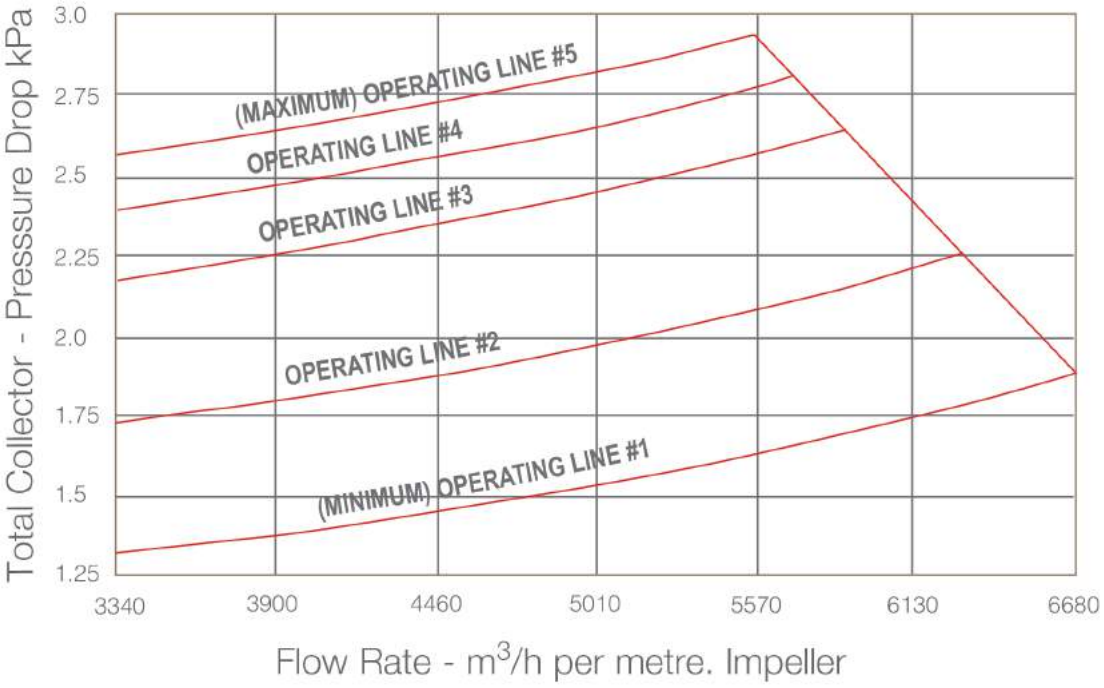
Operating principle, arrangement B, size 8 and larger

Cross section of stationary impeller

Since the water curtain is produced by the airflow, no pumps or nozzles are required.
The pressure drop of the RotoClone® N is between 135mm wg to 297mm wg.
This allows a higher efficiency for smaller, hard to collect dust particles; heavier particles; and particles smaller than design conditions.

Optimised performance

The pressure loss chart shows the total pressure losses through the RotoClone® N in relation to the flow rate through the impeller. The total pressure losses are measured by subtracting the static pressure at the collector outlet flange from the static pressure at the inlet flange. The size of the RotoClone® N corresponds to the length of the impeller.

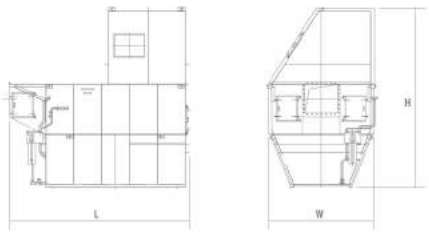


Sizing example

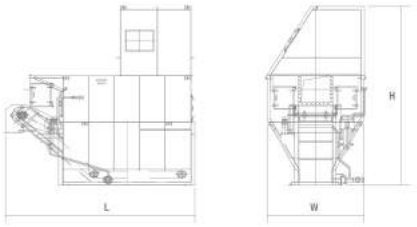
- A size 6 RotoClone® N will have an impeller length of six feet (1828.8mm). The RotoClone® N is normally sized based on a gas velocity of 1,700 – 3,400 m^3/h per foot (304.8mm) of impeller.
- Select a size RotoClone® for given conditions of 37,400 m^3/h at 20 °C
  design pressure drop = 150-180 daPa (or 1.500 Pa-1.800 Pa)
- Since inlet condition is ambient air, cooling by the RotoClone® N can be ignored.
- If a size 20 is selected, the flow rate is 37,400 / 20 = 1,870 m^3/h impeller
- The RotoClone® can be selected for 1,870 m3/h of impeller and a pressure drop of 175 daPa or 220 daPa (or 1,750 Pa or 2,200 Pa). A pressure drop of 175 daPa (or 1,750 Pa) is selected since it meets the design conditions.

Dimensions and specifications

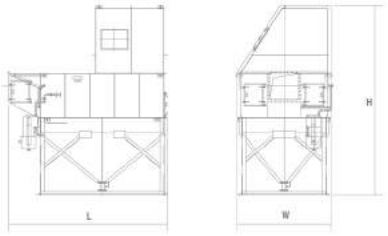
Arrangement B



Arrangement C



Arrangement D



Arrangement B

Size	Volume nominal m^3/h	Water comsu. a 1.4 $kg.cm^2$ l/min	A mm	L mm	H mm	Weight shipping Kg	Capacity water litres
1.5	2,550	2	1,400	1,310	2,610	500	342
2.5	4,250	2	1,400	1,310	2,610	500	342
4	6,800	2	1,800	1,400	2,710	661	532
6	10,200	2	2,450	1,400	2,950	832	836
8	13,600	2	2,400	2,015	4,150	1,411	1,120
12	20,400	2	2,400	2,630	4,560	1,786	1,670
16	27,200	2	2,400	3,235	4,660	2,196	1,940
20	34,000	4	2,400	3,845	4,660	2,566	2,775
24	40,800	4	2,550	4,455	5,200	3,341	3,345
28	47,600	4	2,550	5,065	5,200	3,783	3,895

Arrangement C

Size	Volume nominal m^3/h	Water comsu. a 1.4 $kg.cm^2$ l/min	A mm	L mm	H mm	Weight shipping Kg	Capacity water litres
1.5	2,550	2	1,325	2,500	3,610	1,025	1,200
2.5	4,250	2	1,325	2,500	3,610	1,025	1,200
4	6,800	2	1,760	2,500	3,710	1,170	1,680
6	10,200	4	2,370	2,500	3,940	1,473	2,160
8	13,600	4	2,450	2,620	4,760	2,070	2,160
12	20,400	4	2,450	3,300	5,170	2,430	2,600
16	27,200	4	2,450	3,960	5,000	3,110	5,480
20	34,000	6	2,450	4,615	5,100	3,701	6,600
24	40,800	6	2,520	5,280	5,600	4,428	7,800
28	47,600	10	2,520	5,890	5,600	5,210	8,880
32	54,400	10	2,520	6,500	5,600	5,657	10,000
36	61,200	10	2,520	7,110	5,400	6,236	11,100
40	68,000	10	2,520	7,775	5,500	6,816	12,200
44	74,800	10	2,520	8,384	5,500	7,396	13,320
48	81,600	10	2,520	8,995	5,500	7,825	14,440

Arrangement D

Size	Volume nominal m^3/h	Water comsu. a 2.84 $kg.cm^2$ l/min	A mm	L mm	H mm	Number of hoppers	Weight shipping Kg	Capacity water litres
1.5	2550	23	1340	1400	3200	1	600	456
2.5	4,250	23	1340	1400	3200	1	600	456
4	6,800	30	1,770	1400	3,300	1	750	685
6	10,200	30	2,380	1400	3,840	1	1,050	1,254
8	13,600	42	2,400	2,050	4,560	1	1,450	1,482
12	20,400	53	2,400	2,650	5,150	1	1,900	2,300
16	27,200	84	2,400	3,250	5,500	1	2,300	3,420
20	34,000	84	2,400	3,850	5,550	1	2,700	4,750
24	40,800	129	2,550	4,455	5,750	2	3,550	4,902
28	47,600	152	2,550	5,065	5,750	2	3,900	5,738
32	54,400	152	2,550	5,670	6,060	2	4,450	7,315
36	61,200	152	2,550	6,280	5,805	2	4,780	8,550
40	68,000	152	2,550	6,890	5,960	2	5,300	9,500
44	74,800	228	2,550	7,500	5,960	3	6,000	10,220
48	81,600	228	2,550	8,110	5,960	3	6,400	10,950

Inlet: Through front of the intermediate section.
Outlet to the fan: Though upper section, the details of it depend of the fanset.
Way of shipping: Till size 6 included, Fully assembled, stand up (one pack).
Other sizes: In three sections (top+intermediate+lower) to be bolted on site.
Number of normal trucks: Arrangement B: One. Arrangement C: One (until size 24) or two (size 28 and above). Arrangement D: One (until size 28) or two (size 32 and above).

Filter specification form

At AAF we are able to offer our class-leading RotoClone® N into virtually any application provided we understand the operational and dimensional constraints associated with your process.

Name	
Company	
Telephone no.	
Email	
Industry	
Application	
Type of dust	
Volume/Flow	
Temperature	
Static pressure	

Max plan area		
Max height		
Explosive dust	YES	NO
Classification		

Scope of supply

Housing material	
Outlet configuration	
Water pressure	
FM version	
Food quality version	

Outlet silencer	YES	NO
Paint finish		
Water controls	YES	NO
Water control plate	YES	NO

Bringing clean air to life.®

AAF International

Filtration has been at the heart of our business since 1921 and thanks to the high calibre of our products and services, we are trusted by many of the world's leading power and industrial companies. We provide our customers with the expertise, the solutions and the best available filtration technology to increase operational performance. Bringing clean air to life, our products provide the highest levels of indoor air quality, the lowest environmental emissions and the optimum safety conditions for employees and the wider community.

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