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January 12, 2011

103-87530

JAN 14 2011

BUREAU OF
AIR REGULATION

Mr. Ajaya Satyal
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901-3875

**RE: OKEELANTA CORPORATION – SUGAR REFINERY
FACILITY ID NO. 0990005
BULK FACILITY TRANSFER STATION WET ROTO-CLONE – EXEMPTION NOTIFICATION**

Dear Mr. Satyal:

The Okeelanta Sugar Mill and Refinery, owned by Okeelanta Corporation (Okeelanta) is located near South Bay, in Palm Beach County, Florida. The facility is currently operating under Title V Permit No. 0990005-017-AV. On August 17, 2010, Okeelanta submitted a request to the Florida Department of Environmental Protection (FDEP) to install two new Torit Dalamatic baghouses to replace an existing system that currently vents inside the Refinery building and Bulk Transfer Station scale house. On September 7, 2010, FDEP sent a letter to Okeelanta exempting these two baghouses from the requirement to obtain an air construction permit.

The purpose of this letter is to modify this previous request to FDEP for the Bulk Transfer Station baghouse. Okeelanta is proposing to install a Wet Roto-Clone [American Air Filter (AAF), Number 16, Type W, Arrangement A] instead of the Torit Dalamatic 1/4/15 baghouse for control of the sugar dust in the Bulk Transfer Station. The proposed Wet Roto-Clone will capture dust from five pick-up points, including the filter bag manifold, screw conveyor, hopper and conveyor transfer, the weigh hopper, and the bottom hopper. Total air flow to the Wet Roto-Clone will be approximately 4,500 actual cubic feet per minute (acfm). Stack parameters for the Wet Roto-Clone are shown in Table 1.

Per the previous FDEP determination, we believe the replacement Wet Roto-Clone should also be exempt from the requirement to obtain an air construction permit per Rule 62-210.300(3)(b), Florida Administrative Code (F.A.C.). Okeelanta also requests verification from FDEP that the proposed project will be an insignificant emissions unit (EU) pursuant to Rule 62-213.430(6)(b), F.A.C., and can be incorporated into the Title V permit as such.

Flow diagrams of the portion of the refinery affected by this change are provided in Figure 1 (for Fluidized Bed Dryer/Cooler operation) and Figure 2 (for Rotary Dryer operation). As shown in Figures 1 and 2, the sugar processing and conveying operations will not be altered due to this change. Detailed specifications for the proposed Wet Roto-Clone, as provided by AAF, are shown in Attachment A.

Emissions from the proposed Wet Roto-Clone consist of particulate matter (PM) in the form of sugar dust. Based on the specifications shown in Attachment A, and specifications for other Wet Roto-Clones in the Refinery, the new Wet Roto-Clone is estimated to have a control efficiency of 99.9 percent. The potential PM emissions from the new Wet Roto-Clone have been estimated to be 0.038 pound per hour (lb/hr) and 0.092 ton per year (TPY). The emission calculation is shown in Table 2. Please note that these estimated emissions are lower than the emissions previously presented for the Torit Dalamatic 1/4/15 baghouse (0.30 lb/hr and 1.33 TPY).

Based on the calculated potential emissions for the proposed Wet Roto-Clone, Okeelanta has determined that the proposed unit will meet the requirements of the Generic Emissions Unit or Activity Exemption provided in Rule 62-210.300(3)(b)1, F.A.C. This rule exempts equipment from any requirement to obtain

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an air construction permit if it is not subject to any unit-specific applicable requirement and would not have the potential to emit:

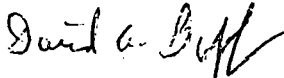
- 500 pounds per year (lb/yr) or more of lead
- 1,000 lb/yr or more of any hazardous air pollutants (HAPs)
- 2,500 lb/yr or more of total HAPs
- 5.0 TPY or more of any other regulated pollutant

Additionally, Okeelanta requests that the proposed Wet Roto-Clone be included in the Title V permit as an insignificant source pursuant to Rule 62-213.430(6)(b), F.A.C., upon permit renewal or revision. This rule allows for the designation of an EU as insignificant if it meets the same criteria described above for Rule 62-210.300(3)(b)1, F.A.C.

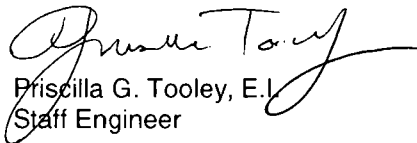
We request that FDEP provide confirmation in writing that the proposed Wet Roto-Clone serving the Bulk Transfer Station is exempt from air permitting. If there are any questions, please contact me by email at dbuff@golder.com or by telephone at (352) 336-5600.

Sincerely,

GOLDER ASSOCIATES INC.



David A. Buff, P.E., Q.E.P.
Principal Engineer



Priscilla G. Tooley, E.I.
Staff Engineer

cc: James Stormer, Palm Beach County Health Department
Matthew Capone, Okeelanta
Jeff Koerner, P.E., FDEP

Attachments

PGT/tz

TABLES

Table 1: Stack Parameter Summary Table for the Proposed Wet Roto-Clone

Emission Source	Control Device & Model Number	Discharge Type	Actual Volumetric Flow Rate (acfm)	Stack Diameter (ft)	Stack Height (ft) ^a
Transfer Bulk Load-out Operations	Wet Roto-Clone No. 5	Horizontal	4,500	2.0	50.0

^a Stack height represents best estimate.

Table 2: Potential Particulate Matter Emissions from Wet Roto-Clone Serving the Bulk Transfer Load-Out Operation, Okeelanta Corporation

Source Emission Point Description	Maximum Refined Sugar Throughput ^a			PM Uncontrolled Emission Factor	Uncontrolled PM Emissions		Control Efficiency (%)	Maximum Emission Rate (lb/hr)	Annual Emissions (TPY)
	(TPD)	(lb/hr)	(TPY)		(lb/hr)	(TPY)			
Particulate Matter (PM)									
Transfer Bulk Load-out Operations	1,200	144,000	351,000	0.523 lb/ton ^b	37.63	91.71	99.9 ^d	0.038	0.092
Particulate Matter (PM₁₀)									
Transfer Bulk Load-out Operations	1,200	144,000	351,000	0.021 lb/ton ^c	1.51	3.67	99.9 ^d	0.0015	0.0037

Note: TPD = tons per day, lb/hr = pounds per hour, TPY = tons per year.

Footnotes:

^a Throughput based on 1,800 tons/day (TPD) and 490,000 tons/yr (TPY), with 30/70% split between the Bulk and Transfer Bulk load-out operations.

^b Bulk load-out operations continuous drop emission factors are computed from AP-42 (USEPA, 1995) Section 13.2.4.

E (lb/ton) = $k \times 0.0032 \times (U/5)^{1.3} / (M/2)^{1.4}$; where U is assumed to be a max of 1 mph due to the building enclosure.

M = Moisture Content = 0.03% for refined sugar.

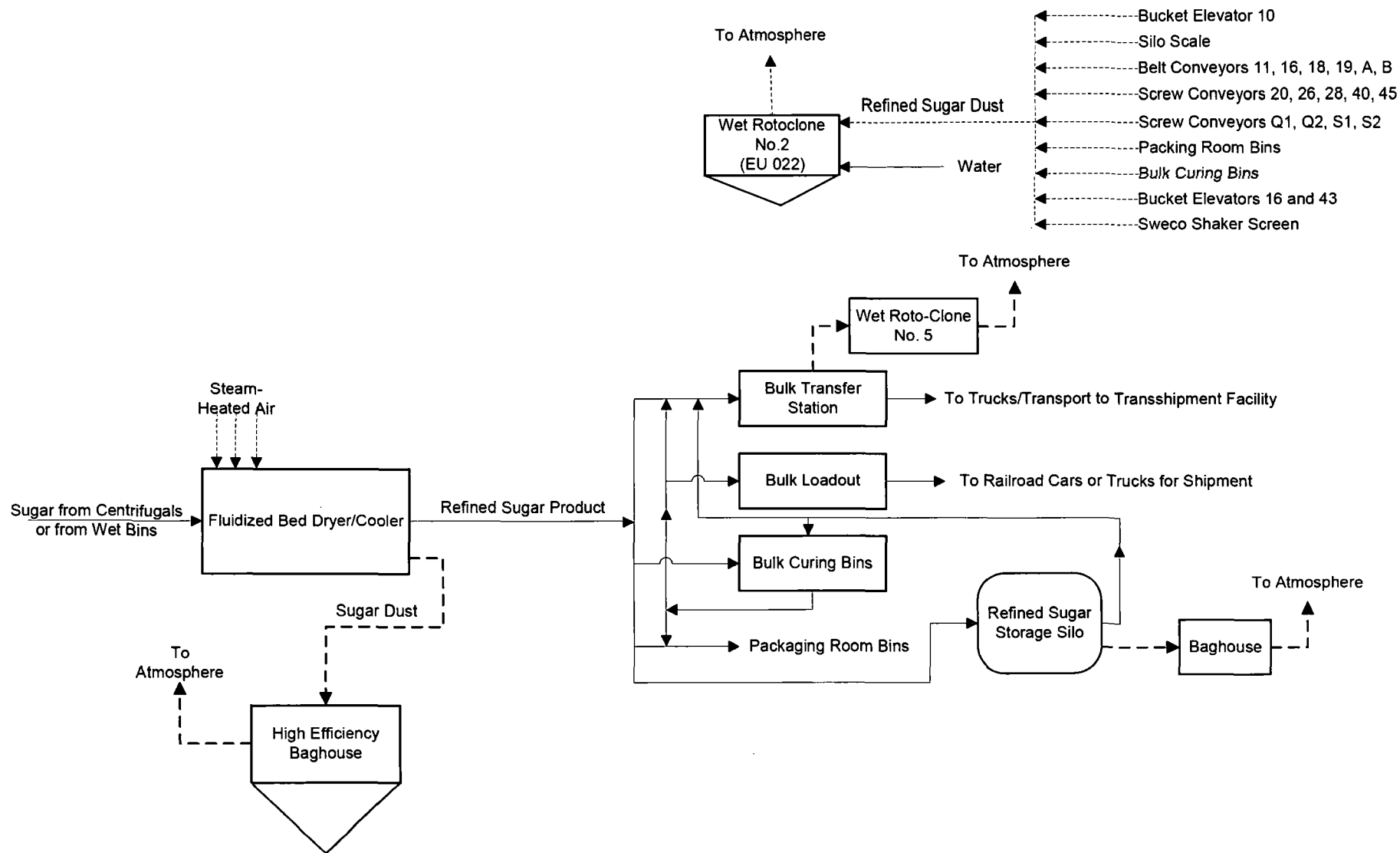
k = 0.74 for PM.

E = 0.105 lb/ton per transfer point, or 0.523 lb/ton for 5 points.

^c PM₁₀, based on sugar dust analysis, is less than 4% of total sugar dust loading.

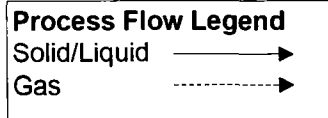
^d Based on manufacturer design rating for Wet Roto-Clone; see Attachment A.

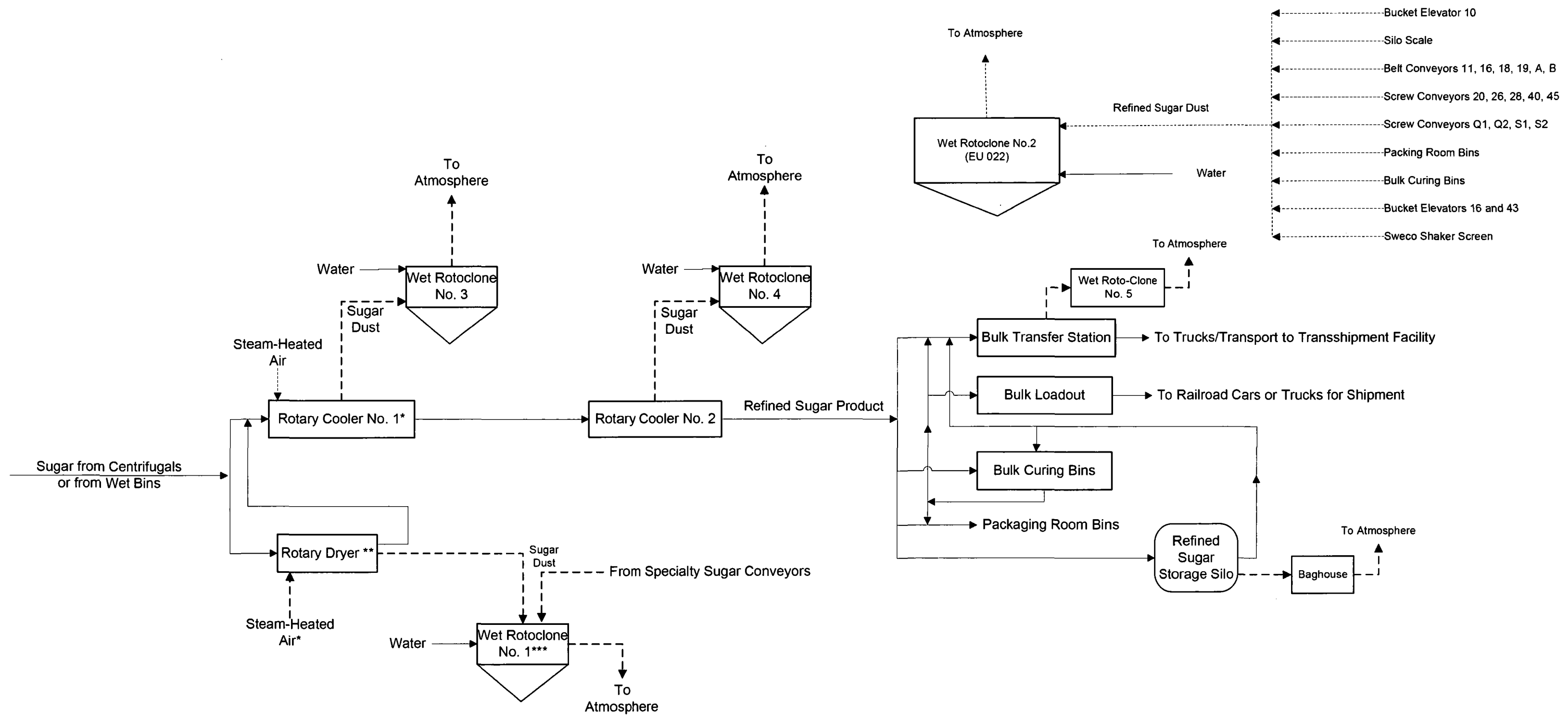
FIGURES



Proposed dust collection system (in red) is to replace existing baghouse system that exhausts inside.

Figure 1. Process Flow Diagram
 Operations with Fluidized Bed Dryer/Cooler
 Florida Crystals Refinery
 South Bay, Florida





Proposed dust collection system (in red) is to replace existing baghouse system that exhausts inside.

* For specialty sugar with low-production loads (<450 TPD), Rotary Cooler No. 1 functions as Dryer (Rotary Dryer not Operated).
 ** Rotary dryer typically run only for high-production loads.
 *** Operated only when Rotary Dryer or proposed specialty conveyors are needed.

Figure 2. Process Flow Diagram
 Operations with Rotary Dryer/Coolers
 Florida Crystals Refinery
 South Bay, Florida

Process Flow Legend	
Solid/Liquid	—————>
Gas	- - - - ->



ATTACHMENT A
WET ROTO-CLONE SPECIFICATIONS

TYPE W ROTO-CLONE

COLLECTS MORE DUST FOR FEWER DOLLARS!

The Type W Roto-Clone has become a dust control favorite throughout industry. The reason: Type W is the lowest priced high efficiency wet dust collector in its class.

The distinguishing feature of the Type W is the addition of water sprays to the basic principle of dynamic precipitation. The spray maintains a flowing film of water on all collecting surfaces which:

1. Lowers water requirements to a minimum.
2. Traps even the lightest and finest dust particles.
3. Delivers collected dust in slurry form for easy disposal.

Type W Roto-Clone provides everything you need, except duct connections, in one complete, shop-assembled package — high efficiency collector, exhauster, motor and drive. Available in 12 sizes from 1,000 to 50,000 cfm.

For heavy dust concentrations, a Precleaner is used with the Type W. The Precleaner removes the bulk of the dust, either wet or dry, leaving only the fines to be collected by the Roto-Clone.

Highest Efficiency

Combines dynamic precipitation with a water spray. Maintains efficiency over entire operation range, regardless of speed or air volume. 98% or better dust removal for most applications.

Minimum Water Requirement

Water consumption is limited to a small amount required to maintain a flowing film on all collecting surfaces. From 1/2 to 1 gallon per 1,000 cfm of air cleaned.

Small Space Requirements

Roto-Clone combines exhauster and dust collector. Basically no larger than a centrifugal exhauster.

Low Installation Cost

Factory-assembled, tested, and shipped in sub-assemblies convenient to handle and easy to erect. As simple to install as a centrifugal fan with the exception that furnace type ducting is not recommended — use welded duct. Water supply and drain are the only additional connections.

Continuous Operation

Uniform performance at peak efficiency without interruption for reconditioning or servicing of any kind. Will operate around the clock — day after day.

Great Flexibility

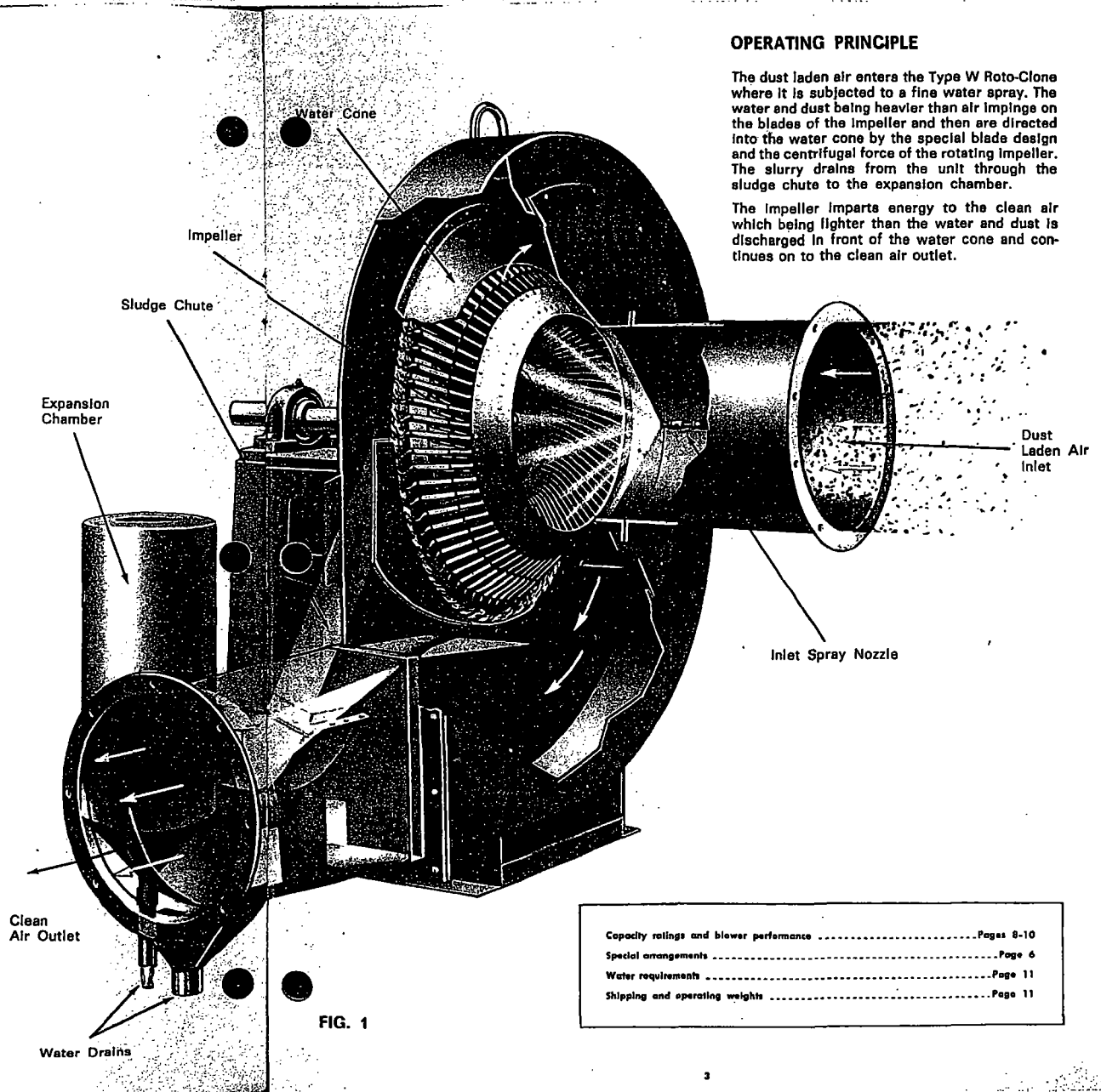
Variety of sizes for any exhaust requirement. Compact design allows relocation at minimum expense. Sizes with capacities from 1,000 to 50,000 cfm.

Constant Exhaust Volume

Proper conveying velocity in ducts and effective dust control at hoods maintained by constant exhaust air volume. Build-up in ducts and escapement from hoods is prevented.

No Secondary Dust Problem

Collected dust discharges as slurry to process, sewer or sump.



OPERATING PRINCIPLE

The dust laden air enters the Type W Roto-Clone where it is subjected to a fine water spray. The water and dust being heavier than air impinge on the blades of the impeller and then are directed into the water cone by the special blade design and the centrifugal force of the rotating impeller. The slurry drains from the unit through the sludge chute to the expansion chamber.

The impeller imparts energy to the clean air which being lighter than the water and dust is discharged in front of the water cone and continues on to the clean air outlet.

FIG. 1

Capacity ratings and blower performance	Pages 8-10
Special arrangements	Page 6
Water requirements	Page 11
Shipping and operating weights	Page 11

ARRANGEMENT A

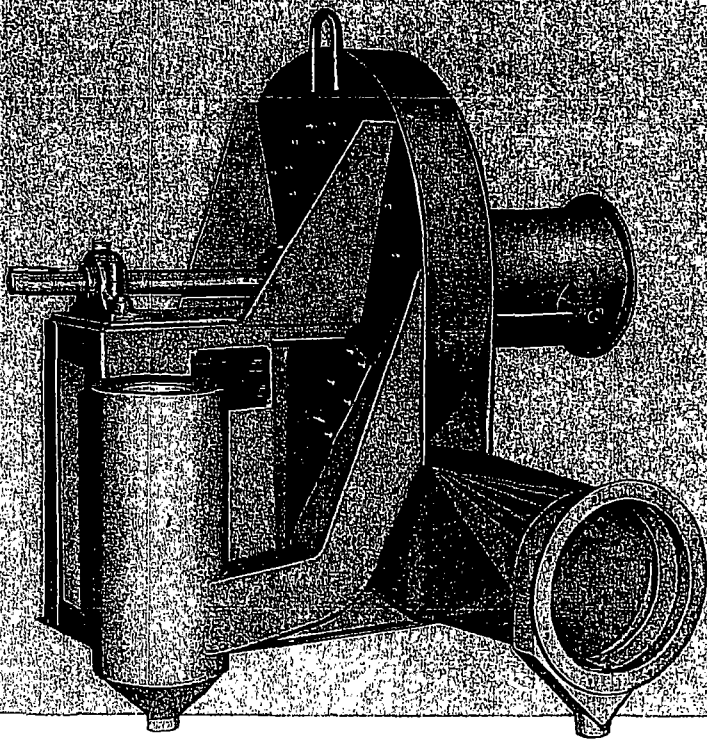


FIG. 2

Type W Roto-Clone, Arrangement A, from drive side. Clean air outlet may be horizontal duct, as shown, or rectangular elbow.

The Type W Roto-Clone, Arrangement A, is recommended for the collection of light loadings of granular dusts and mist. Dynamic forces developed by the rotating impeller cause even the finest particles to impinge on and be trapped by the flowing water film which covers all blade surfaces. The slurry formed by water and collected dust drains from the bottom of the Roto-Clone expansion chamber (see Figure 1). Slurry may be piped to a sump or sewer, returned to process, or discharged to a settling tank where the collected solids precipitate by gravity and clear water overflows to the sewer or drain.

The Type W Roto-Clone has the performance characteristics of a centrifugal fan. The relation between pressure, volume, and horsepower follows the standard laws of fan performance. Maximum operating speeds are shown in Table C, page 11.

If high temperature, corrosive, or toxic exhaust gases are cleaned, the expansion chamber should be vented to the outside of the building as illustrated in Figure 11, page 11.

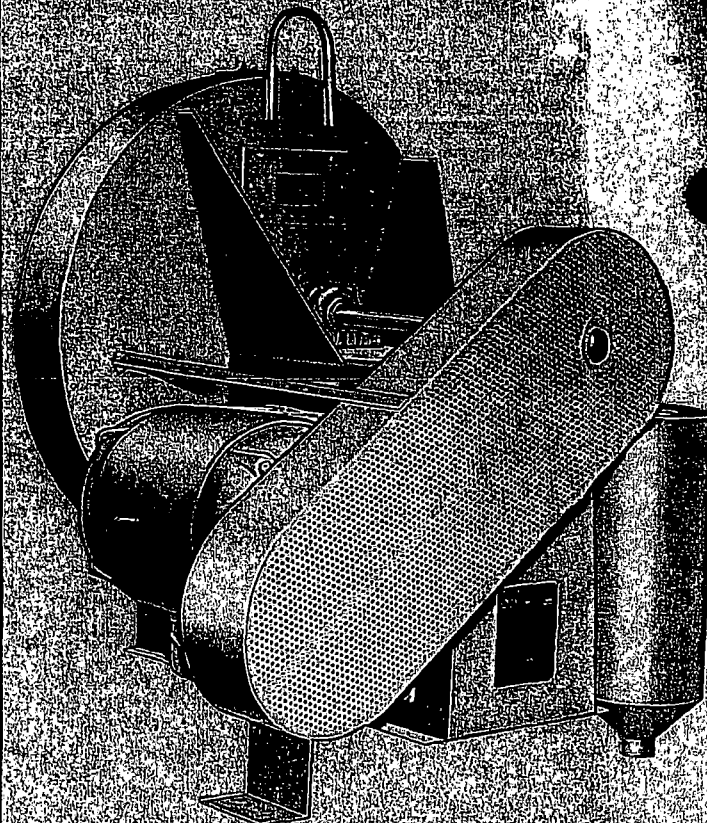


FIG. 3

Type W Roto-Clone, Arrangement A, is available in Arrangement 9 motor mounting where dimensions permit mounting motor on bearing pedestal.

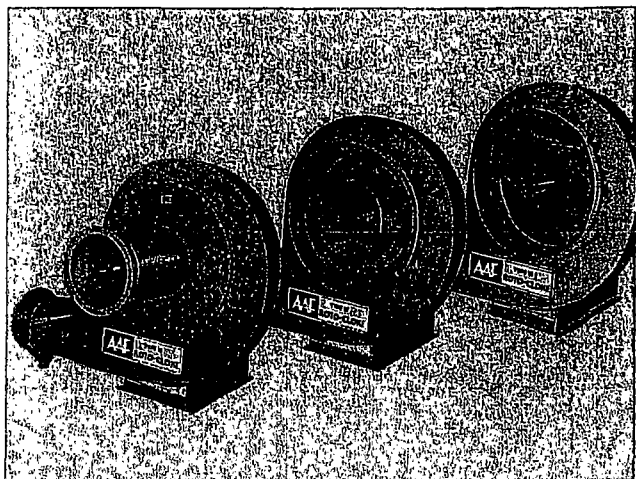
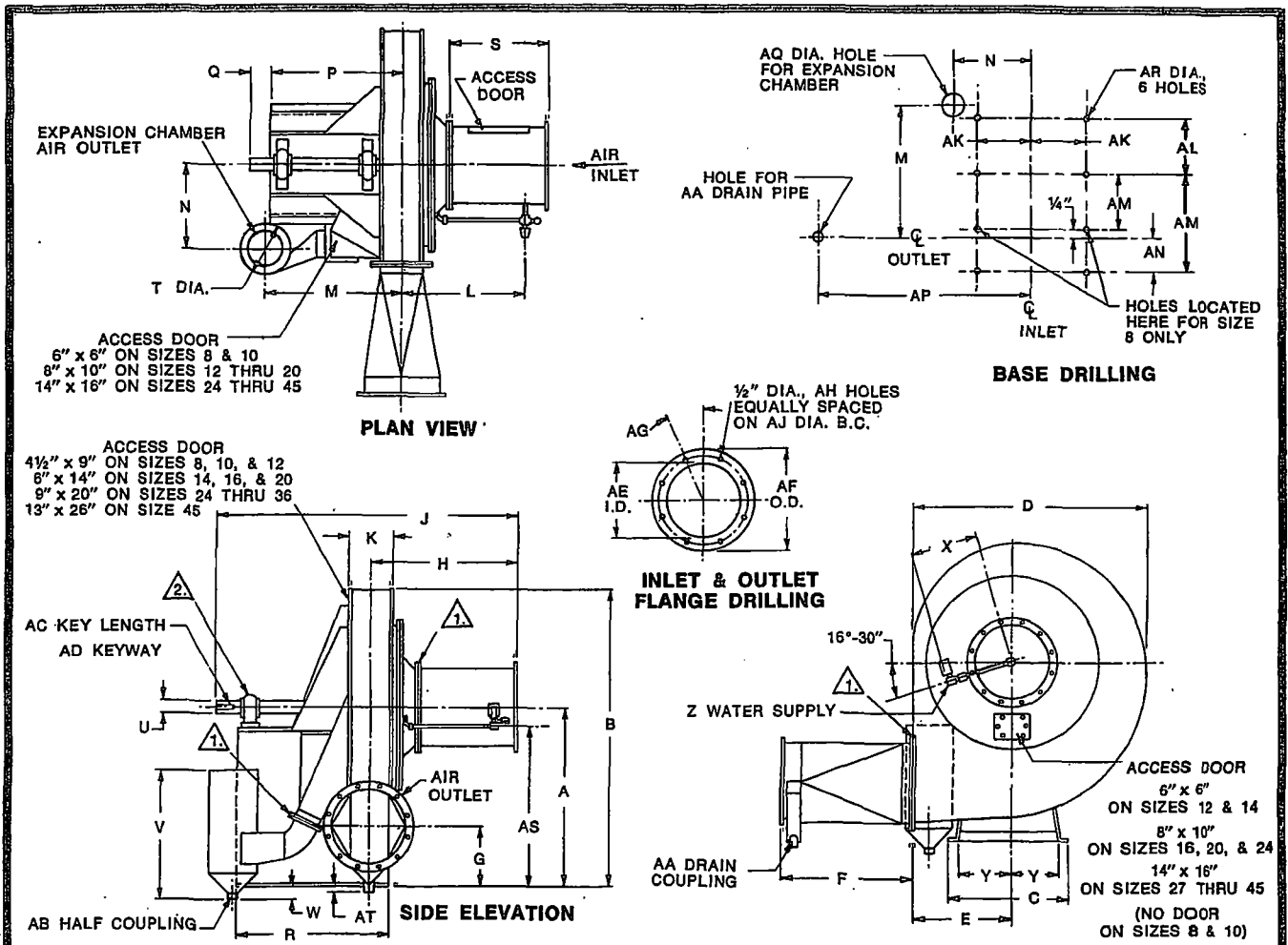


FIG. 4

Standard construction includes brass spray nozzles, stainless steel impeller blades and rivets. Water cone, impeller discs, and welded housing are hot rolled steel plate. All parts can be supplied of aluminum, stainless steel or other metals or the internal housing can be protected with corrosion resistant material (the impeller cannot be coated). See Fig. 5 for additional construction data.

ARRANGEMENT A



▲ STANDARD ROTO-CLONES SIZES 20 AND SMALLER HAVE INLET, OUTLET, AND EXPANSION CHAMBER WELDED TO HOUSING IN LIEU OF FLANGED AND BOLTED CONNECTION.

▲ 5 1/8" DIA. BEARING ON SIZE 45; BEARING SIZE SAME AS "U" ON OTHERS.

SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	
8	20"	2'-8 1/8"	12 3/4"	2'-1 7/8"	11 1/2"	14"	7 3/8"	18 3/8"	3'-7 1/4"	4 1/8"	11 1/8"	20 1/8"	10"	2 1/8"	3 1/2"	23 3/8"	14"	7 1/2"	1 7/8"	18 3/4"	1 1/2"	
10	24"	3'-3 1/8"	15"	2'-7 7/8"	13 1/2"	17 1/2"	8 1/4"	21 1/8"	4'-3 3/4"	5 1/8"	14 1/8"	2'-1 1/8"	10 3/4"	2'-2 1/4"	3 3/4"	2'-4 9/16"	16"	8 1/8"	1 7/8"	22 1/2"	2 1/2"	
12	2'-5"	4'-0 3/4"	19 3/4"	3'-2 1/2"	16 1/2"	21"	10"	2'-1"	4'-10 1/8"	6 1/8"	17 3/8"		14 1/2"	2'-4 3/8"	4 1/2"	2'-7 7/8"	18"	10 1/8"	1 1/2"	2'-3 1/4"	3 3/8"	
14	2'-8 1/2"	4'-8 3/4"	21 1/2"	3'-8 1/2"	18 3/8"	24 1/2"	10 3/8"	2'-4"	5'-2 1/8"	7 1/4"	20 5/8"		16 1/2"	2'-5 1/2"	5 3/4"	2'-8 5/8"	20"	11 1/8"	2 1/8"	2'-5 1/8"	4 5/8"	
16	3'-1 1/2"	5'-3 1/8"	2'-4 1/2"	4'-3 1/4"	22"	2'-4"	12 1/2"	2'-7 3/8"	5'-6 1/2"	8 1/4"	22 3/8"		18 1/2"	2'-5 3/4"	5 3/4"	2'-9 1/8"	22"	12 1/4"	2 1/2"	2'-8 1/4"	2 1/4"	
20	3'-10"	6'-5 5/8"	2'-8 1/2"	5'-3 3/4"	2'-3 1/8"	2'-11"	14 5/8"	2'-11 1/2"	6'-9 3/8"	10 1/4"	2'-8 1/8"		21 3/8"	3'-3 1/8"	6 5/8"	3'-8 1/8"	24"	13 1/4"	2 3/8"	3'-0 3/4"	2 1/2"	
24	4'-8 3/8"	7'-10 1/8"	3'-2 1/2"	6'-3 3/8"	2'-8 1/4"	3'-6"	18 1/8"	3'-9 1/8"	7'-10 1/8"	12 3/8"	3'-2 1/8"		3'-7 3/4"	2'-2"	3'-6 1/8"	6 5/8"	4'-0 1/8"	2'-8"	15 1/4"	2 1/8"	3'-4 1/8"	3 1/8"
27	5'-2"	8'-8 1/4"		7'-0 1/2"	3'-0 1/8"	3'-11"	20"	4'-2 1/4"	8'-8 1/4"	13 3/8"	3'-6 3/4"		4'-1 1/2"	2'-5"	3'-8 3/8"	8 3/8"	4'-4 5/8"	2'-11"	17 1/4"	3 3/8"	3'-9 1/8"	4"
30	5'-7 1/4"	9'-5 3/4"	3'-8 1/2"	7'-9"	3'-3 3/4"	4'-4 1/2"	21"	4'-7 7/8"	8'-3 3/8"	15 3/8"	4'-0 7/8"		4'-6 1/8"	2'-8"	3'-10 3/8"	9 1/8"	4'-5 1/8"	3'-2"	18 3/4"	3 3/8"	4'-2 3/8"	5 3/4"
33	6'-2"	10'-5 1/2"		8'-7 3/8"	3'-8 3/8"	4'-10"	22 1/2"	4'-11 3/8"	10'-1 1/2"	17"	4'-4 1/2"		5'-0 1/2"	3'-1"	4'-3"	10 3/8"	4'-11 1/4"	3'-5"	19 1/2"	3 3/8"	4'-6 1/8"	5 5/8"
36	6'-7 1/2"	11'-3 1/4"		9'-3 1/2"	3'-11 3/8"	5'-3 1/2"	24"	5'-4 1/4"	10'-11 1/8"	18 1/2"	4'-9 1/4"		5'-3 3/8"	3'-3"	4'-6 3/4"	12 1/8"	5'-3 3/4"	3'-8"	20 1/4"		4'-10"	4 1/4"
45	8'-0 3/4"	13'-9 1/8"	5'-2 1/2"	11'-4 7/8"	4'-10 1/8"	6'-7"	2'-4 1/2"	6'-8 7/8"	12'-1 1/8"	23"	5'-10 1/8"		6'-7 1/4"	4'-0"	4'-5 3/4"	11 3/8"	5'-5"	4'-7"	23 3/8"	4 1/4"	6'-0 1/2"	5 3/4"

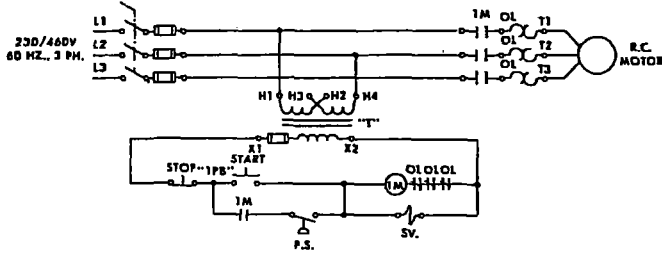
SIZE	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AJ	AK	AL	AM	AN	AP	AQ	AR	AS	AT
8	11 1/2"	4 7/8"				3"		8"	11 1/2"	30"	6	9 5/8"	5 1/2"	12"	7"		22 1/8"	4 3/4"		16 3/4"	1 1/2"
10	11 3/4"	5"	3/4"	1 1/2"	3 1/4"	3 1/2"		10"	13 1/2"			11 5/8"	6 7/8"		10"		2 1/4"	6 1/4"	3 1/8"	20 3/4"	2 1/4"
12	14"	7 7/8"			3 3/4"			12"	15 1/2"			14"	8"	14"	13"	3 1/4"	2'-11"	7 1/4"		2'-1"	1 3/4"
14	15 1/2"	8 3/4"				1/2"		14"	17 1/2"	22 1/2"	8	15 3/4"	9 7/8"	14 1/2"	13 1/2"	1 1/4"	3'-4"	9 5/8"		2'-3 1/4"	2 1/8"
16	16 3/4"	11 1/4"			2"	5 1/4"		16"	20 1/2"			18 3/4"	13"	16"	13"	1 3/4"	3'-10 3/8"			2'-8 3/4"	2 5/8"
20	19 5/8"	13 1/4"				5 3/8"		20"	24 1/4"			22 1/2"	15"	18 1/2"	20"	2 3/4"	4'-10 7/8"	6"	1 1/2"	3'-4 1/2"	2 5/8"
24	21 1/2"	16 1/4"				6"		24"	2'-4 1/8"	15"	12	2'-2 1/4"	18"	24"	20 1/2"	3 3/4"	5'-10 3/8"	8 1/2"	1 3/8"	4'-2 1/4"	1 5/8"
27	23 3/4"		1"	2"	2 1/2"	7 3/4"	3 1/4"	2'-3"	2'-7 7/8"			2'-5 3/8"		23 1/2"		4 1/2"	6'-7 1/8"	9 1/2"		4'-7 3/4"	2 1/4"
30	2'-1 1/2"	19 1/4"				9"	7 1/2"	2'-6"	2'-10 1/8"			2'-8 3/8"	21"	2'-1"	24 1/4"	5 1/4"	7'-4 3/8"	12 1/2"	7/8"	5'-0"	3 1/2"
33	2'-3 3/8"					9 1/2"		2'-8"	3'-1 1/4"			2'-11 1/4"		2'-3"	2'-3 3/4"	6"	8'-2 1/4"	12"		5'-6 1/4"	4 1/4"
36	2'-5 5/8"	22 1/4"				11"	1"	3'-0"	3'-4 3/8"	11 1/4"	16	3'-2 3/8"	24"	2'-5"	2'-6 1/4"	6 3/4"	8'-11 1/2"	11 1/4"	1 1/8"	5'-11 3/4"	4 3/4"
45	2'-10 1/2"	2'-4 1/4"		2 1/2"	3 1/4"	10"		3'-9"	4'-3 1/4"	9"	20	4'-0 3/8"	2'-6"	2'-3"	2'-8 1/2"	8"	11'-2 1/2"	14"		7'-2 3/4"	7 1/8"

FEATURES & OPTIONS

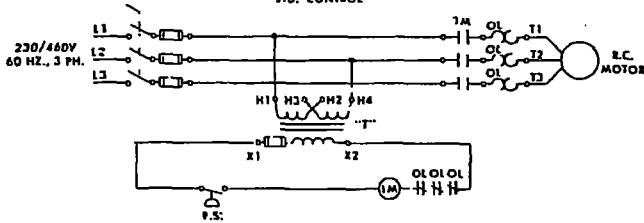
WIRING DIAGRAM

FIG. 6

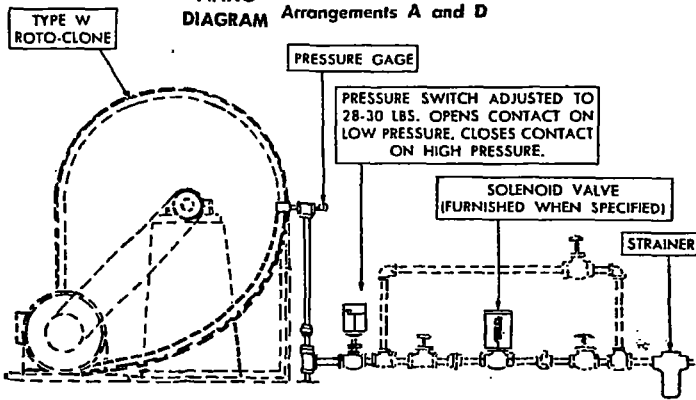
WITH MOD. "SV" CONTROL



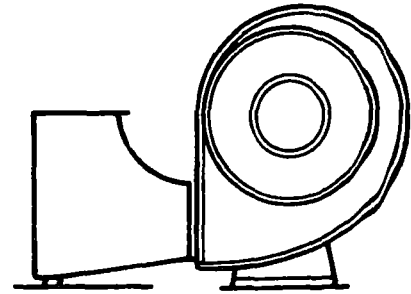
STD. CONTROL



PIPING DIAGRAM Arrangements A and D



90° OUTLET ELBOW



The 90° outlet elbow is recommended where a vertical stack is required immediately at the Roto-Clone discharge. Refer to Drawing 48P-870790 for dimensions.

FIG. 6

CENTRIFUGAL OUTLET

The centrifugal outlet is recommended where cleaned air is recirculated back to work area or where corrosive mists may be exhausted. It protects against possible damage from occasional water droplets. The centrifugal outlet replaces and is interchangeable with the standard air outlet. Ask for Drawing 48P-1023266 showing dimensions of this accessory.

If the centrifugal outlet is used there is an additional loss of 2VP based on the inlet velocity of the Type W Roto-Clone.

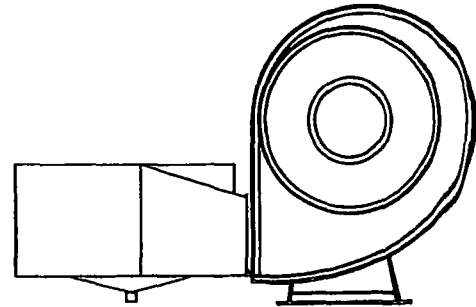


FIG. 7

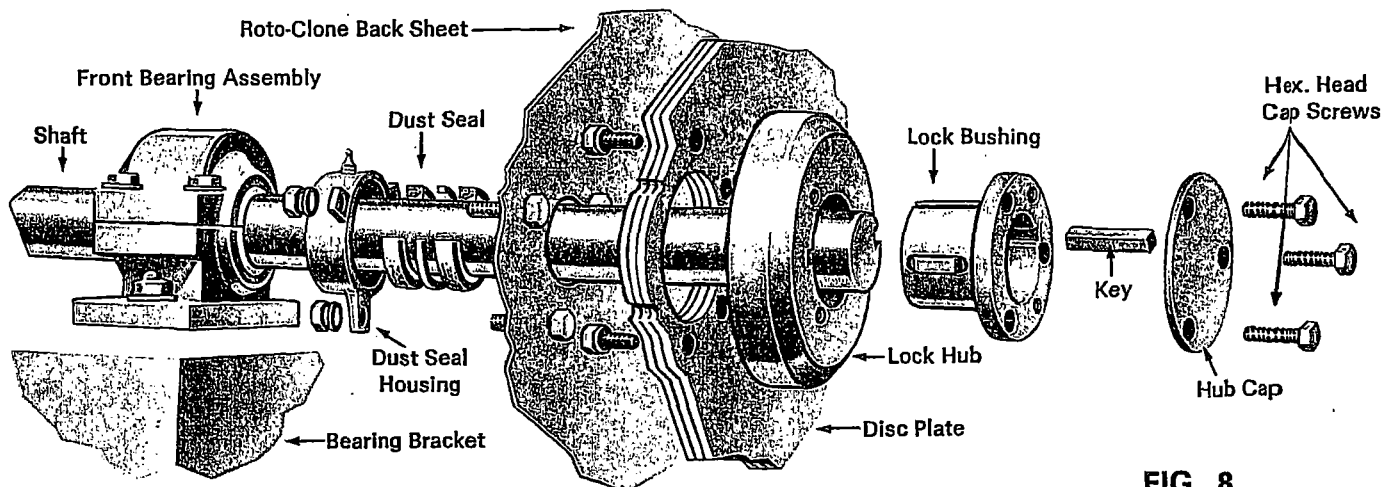


FIG. 8

SHAFT ASSEMBLY

Construction details of Type W Roto-Clone shaft assembly showing heavy duty bearings, oversized shaft, watertight, shaft seal, laminated impeller disc, and cast iron hub with taper lock for easy impeller removal.

ARRANGEMENT D

Arrangement D, includes a wet centrifugal Pre-Cleaner which removes the bulk of the dust from the air stream, leaving only the remaining fines to be collected by the Roto-Clone.

Clean Air Outlet
Dust Laden Air Inlet
Centrifugal Precleaner

Size	A	B	C	D
8	3'-6"	3'-1"	6'-2"	8'-11"
10	4'-2"	3'-1"	6'-10"	10'-2"
12	4'-8"	3'-1"	6'-9"	10'-9"
14	5'-3"	5'-3"	7'-2"	11'-9"
16	5'-9"	5'-9"	7'-1"	12'-5"
20	6'-11"	6'-11"	8'-4"	14'-9"
24	8'-1"	8'-1"	8'-10"	16'-8"

Note: These dimensions are approximate only. See drawing 48P-851964 for final dimensions.

Capacity ratings and blower performancePages 8-10
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Shipping and operating weights ...Page 11

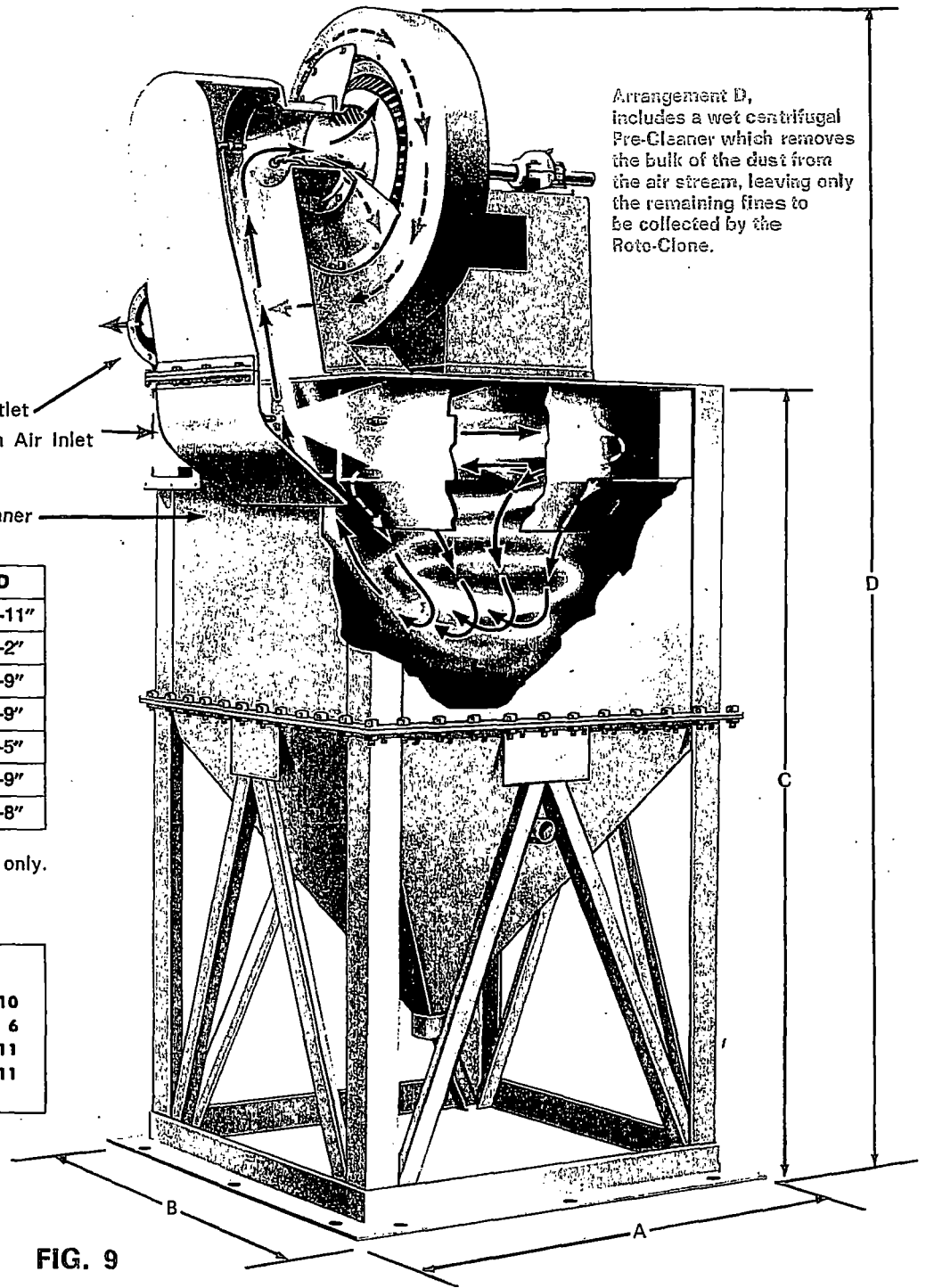


FIG. 9

The Type W Roto-Clone, Arrangement D, is designed to collect heavy concentrations of granular dust. It is recommended where facilities for separating the collected dust from the clean water are available, or where the slurry can be returned to process or discharged to a sump or waste tract.

The Arrangement D is equipped with an integral wet centrifugal Precleaner which removes a high percentage of the incoming dust from the air-stream. The wet Precleaner is more effective than the dry-type Skimmer Precleaner or other dry centrifugal collectors, and minimizes the dust loading to the Roto-Clone even where very heavy

concentrations of fine material are encountered.

The pressure loss in the wet Precleaner section is approximately twice the value of the inlet velocity pressure for an Arrangement A Roto-Clone of the same size. Precleaner loss has been included in the Arrangement D performance tables on pages 8-10.

Collected dust and water are continuously discharged as a slurry through a single hopper drain.

Arrangement D is available in Roto-Clone sizes 8 thru 24.

ROTO-CLONE ERECTION DIAGRAM Arrangements A and D

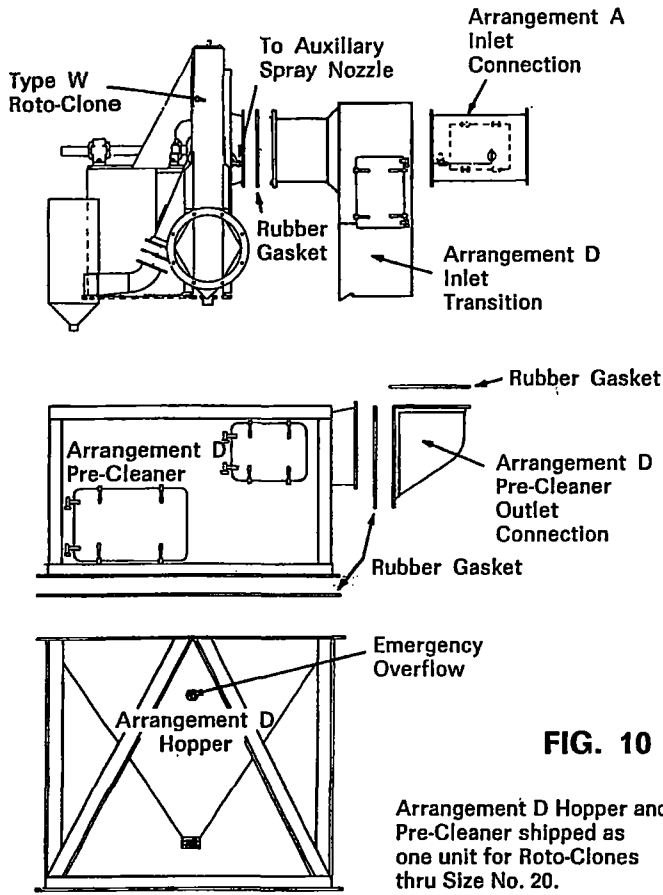


FIG. 10

Arrangement D Hopper and Pre-Cleaner shipped as one unit for Roto-Clones thru Size No. 20.

TABLE A
NORMAL WATER SUPPLY RATES
TYPE W ROTO-CLONES

Roto-Clone Size	Arrangement A GPM Supplied			Arrangement D GPM Supplied		
	40 PSIG	50 PSIG	60 PSIG	40 PSIG	50 PSIG	60 PSIG
8	1.1	1.2	1.3	2.1	2.2	2.5
10	1.5	1.6	1.8	3.1	3.4	3.8
12	1.8	2.0	2.2	4.6	5.0	5.4
14	2.3	2.5	2.9	5.1	5.5	6.3
16	3.4	3.7	4.1	7.2	7.9	8.7
20	4.4	4.8	5.4	8.2	9.0	10.0
24	5.4	6.0	6.5	13.2	14.9	16.1
27	7.4	8.2	8.9	—	—	—
30	7.9	8.8	9.7	—	—	—
33	11.9	13.3	14.6	—	—	—
36	13.9	15.7	17.0	—	—	—
45	20.9	25.1	25.2	—	—	—

NOTE: 1: For air temperatures in excess of 300°F, cooling spray nozzles should be provided in inlet duct to compensate for evaporation. A safe approximation will be 0.2 gpm of additional water per 1000 cfm for each 100°F temperature reduction.

TABLE B
SHIPPING AND OPERATING WEIGHTS

Roto-Clone Size	Arrangement A		Arrangement D	
	Shipping Weight (lbs.)	Operating Weight (lbs.)	Shipping Weight (lbs.)	Operating Weight (lbs.)
8	225	425	1,725	2,625
10	360	610	1,810	3,010
12	630	880	2,030	3,380
14	990	1,340	2,790	5,320
16	1,260	1,710	3,760	6,310
20	1,620	2,270	5,420	9,650
24	1,890	2,590	7,190	13,290
27	2,970	3,720	—	—
30	3,870	5,020	—	—
33	4,860	6,360	—	—
36	5,850	7,350	—	—
45	13,500	16,000	—	—

NOTE 1: Shipping weight does not include motor and drive.

NOTE 2: Operating weight includes motor and drive for Arrangements, "A" and "D". Also includes maximum sludge capacity based on 100 lbs. per cubic foot for Arrangement D hopper in the event of plugged drain line.

VENTING SECONDARY AIR

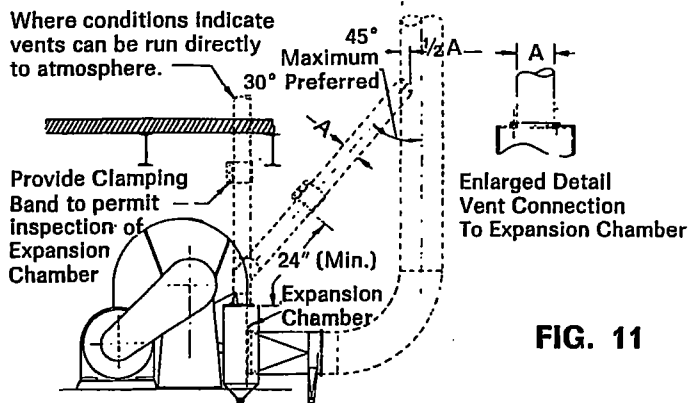


FIG. 11

DIMENSION TABLE IN INCHES

R. C. Size	8	10	12	14	16	20	24	27	30	33	36	45
Vent Dia. "A"	3 1/2"	4"	5"	6"	7"	8"	10"	11"	12"	14"	15"	18"

TABLE C
TYPE W ROTO-CLONE
IMPELLER CHARACTERISTICS

Roto-Clone Size	Maximum Speed (RPM)	Fly Wheel Effect - WR ² (Lb. - Ft. ²)
8	4100	2.03
10	3300	6.28
12	2800	14.7
14	2400	30.7
16	2100	50.8
20	1700	150.8
24	1400	372.0
27	1250	596.0
30	1100	1026.0
33	1000	1400.0
36	925	2410.0
45	730	6250.0

W ROTOCLONE THEORETICAL EFFICIENCY

