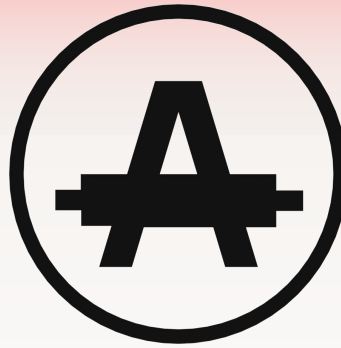
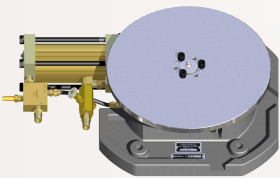


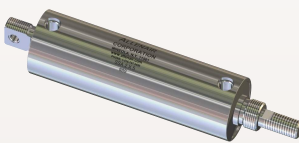
# ALLEN AIR<sup>®</sup>



## DRUM PUMPS



ROTARY INDEX TABLES  
7" THRU 20" TOP PLATES  
ACCURACY WITHIN  $\pm 0.001$



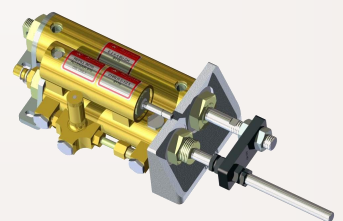
ALL STAINLESS STEEL  
CYLINDERS



VALVES  
2, 3 & 4-WAY



AIR & HYDRAULIC  
CYLINDERS  
1/2" THRU 5"



CYL-CHECKS<sup>®</sup>  
Creates Smooth, Uniform  
& Precise Control of  
Linear Motion

## 55 Gallon Open Head Steel Drum Medium to High viscosity compounds up to 250,000 centipoise (cPs)

### Scope of System

There are 3 main components and 6 easy steps to the drum pump system.

#### Components

are **VCR AIR CYLINDER**, **PUMP CENTERING PLATE** and the **FOLLOWER PLATE**.

#### Steps

1. Remove the lid of the drum.
2. Place the **FOLLOWER** plate on top of the product in the drum. Push the follower plate down until the product is visible through the center opening in the follower plate.
3. Fit the **CENTERING PLATE** on top of the drum.
4. Tighten the two hand screws to secure the **CENTERING PLATE** top to the drum. Ensure that the **CENTERING PLATE** is centered and securely fixed to the drum.
5. Insert the pump's dip tube through the **CENTERING PLATE** and the follower plate. Ensure that the dip tube reaches all the way to the bottom of the drum.
6. Secure the dip tube to the **CENTERING PLATE** by tightening the clamp-screw.

As the pump cycles it removes material by creating a vacuum, this causes the follower plate to move down the drum wiping the drum wall clean. The follower plate seal makes sure that almost no material remains on the drum wall. And at the same time the material in the drum remains isolated from external environments. With this system, the drum empties (without a liner) to less than 2% leftover product residue. When the product has been removed from the drum, the follower plate is simply released from the bottom of the drum by using compressed air.



**BUNG MOUNTED  
1-1/2 DIP TUBE**

**55 gallon Closed Head Steel Drum**

**TRANSFER PUMPING**

**LOW VISCOSITY MARTIALS**

**55 gallon Closed Head Steel Drum**

**Low to medium viscosity fluids  
up to 50,000 centipoise (cPs)**



BUNG  
CLAMP

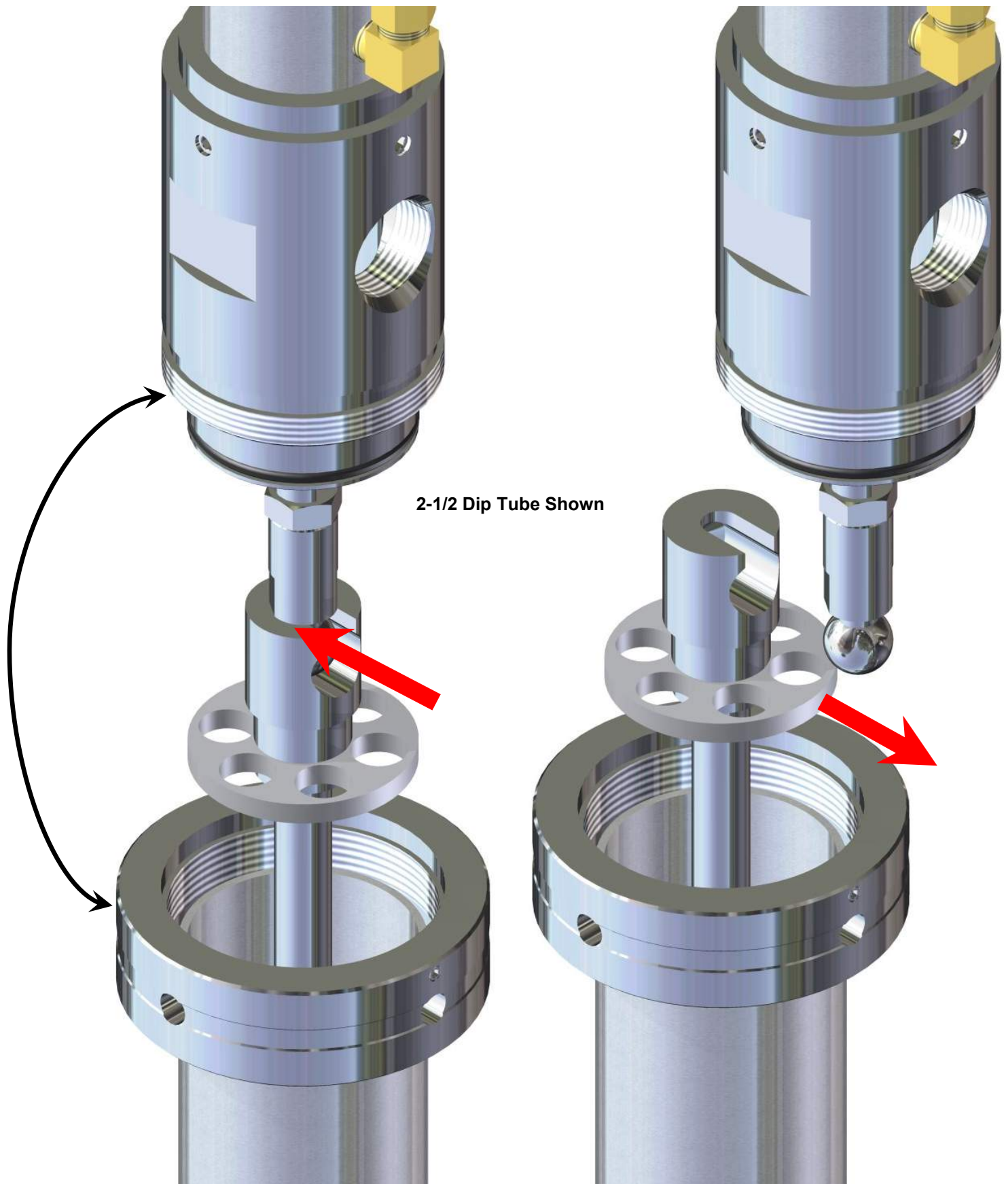
1-1/2 I.D. DIP TUBE

Easy Service Design



# UNIQUE FEATURES

## EASE OF ASSEMBLY & DISASSEMBLY





# THEORY OF OPERATION

## THEORY OF OPERATION

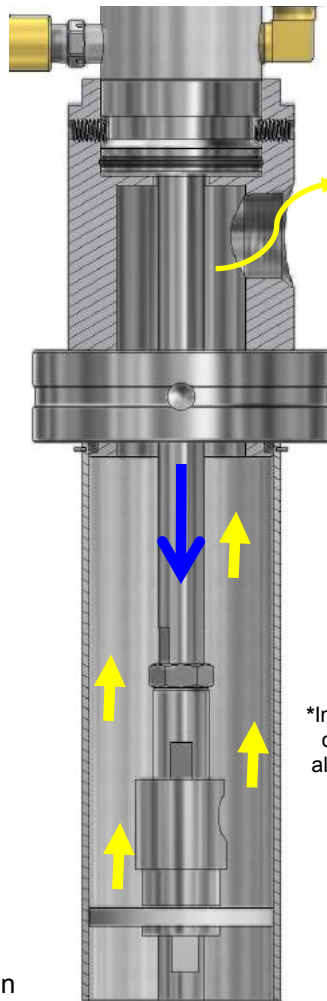
### UP STROKE LOWER LIQUID END:

- Piston moves upward in the dip tube. Upper check ball (1-1/2 Dip Tube) or flapper (2-1/2 Dip Tube) is seated and material above the check is displaced as the piston moves up the dip tube, forcing the material through the outlet.
- As piston moves upward, suction is created lifting the lower ball from its seat and the dip tube is filled with more material.

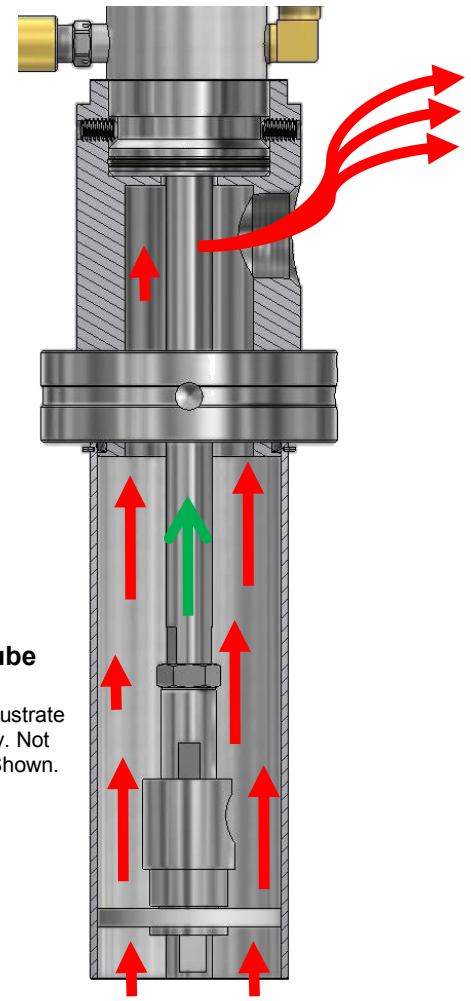
### DOWN STROKE LIQUID END:

- Piston moves down causing lower check ball to seat. Material in dip tube forces the upper check from its seat and flows through piston to the upper portion of the dip tube.
- Piston travels down the dip tube causing displacement of material through material outlet.

PUMP ON DOWN STROKE

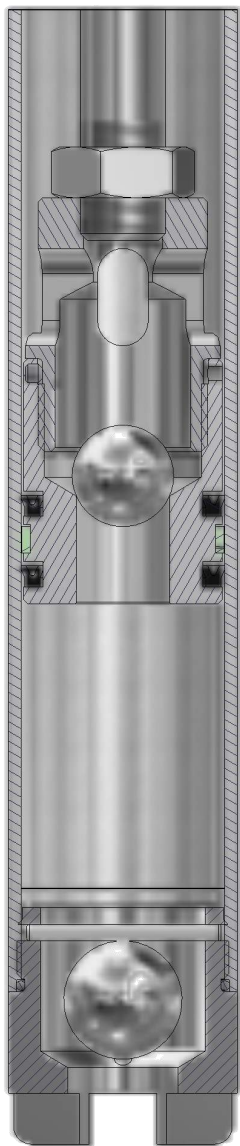


PUMP ON UP STROKE



2-1/2 Dip Tube

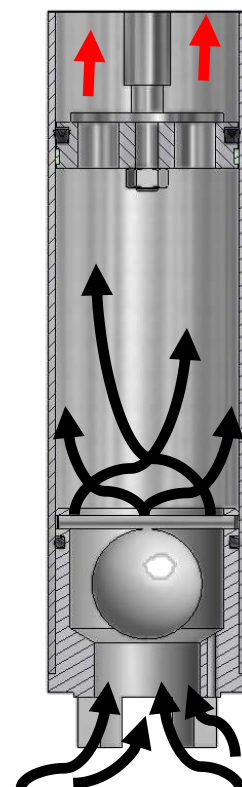
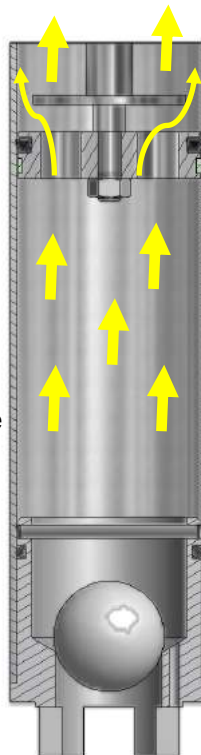
\*Images for flow illustrate on purposes only. Not all internal parts Shown.



1-1/2 Dip Tube

\*Images for flow illustration purposes only. Not all internal parts Shown.

- UP Stroke
- Down Stroke
- Pressure Up Stroke
- Suction Up Stroke
- Product Flow Down Stroke



# DRIVE CYLINDERS & DIP TUBES

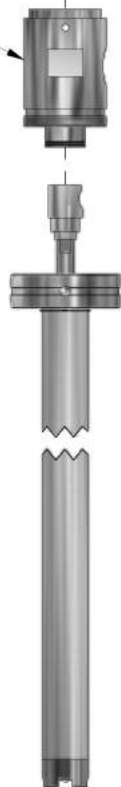
## Ordering Procedure:

CV  $\triangle 1$  X 8 VCR X  $\triangle 2$  -  $\triangle 3$  DP



$\triangle 2$   
1-1/2 DIP TUBE  
ADAPTER

$\triangle 2$   
2-1/2 DIP TUBE  
ADAPTER



DRIVE CYL	DIP TUBE	RATIO	GPM MAX
1-1/2	1-1/2	1:1	12.9
2	1-1/2	1.77:1	9.5
2-1/2	1-1/2	2.78:1	8.4
3	1-1/2	4:1	6.5
4	1-1/2	7.11:1	4.6
5	1-1/2	11.11:1	3.4

DRIVE CYL	DIP TUBE	RATIO	GPM MAX
1-1/2	2-1/2	0.359:1	35.8
2	2-1/2	0.640:1	26.3
2-1/2	2-1/2	1:1	23.3
3	2-1/2	1.44:1	18.2
4	2-1/2	2.56:1	12.7
5	2-1/2	4:1	9.3

- $\triangle 1$  DRIVE CYLINDER
- $\triangle 2$  DIP TUBE
- $\triangle 3$  DRUM SIZE

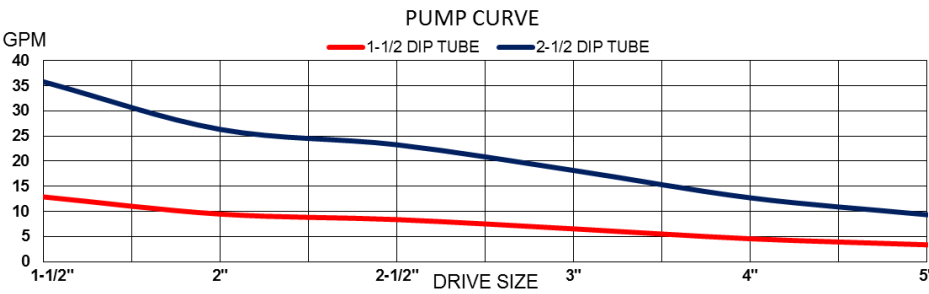
# DRUM PUMP GENERAL SPECIFICATIONS

## Description:

Allenair transfer pumps are designed around our tandem cylinder design joining two cylinders together with a common head and rod. The total pump unit is divided into two sections; the drive section and the pump section. By utilizing our Valve-In-Head cylinder as the air motor, the rod and pump piston will move in unison, creating suction on the lower half of the piston and pressure on the upper half. On the down stroke the check piston moves freely through the fluid in the dip tube.

\*\* Consult Factory for a specific container height

\*Maximum free-flow delivery  
These figures are based on the maximum cycle rate recorded by the drive cylinder, pumping water and operating at 100 P.S.I for one minute.



## BASIC CONSTRUCTION

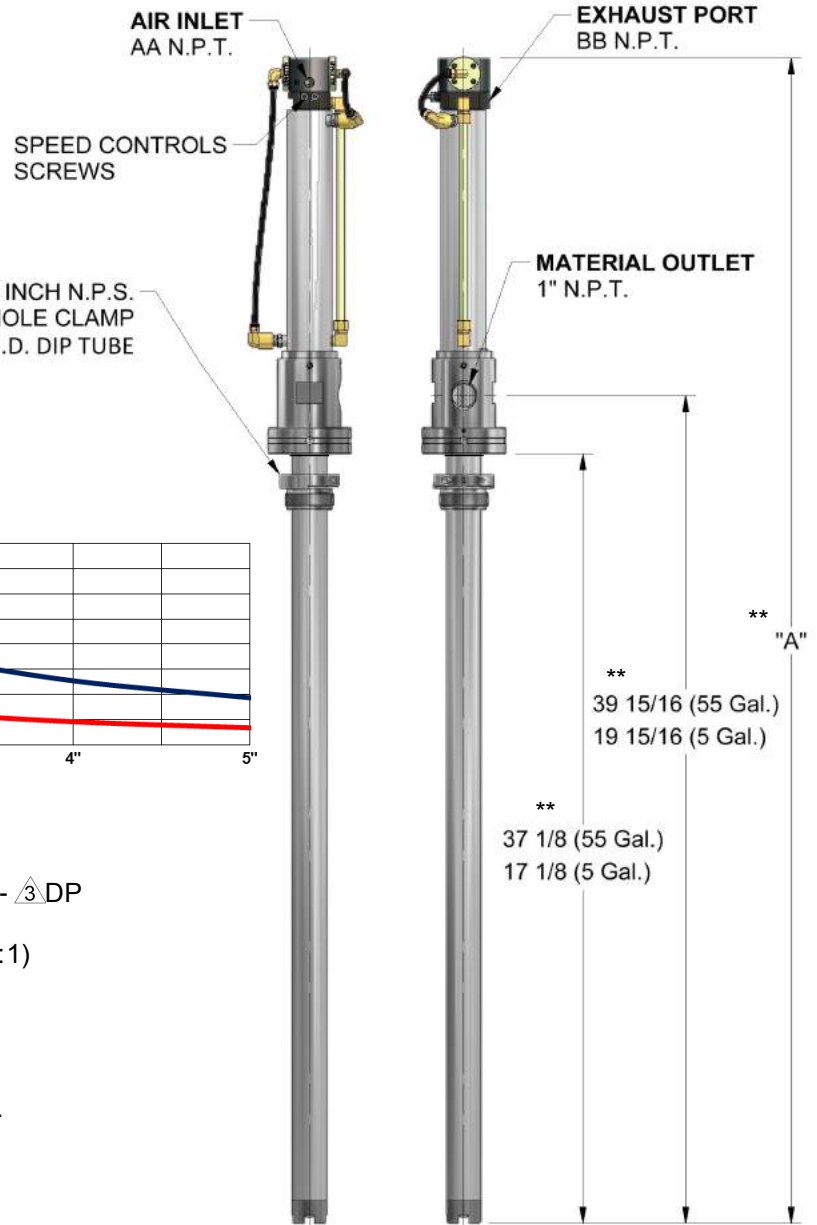
Model Series (refer to option page) . . . CV  $\Delta$  X 8 VCR X  $\Delta$  2 -  $\Delta$  3 DP  
 Pump Type . . . . . Air Operated, Pump  
 Ratio . . . . . (0.359:1 ) to (11.11:1)  
 Air Motor (drive cylinder)  
 Motor Repair Kit . . . . . CV  $\Delta$  P  
 Drive cylinder . . . . . 1-1/2 to 5" BORE  
 Stroke . . . . . 8"  
 Air Inlet (female) . . . . . 1/4, 3/8 & 1/2 N.P.T.  
 Material Inlet . . . . . Immersed  
 Material Outlet (female) . . . . . 1 N.P.T.

## MATERIALS OF CONSTRUCTION

Dip tube . . . . . Stainless Steel  
 Piston Rod . . . . . Stainless Steel  
 Piston . . . . . Stainless Steel  
**DRIVE CYLINDER PACKINGS**  
 Standard (refer to option chart) . . . . . Nitrile  
**Lower Packing**  
 Standard . . . . . Nitrile  
 Dip Tube . . . . . Stainless Steel

## Ordering Procedure:

CV  $\Delta$  X 8 VCR X  $\Delta$  2 -  $\Delta$  3 DP  
 DRIVE SIZE                      DIP TUBE SIZE                      DRUM HEIGHT



Drive Cyl. Bore	DIM. A (55 Gal.)	DIM. A (5 Gal.)	DIM. AA	DIM. BB
1-1/2"	56-1/4"	32-1/4"	1/4 N.P.T.	1/4 N.P.T.
2"	56-1/4"	32-1/4"	1/4 N.P.T.	1/4 N.P.T.
2-1/2"	56-5/8"	32-5/8"	3/8 N.P.T.	1/4 N.P.T.
3"	56-5/8"	32-5/8"	3/8 N.P.T.	1/4 N.P.T.
4"	58-3/8"	34-3/8"	1/2 N.P.T.	1/2 N.P.T.
5"	58-3/8"	34-3/8"	1/2 N.P.T.	1/2 N.P.T.

\*\*DIMENSIONS SHOWN FOR STANDARD 55 GAL. DRUM & 5 GAL. PAIL

# Application Ideas

## 55 gallon Open Head Steel Drum Pump With Metering cylinder



## 5 Gallon Pail



### Advantages of using Allenair Drum Pumps

- **Plant use**  
The use of a drum pump is a much safer and more convenient way to empty a drum than having to hoist a drum into the air or placed onto a rack to provide a gravity feed to the point of use.
- Forklift trucks are not always available in plants
- Drum pumps minimize the possibility evaporation loss
- Drum remains sealed from outside environments
- Drum pumps are inserted through the opened bung in the drum head while the drum is in a vertical position, thus providing a safer, more flexible and economical way of discharging drum contents
- Open Head drums remain sealed do to the follower plate,
- **Product-savings – less than 2 % residue**  
(in drums without liner)  
Cost-effective use of the product and with low  
Lower expenditure for waist disposal.
- **Customized output**  
Due to a wide selection of drive motor combinations  
and matching Dip Tubes various output pressures and discharge  
rates can be achieved.
- **Fast cleaning & Maintenance**  
Ease of assembly & disassembly
- **High flexibility**  
due to the modularity of the pump system may easily be built upon.  
**Quick to install**  
with few components “Plug & Play”





**ALLEN AIR CORP. 255 EAST SECOND ST. MINEOLA, NY 11501 USA**  
**TELEPHONE: 516-747-5450 FAX: 516-747-5481**  
For ALLEN AIR distribution in the USA and Canada,  
Visit our Web Site at: [www.allenair.com](http://www.allenair.com)

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