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**604001**  
**AIR DRUM MIXER**  
Operations Manual



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**IPM, INC.**

Manufactured by International Pump Manufacturing, Inc. ®

# AIR POWERED DRUM MIXER

## OPERATING MANUAL and PARTS IDENTIFICATION DRAWINGS

This manual contains IMPORTANT WARNINGS and INSTRUCTIONS. Read and retain for future reference.

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**For Technical Service Call Your Local Distributor**

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***WARNING:*** The equipment described herein must only be operated or serviced by properly trained individuals thoroughly familiar with the operating instructions, mechanics and limitations of the equipment.

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Notice: All statements, information and data given herein are believed to be accurate and reliable but are presented without guarantee, warranty or responsibility of any kind expressed or implied. Statements or suggestions concerning possible use of IPM equipment are made without representation or warranty that any such use is free of patent infringement, and are not recommendations to infringe any patent. The user should not assume that all safety measures are indicated or that other measures may not be required. IPM reserves the right to make changes at any time without notice.

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## **1.0 SAFETY WARNINGS**

Please read and observe all warnings contained in this operations manual before making any attempt to operate the equipment.

### **Misuse of equipment**

Use the equipment only for its intended purpose. Care should be taken to prevent over pressurization of the pump or accessories connected to it. Use and repair only with proper parts. Improper use or misuse of this equipment could result in fluid being splashed or sprayed on the skin or in the eyes, serious bodily injury, property damage, fire or explosion.

Make daily maintenance check on the equipment and repair damaged or worn parts immediately. Do not alter this equipment in any way as doing so could cause drum mixer malfunction and/or serious bodily injury.

### **Material & fluid compatibility**

Always ensure the chemical compatibility of the fluids and solvents with the wetted parts when using IPM equipment. Check the fluid manufacturer's data sheets and specifications before using chemicals or solvents with IPM equipment.

### **Pressurized hoses**

Because the air and fluid hoses are pressurized they present a potential danger should the air or fluid escape at high pressure. This escaping fluid can spray out and cause serious bodily injury or property damage. Inspect frequently and ensure that the hoses do not leak or rupture due to wear, misuse or damage.

The drum mixer and hoses should be handled properly; do not use the drum mixer or hoses as leverage to move the equipment. Use the hoses only for fluids in which they are compatible with for both the inner liner and the outer covering. Use care not to exceed the temperature rating of the hose.

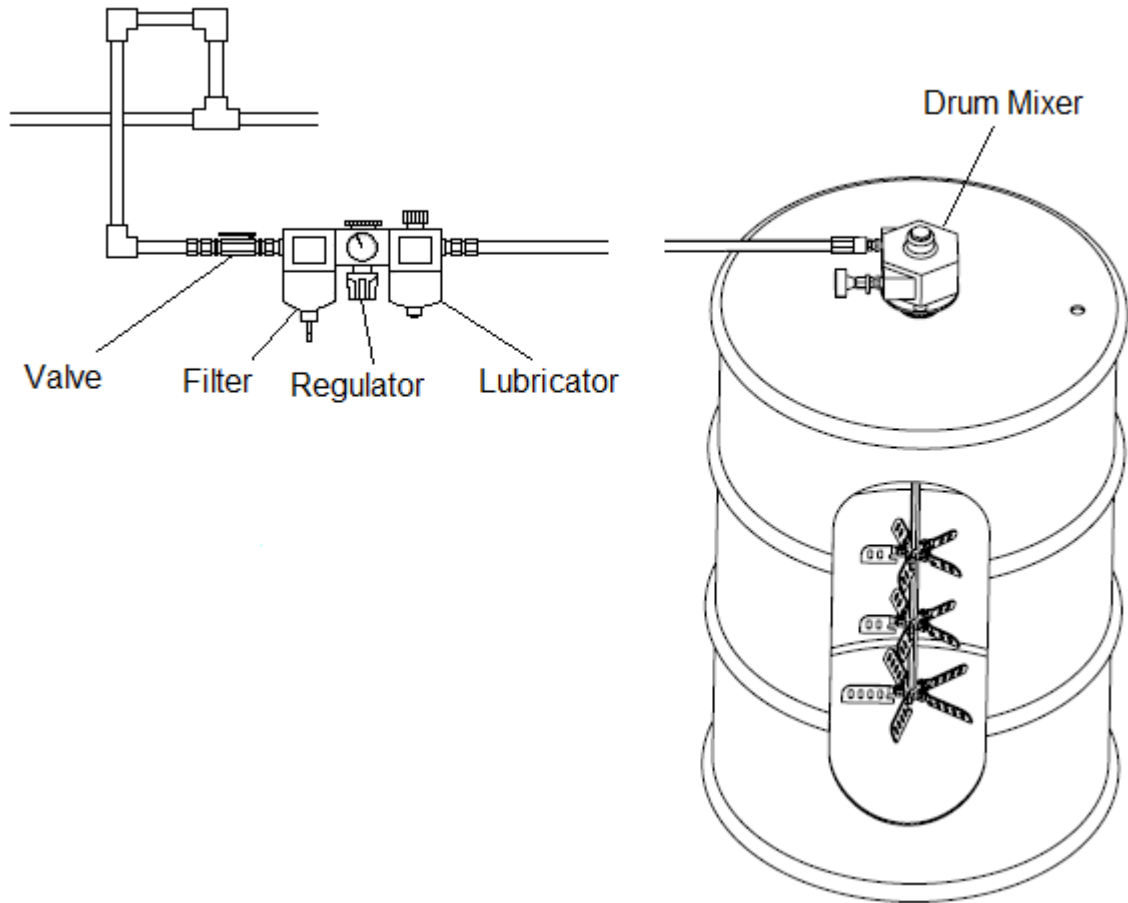
Before each use, ensure that the fluid and air couplings are tight and not damaged. Check the drum mixer and components for leaks, bulging hose cover, damaged fittings and loose bolts. Always ensure drum mixer is secure in bung before operation.

### **Pressure specification**

The maximum working air pressure of this equipment is 100 psi (7 bar). Ensure all equipment and accessories used with this drum mixer are rated to withstand this maximum working pressure. Never exceed the maximum working pressure of the mixer or any device attached to it.

## 2.0 INSTALLATION

### Typical Drum Mixer set-up



## 3.0 OPERATION

### 3.1 Drum mixer operating tips

An 8" blade on the bottom of the mixer shaft is standard on each drum mixer to get maximum pull of heavy materials from the bottom of the barrel. Additionally, two 6" upper blades assist in pulling fluid from the sides of the drum for optimum mixing capability.

If you do not have a center bung in your drum, IPM has designed an off-set bung adaptor riser (IPM part #500515) that angles the mixer shaft away from the sides of the drum to allow proper chemical mixing. As a temporary measure, you can also take an 18" – 20" piece of 2" diameter threaded pipe and screw into your bung. Carefully bend/point the top of the pipe away from the center of the drum, tilting the bung for better mixer clearance.

The amount of air you will need to mix your fluids will depend on certain factors such as viscosity, mixing speed, specific chemical, temperature, etc. Typically, 10 -20 CFM air pressure is sufficient for mixing operations. A 1/4" ball valve can be used effectively as a metering or speed control measure.

An automatic air line lubricator should be installed in the air line as close as possible and no more than 18 inches (1/2 meter) from the air motor. Install the lubricator level with or above the air motor so that the oil mist will blow directly into or fall down into the motor. Fill the oil reservoir to the proper level with Gast #AD220 or SAE 10W high detergent or non-detergent motor oil. Adjust lubricator to feed 1 drop of oil for every 50 - 75 CFM ((1.5 - 2 M3 per minute) air while the unit is running, or 1 drop of oil per continuous minute of run time. Do Not overfeed oil or exhaust air may become contaminated.

Proper blade rotation is important for the swing out style blade assemblies to function correctly. Looking from the bottom of the drum mixer, the shaft/blade rotation should be clockwise for proper swing-out of the blades.

For the most efficient output and control of speed, use air lines that are the same size as the motor inlet port if the connection is less than 7 feet (2 meters). For longer connections, use the next pipe size larger than the motor intake port. Connect lines to motor in the proper direction.

Do not add any thrust to the end or side of the shaft when making connections.

Check all connections before starting motor. It is your responsibility to operate this product at recommended speeds, loads and room ambient temperatures. Do not run the motor at high speeds with no load. This will result in excessive internal heat that may cause motor damage.

Certain chemicals are the type that set up or seize the folding blades if allowed to solidify on the blade assemblies. **ENSURE YOU PERFORM THIS OPERATION IN AN AREA THAT IS WELL VENTILATED AND HAS NO FIRE HAZARDS.** If this should happen, an effective way to remove the hardened chemicals is to heat the blades with a welding or propane torch to burn the residue off. Since the blades are stainless steel, the heat will not

adversely affect them. It is not necessary to heat the blades to a point they become red hot. Once the cleaned blade assemblies have cooled, clean the remaining debris from the assembly and lubricate with WD-40 or an equivalent lubricant, then test to ensure they swing freely for proper operation.

Use a pressure regulator and/or simple shut-off valve to regulate the motor's speed and torque. This will provide the required power and will conserve air. Open the air supply valve to the motor. Set the pressure or flow rate to the required speed or torque. Adjust the lubricator to feed one drop of oil for every 50 - 75 CFM (1.5 - 2 M3 per minute) of air moving through motor. Check the oil level daily.

A few drops of oil in the air **inlet** port helps to lubricate the air motor. With proper maintenance, the air motor on this drum mixer will work efficiently for many years. If moisture is present in your air supply, muffler freezing can occur during longer mixing operations. If this happens, simply take the muffler apart and wash in warm water. Ensure the muffler is **completely dry** before re-installing it back on the air motor. Do not drop the air motor as the hex top cap is plastic.

Use Gast #AD220 or a detergent SAE #10 automotive engine oil for lubricating. Lubricating is necessary to prevent rust on all moving parts. Excessive moisture in air line may cause rust or ice to form in the muffler when air expands as it passes through the motor. Install a moisture separator in the air line and an after cooler between compressor and air receiver to help prevent moisture problems.

The DM-101 drum mixer is a very effective tool in 55 gallon barrel mixing operations. Complete fluid mixing can be achieved in short periods of time, usually within 30 minutes. The unique folding action design of the blade allows the mixing shaft to pass through the 2" bung in most drums and with two 6" and one 8" blade, optimum mixing is achieved throughout the drum.

### 3.2 Fluid mixing tips

- Do not pull too deep a vortex as this will entrap air into the fluid.
- Do not pull too shallow a vortex as this will cause unbalanced mixing of fluids.
- Tilting the barrel slightly will help reduce air entrapment.
- For proper mixing, the actual blades should be 1/3 the diameter of the drum.  
Example; a 24" drum requires an 8" mixing blade.
- Mix fluids for only 30–45 minutes. Don't over-mix chemicals.
- Slower speeds entrap less air into fluids during mixing process.
- Never mix ISO fluid with drum mixer as this will entrap air into the chemical.
- "B" components in fast set coatings such as polyurea require mixing with drum mixer.
- Always lubricate drum mixer motor for maximum life expectancy.
- Collapsible blades make IPM drum mixer compatible with any barrel.
- Use IPM's new 13" mixing blade assembly for tote application.
- Use off-set bung adaptor riser to prevent mixing blades from contacting interior drum wall on drums with an off-center bung hole.

## 4.0 PARTS IDENTIFICATION

Parts illustration for air driven drum mixer (604001)





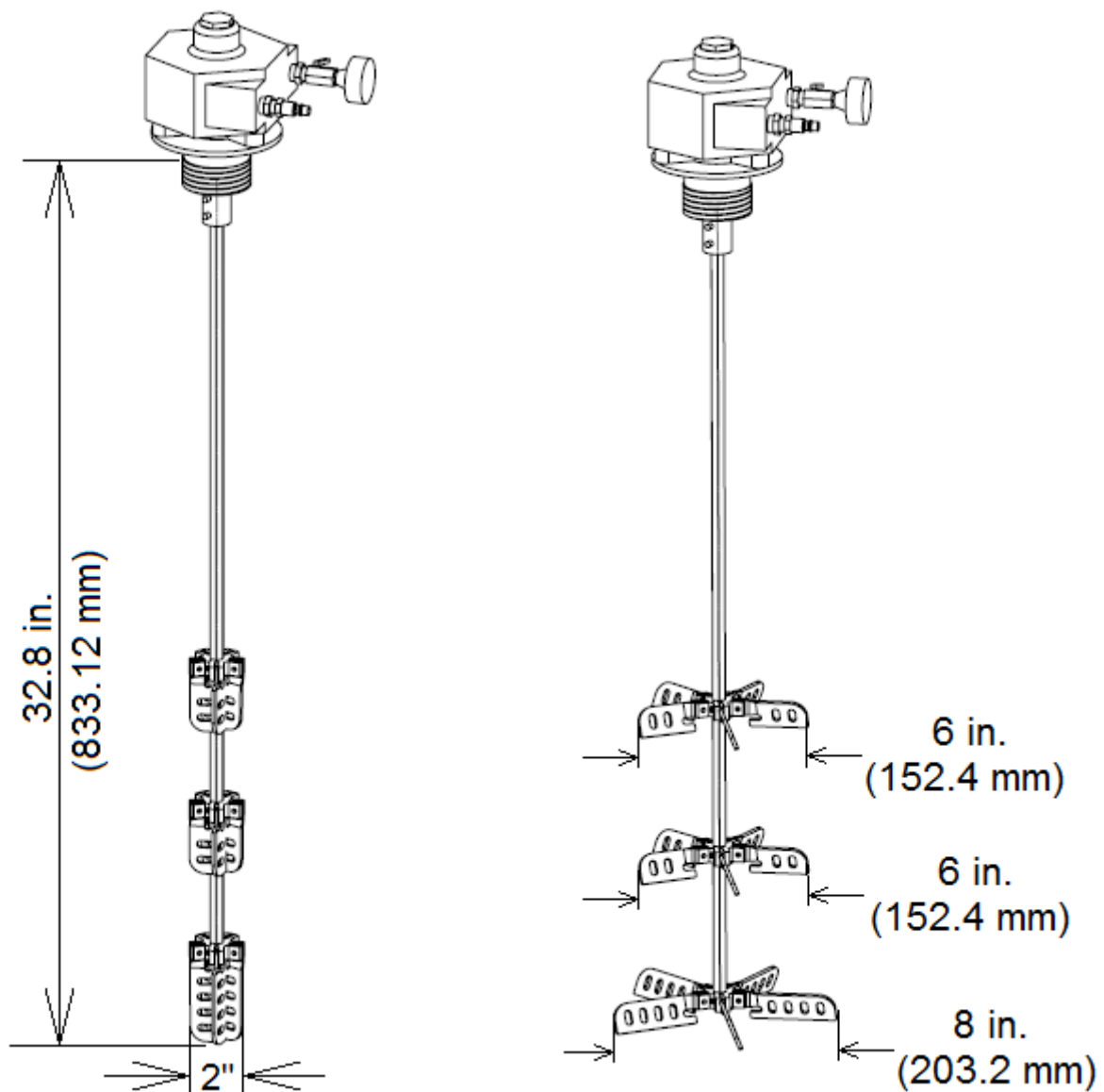
<b>ITEM</b>	<b>PART NUMBER</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1	612001	Air Motor	1
2	501805	Ball valve	1
3	602001	Air muffler	1
4	610016	Set screw	2
5	500529	SHCS set screw	2
6	700036	6" Mixing vane assembly	2
7	700037	8" Mixing vane assembly	1
8	500513	Mixing shaft	1
9	610014	Coupler	1
10	500504	Drum adapter	1
11	610017	Mounting bolts	3
12	610028	1/4" Air Male Connector	1
13	610055	Reducer	1
14	501801	3/8" Air Male coupler	1

## 5.0 SPECIFICATIONS

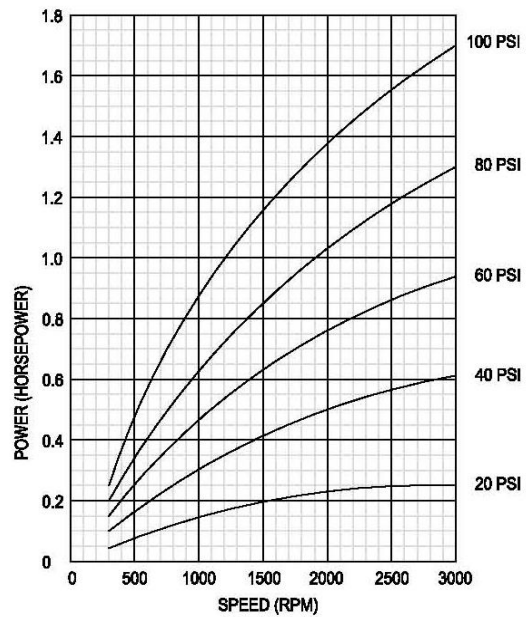
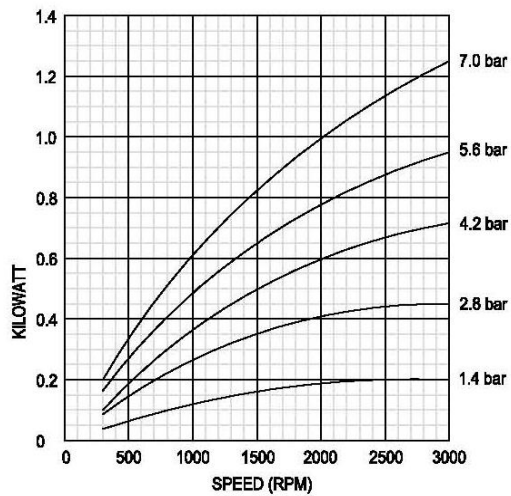
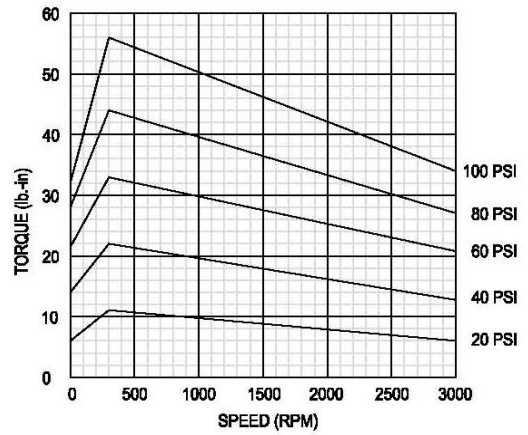
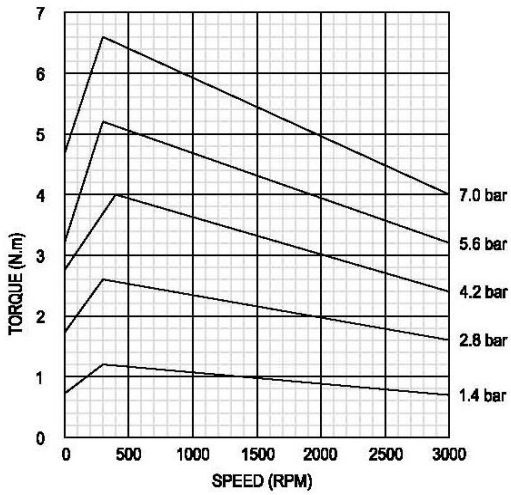
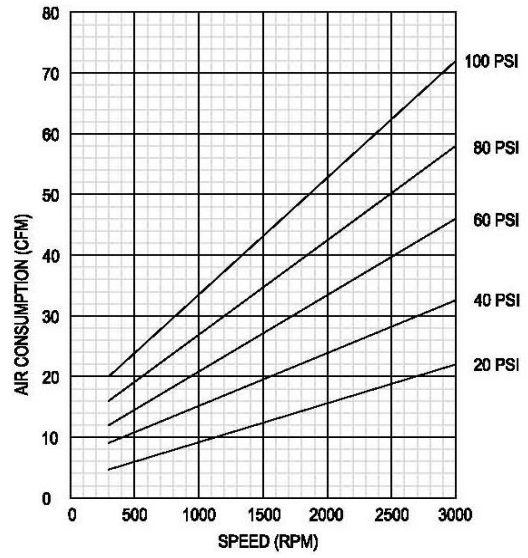
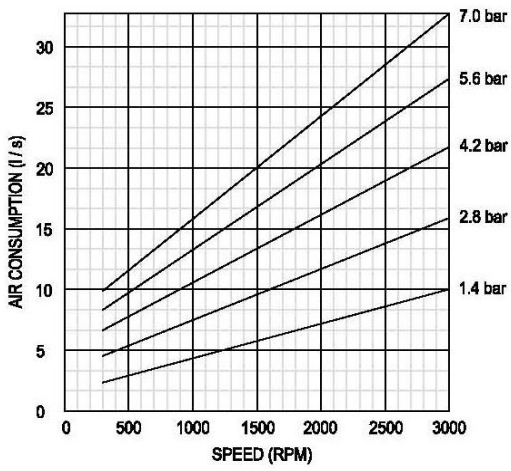
### Technical Data

Maximum Continuous Operating Speed.....	1,000 rpm
Maximum Recommended Viscosity.....	2,000 cps
Wetted Parts.....	Stainless Steel
Sound Level.....	87 dB
Weight .....	11.4 lbs (5.2 Kg)

### Dimensions



# Performance



## **6.0 WARRANTY AND DISCLAIMER**

### **WARRANTY**

International Pump Manufacturing, Inc. (**IPM**) warrants the equipment it manufactures to be free of defects in material and workmanship for a period of one year from the day of sale by an authorized **IPM** distributor to the original purchaser. **IPM** will at its discretion repair or replace any part of the equipment proven to be defective. This warranty applies only when the equipment is used for the intended purpose and has been installed, operated and maintained in accordance with the written recommendations.

A condition of the warranty is the prepaid return of the equipment to an authorized distributor of **IPM** who shall provide verification of the warranty claim. **IPM** will repair or replace, free of charge any parts found and verified to be defective. Transportation will be prepaid for the repaired or replaced parts under warranty. Should the inspection of the equipment not reveal any defect in material or workmanship, repairs will be made at standard charges which include parts, labor and transportation.

The warranty does not apply to nor will **IPM** be liable for damage, wear, or malfunction of equipment caused by improper installation, misuse, abrasion, corrosion, negligence, accident, tampering, lack of improper maintenance, or by substitution of non-**IPM** parts. Additionally **IPM** shall not be liable for and the warranty does not apply to wear, damage, or malfunction caused by incompatibility of accessories, components, structures, equipment or materials not supplied by **IPM**. The warranty does not apply to nor will **IPM** be responsible for the improper operation, maintenance, design, manufacture, installation of components, accessories, equipment or structures not supplied by **IPM**.

The warranty is void unless the Warranty Registration Card is properly completed and returned to International Pump, Inc. within ONE month of the date of the sale.

### **LIMITATIONS AND DISCLAIMERS**

This warranty is the sole and exclusive remedy for the purchaser. No other warranties (expressed or implied), including warranties for fitness of purpose or merchantability, or non-contractual liabilities are made, including product liability, whether on negligence or strict liability basis. Liability for directly special or non-contractual damages or loss is expressly excluded and denied. **IPM's** liability shall in no case exceed the amount of the purchase price.

**IPM** does not warrant and disclaims implied warranties of merchantability and fitness for a particular purpose, components, accessories, equipment, materials sold but not manufactured by **IPM**. These items (switches, hoses, etc.) are subject to the provisions of the warranty of the manufacturer of these items. **IPM** will provide reasonable assistance with warranty claims on these items.



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