The Binks MACH PLURAL COMPONENT 1PC HVLP Gun is the lightest top quality high performance spray gun available today. You only have to pick it up to feel the difference. Its superbly balanced forged aluminum body offers the operator extra comfort and control. All of the gun’s components are machined and finished to exacting tolerances and only the best materials are used, ensuring years of peak efficiency.

The MACH 1PC HVLP Gun is a conventional style air spray gun with special nozzles and modifications that allow it to operate at high transfer efficiencies in compliance with the “California South Coast Air Quality Management District” regulations as a “High Volume, Low Pressure” airspray gun.

A specially designed catalyst injector device is integrated to the HVLP Gun to inject Methyl Ethyl Ketone Peroxide or other catalyst into the stream of coating material. The catalyst is injected immediately after the coating exits the fluid nozzle for even distribution across the pattern.

The air inlet passage in the gun body incorporates a venturi which limits airflow. High pressure airflow is converted to low pressure at this point. Special air and fluid nozzles enable the gun to atomize fluid at low air pressures and velocities, creating the “soft spray” effect for high transfer efficiencies. To obtain optimum performance from your new MACH 1PC HVLP Spray Gun, read all instructions carefully.

1. Lightweight Air Nozzle
2. Main Fluid Inlet, 3/8 NPS (m)
2A. Catalyst Inlet, 1/4 NPS (m)
3. Extra Smooth Trigger Action
4. Stainless Steel Fluid Nozzle and Needle
5. Side Port Control
6. Fluid Control
7. Forged Aluminum Body
8. Air Inlet, 1/4 NPS (m)
9. Catalyst Valve Assembly 316 SS
In this part sheet, the words WARNING, CAUTION and NOTE are used to emphasize important safety information as follows:

### WARNING
Hazardous or unsafe practices which could result in severe personal injury, death, or substantial property damage.

### CAUTION
Hazardous or unsafe practices which could result in minor personal injury, product or property damage.

### NOTE
Important installation, operation or maintenance information.

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**WARNING**

**READ THE MANUAL**
Before operating finishing equipment, read and understand all safety, operation and maintenance information provided in the operation manual.

**WEAR SAFETY GLASSES**
Failure to wear safety glasses with side shields could result in serious eye injury or blindness.

**DE-ENERGIZE, DEPRESSURIZE, DISCONNECT AND LOCK OUT ALL POWER SOURCES DURING MAINTENANCE**
Failure to De-energize, disconnect and lock out all power supplies before performing equipment maintenance could cause serious injury or death.

**OPERATOR TRAINING**
All personnel must be trained before operating finishing equipment.

**EQUIPMENT MISUSE HAZARD**
Equipment misuse can cause the equipment to rupture, malfunction, or start unexpectedly and result in serious injury.

**KEEP EQUIPMENT GUARDS IN PLACE**
Do not operate the equipment if the safety devices have been removed.

**PROJECTILE HAZARD**
You may be injured by venting liquids or gases that are released under pressure, or flying debris.

**PINCH POINT HAZARD**
Moving parts can crush and cut. Pinch points are basically any areas where there are moving parts.

**AUTOMATIC EQUIPMENT**
Automatic equipment may start suddenly without warning.

**INSPECT THE EQUIPMENT DAILY**
Inspect the equipment for worn or broken parts on a daily basis. Do not operate the equipment if you are uncertain about its condition.

**NEVER MODIFY THE EQUIPMENT**
Do not modify the equipment unless the manufacturer provides written approval.

**KNOW WHERE AND HOW TO SHUT OFF THE EQUIPMENT IN CASE OF AN EMERGENCY**

**PRESSURE RELIEF PROCEDURE**
Always follow the pressure relief procedure in the equipment instruction manual.

**NOISE HAZARD**
You may be injured by loud noise. Hearing protection may be required when using this equipment.

**STATIC CHARGE**
Fluid may develop a static charge that must be dissipated through proper grounding of the equipment, objects to be sprayed and all other electrically conductive objects in the dispensing area. Improper grounding or sparks can cause a hazardous condition and result in fire, explosion or electric shock and other serious injury.

**FIRE AND EXPLOSION HAZARD**
Never use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents in equipment with aluminum wetted parts. Such use could result in a serious chemical reaction, with the possibility of explosion. Consult your fluid suppliers to ensure that the fluids being used are compatible with aluminum parts.

**TOXIC FLUID & FUMES**
Hazardous fluid or toxic fumes can cause serious injury or death if splashed in the eyes or on the skin, inhaled, injected or swallowed. LEARN and KNOW the specific hazards of the fluids you are using.

**WEAR RESPIRATOR**
Toxic fumes can cause serious injury or death if inhaled. Wear a respirator as recommended by the fluid and solvent manufacturer’s Material Safety Data Sheet.

**PROP 65 WARNING**
WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

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IT IS THE RESPONSIBILITY OF THE EMPLOYER TO PROVIDE THIS INFORMATION TO THE OPERATOR OF THE EQUIPMENT.

FOR FURTHER SAFETY INFORMATION REGARDING BINKS AND DEVILBISS EQUIPMENT, SEE THE GENERAL EQUIPMENT SAFETY BOOKLET (77-5300).
Your new MACH 1PC HVLP Spray Gun is exceptionally rugged in construction and is built to stand up under hard, continuous use. However, like any other fine precision instrument, its most efficient operation depends on a knowledge of its construction, operation and maintenance. Properly handled and cared for, it will produce uniform finishing and mixing results long after other spray guns have worn out.

### OIL AND WATER EXTRACTOR IS IMPORTANT

Achieving a fine spray finish without the use of a good oil and water extractor is virtually impossible.

A Regulator/Extractor serves a double purpose. It eliminates blistering and spotting by keeping air free of oil and water and it gives precise air pressure control at the gun. An extractor with a minimum 1/2" pipe inlet is recommended.

### SET-UP FOR SPRAYING

#### CONNECTING GUN TO THE AIR HOSE

Air should be supplied by 5/16" air hose (71-1203) typical, with 1/4" NPS (f) connection at the gun end. Hose lengths in excess of 50 ft., use 3/8" hose (71-1356) typical.

#### CONNECTING GUN TO THE MATERIAL HOSE

Fluid should be supplied by 3/8" fluid hose (71-3303) typical, with 3/8" NPS (f) connection at the gun end. A 1/4" hose is recommended for use with low viscosity materials. Fluid hoses of different composition are available for special fluids.

#### CONNECTING GUN TO THE CATALYST HOSE

The catalyst should be supplied by 1/8" catalyst hose (102-3028) typical, with 316 SS 1/4" NPS (f) connections at both ends.
OPERATING THE MACH 1PC HVLP SPRAY GUN

CONTROLLING THE FAN SPRAY
The fan pattern is controlled by means of a side port control. Turning this control clockwise until it is closed will give a round spray, turning it counter-clockwise will widen the spray into a fan shape. The air cap cannot be rotated (See drawing below).

CONTROLLING THE MATERIAL FLOW
When used with a pressure tank, an increase in air pressure will increase the rate of flow. The correct fluid nozzle size should be selected for the correct material flow rate. It is not recommended to use the fluid control knob (19) to control resin flow because the catalyst flow will remain constant causing over catalyzation of the resin.

NOTE
Care must be exercised when cleaning with metal instruments. These parts are carefully machined and any damage to them will cause faulty spray patterns. If either the air nozzle or fluid nozzle is damaged, these parts must be replaced before perfect spray patterns can be obtained.

AIR LEAKS
1. Leaky spindle (15). Inspect, clean or replace.
2. O-Rings (9) missing or damaged. Inspect and replace.
3. Damaged seat surface in gun body. Replace.

UNMIXED RESIN
1. Clogged filter. Remove the manifold and clean debris from the filter screen.
2. Plugged manifold. Use 102-2658 manifold cleaner to unplug.
3. Insufficient catalyst pressure. Increase pressure.

OVER CATALYZATION
1. Material knob (19) has been closed to reduce the flow of resin. Readjust.
2. Fluid nozzle (2) is partially clogged and is restricting the resin flow. Clean.

Faulty spray is often caused by:
1. Foreign material in the air and/or fluid passages.
2. Viscosity too high for spraying. Air supply or pressure inadequate.
3. Worn or damaged nozzle surfaces.
4. Gellation in gun head air passages.
5. Loose fluid nozzle.
6. Insufficient material available, check supply and replenish if necessary.

NOTE
Feathering and changing the needle valve opening will affect the ratio of catalyst: resin and gel.
**PARTS LIST**

When ordering, please specify Part No.

<table>
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<tr>
<th>ITEM NO.</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
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★ See Air and Fluid Nozzle Chart on Page 7.
● Part of Self-adjusting Packing Kit (54-4261) without needle.
▲ Part is contained in Spare Parts Kit No. 102-2720.
■ Refer to Manifold Chart on Page 6.
TO REPLACE SPINDLE ASSEMBLY (AIR VALVE)
Remove the fluid control knob (19), spring (16) and fluid needle (18). Using an Allen head wrench, loosen the housing (17) until it is finger tight. Reinsert needle (18) and finish unscrewing housing (17). Remove Items 12 thru 18 as one piece. Replace spindle assembly (15) and reinsert Items 12 thru 18 as one piece back into gun and hand-tighten housing (17). Next, remove fluid needle (18) and tighten housing (17) with Allen head wrench. Reinsert fluid needle (18), spring (16) and fluid control knob (19).

NOTE
Springs must be replaced in the same order as they were removed from the gun.

NOTE
If the instructions are not followed as described, Items 12 and 13 may drop into air passages.

TO REPLACE NEEDLE SEAL AND GLAND ADAPTER IN FLUID INLET
Remove fluid control knob (19) and spring (16) and pull out fluid needle (18). Unscrew packing nut (31) and remove spring (30) and seal backup (29). Using a No. 10 x 1-1/4” coarse thread wood screw (Binks Part No. 20-6536) or a small sheet metal screw, remove the needle seal (28) and gland adapter (27). Replace gland adapter (27) and needle seal (28). Reinsert seal backup (29), spring (30) and screw on packing nut (31) a couple of turns so it fits loosely by hand. Reassemble fluid needle (18), spring (16) and material valve control knob (19). Finally, tighten packing nut (31) until it bottoms out on fluid inlet (24).

ADJUSTMENT OF CATALYST NEEDLE
The Catalyst needle assembly is adjustable for length by the location of the adjusting nuts on the needle. The nuts should be adjusted so that when the trigger assembly is in contact with the spindle assembly, a movement of the spindle assembly of 1/16” minimum is required before the catalyst needle moves. Under no circumstances should the resin valve open before the air valve or catalyst valve assembly.

The correct timing adjustment is: air-catalyst-resin. The timing is correctly set at the factory. However, repositioning the catalyst needle nuts will affect the timing.

GUN CLEANING
Submerging in solvents is a poor practice because of the solvent residue that may cling to interior air passages. Clean solvent must be used if the gun is to be submerged.

The best practice is to remove the air nozzle and to flush solvent through the fluid passages. All nozzles may be placed in solvent for washing. The nozzle orifice and angle passageways are critical. Always wash and rinse with a clean solvent to prevent residue accumulation in the minute holes.

CAUTION
If using metal instruments for cleaning, use extreme caution. DO NOT gouge or distort surfaces. Use the brush supplied with the gun.

NOTE
Some air quality agencies prohibit the spraying of solvent into the atmosphere when flushing spray guns. In some areas spray guns must be cleaned in a completely enclosed gun cleaning device which prevents solvent vapors from escaping to the atmosphere. Consult with your local Binks distributor if you are not sure of requirements in your area.

OPTIONS

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<tr>
<th>MANIFOLDS</th>
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<tr>
<td>102-2676</td>
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<td>102-2677</td>
<td>.016</td>
<td>16</td>
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ACCESSORIES

- 102-2658 Manifold Cleaner
- 54-3918 Gun Wrench
- 102-2656 Large O-Ring Installation Tool
- 102-2657 Small O-Ring Installation Tool
GENERAL SPRAY INSTRUCTIONS AND SPRAY TECHNIQUE

To reduce overspray and obtain maximum efficiency, always spray with the lowest possible fluid/air pressure. This will produce an acceptable spray pattern.

Excessive atomizing air pressure can increase overspray, reduce transfer efficiency, and with some materials, atomizing air pressure should not exceed 10 PSI. See the table in the air pressure recommendation and regulatory note on Page 8.

For best results, use only enough pressure for desired flow (1.5 - 2 pounds). Higher fluid pressure may be required for heavy bodies materials, low fluid pressures will produce a narrower than normal spray pattern.

SPRAY TECHNIQUE

The first requirement for a good resultant finish is the proper handling of the gun. The gun should be held perpendicular to the surface being covered and moved parallel with it. (See illustrations.)

The distance between the gun and surface should be 12 to 24 inches depending on material and atomizing pressure. The material deposited should always be even and wet. Lap each stroke over the preceding stroke to obtain a uniform finish.

FLUID NOZZLES, AIR CAPS AND NEEDLES

<table>
<thead>
<tr>
<th>FLUID NOZZLE DESCRIPTION</th>
<th>FLUID NOZZLE PART NO.</th>
<th>FLUID NOZZLE ORIFICE SIZE</th>
<th>COMPATIBLE AIR CAPS DESCRIPTION AND PART NUMBER</th>
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AIR PRESSURE REQUIREMENTS W/92PC AIR NOZZLE

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*NOTE: Regulator pressures are based on 25' of 5/16" hose in good condition without Quick-Disconnects or other restrictive fittings. Use the Air Nozzle Test Gauge accessory to conform the atomizing/regulator pressure relationship for your actual air supply set-up. Adjust air pressure as necessary for your specific application. Maximum recommended atomizing pressure is 10 PSI.
Atomizing pressure must be set to allow for the drop in air pressure between the regulator and the spray gun.

With 60 PSI applied at air supply:

Approx. 5 1/2 PSI at nozzle

Only 34 PSI at gun inlet
25 feet of 1/4” I.D. hose causes a drop of 26 PSI between the air supply and the gun.

(Approx. 9 psi at nozzle

48 PSI at gun inlet
25 feet of 5/16” I.D. hose causes a drop of 12 PSI between the air supply and the gun. For this reason we recommend the use of 5/16” hose.

(NOT RECOMMENDED)

(RECOMMENDED)

Cross section view showing comparison of inside hose diameters (actual size).

IMPORTANT REGULATORY NOTE

Some Regulatory Agencies prohibit the operation of HVLP spray guns above 10 PSI nozzle atomizing pressure. Users subject to this type of regulation should not exceed 10 PSI (50 PSI gun inlet pressure). See General Spray Instructions and Air Pressure Recommendations, Page 7. It is recommended that the Nozzle Test Gauge (see below) be used to confirm actual nozzle operating pressure.

It may also be a requirement of some Regulatory Agencies that users have this Gauge Nozzle available on site to verify that the gun is being operated within the limits of applicable rules.

AIR NOZZLE TEST GAUGE ASSEMBLY

54-3935 for 90 Series Nozzles
54-3908 for 900 Series Nozzles

NOTE: Test gauge should be cleaned after use.

WARRANTY

This product is covered by Binks’ 1 Year Limited Warranty.

Binks Sales and Service: www.binks.com