

**HVLP Spray Guns** 



# **HVLP Spray Guns**

In 1890, Binks pioneered the spray gun industry with the introduction of the first cold-water paint spraying machine.

Today, you can find spray from Binks at work in virtually the world. In the many years Binks has grown to be a world



finishing technology every industry around that have passed, leader in the design

and manufacture of finishing equipment, offering products in the industrial and automotive refinish markets.

The various catalog represent Binks extensive and airless spray and low pressure



spray guns and accessories shown in this
a small part of
product line. Binks also manufactures air
painting outfits, high
material handling pumps, pressure

tanks, paint circulating systems, and much more.

Binks products are backed by a company
100 years experience in the spray finishing
addition, Binks operates foreign subsidiary
in the United Kingdom, Continental Europe, Japan, and

with over market. In companies Australia.

If you would like more information about our products, please contact us at our corporate headquarters in Glendale Heights, Illinois.

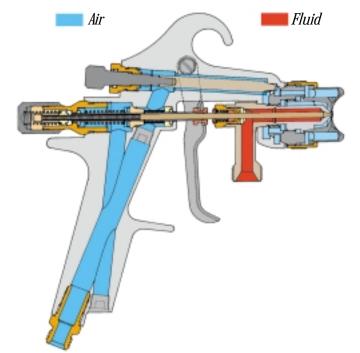
### **Table of Contents**

**High Volume Low Pressure** 

(HVLP) Spray GunsPa	age
About HVLP	
MACH 1 HVLP System Features & Benefits	4
Standard Fluid & Air Nozzle Selection Guide	5
MACH 1SL (Slim Line) HVLP	6
MACH 1 HVLP	7
MACH 1 HVLP (Featherlite)	8
M1-G HVLP	9
2001 HVLP	10
Cub SLG & Cub SL Touch-Up Guns	11
MACH 3 SL & MACH 2 A Automatic Guns	12
AA1500 Air Assist Airless Hand Spray Gun?	13
MACH 1A & 1AR HVLP	14
MACH 1A Nozzle & Fluid Selection Charts?	15
HVLP Air & Fluid Nozzle Selection Charts?	16
HVLP Air Nozzles - CFM Ratings	17
HVLP Extension	17
Cub SLG & Cub SL Charts	18
HVLP Accessories	19

# **HVI.P**

- Easy-grip sideport & needle controls
- ◆ In-line fluid & air valve with low friction seals
- Drop-forged aircraft grade aluminum alloy body
- Smooth trigger action



- ◆ Anodized aluminum alloy air nozzle
- ◆ Stainless steel fluid needle
- ◆ Stainless fluid nozzle 17-4 PH
- ◆ Comfortable handle
- ◆ Modular gun head assembly
- Stainless steel fluid passage for use with standard and corrosive materials

HVLP spraying has emerged as an important technology in today's industrial finishing. HVLP consumes higher volume air at lower pressure to atomize coatings. By reducing atomizing air pressure at the air nozzle, forward velocity of the spray is also reduced, minimizing "bounce back" and "overspray" from the article being coated. This results in substantial savings in coating materials, booth filter usage, and helps industrial finishing operations meet compliance regulations.



HVLP Low Pressure Spray Gun Overspray

Normal operating nozzle pressures range from 3 to 10 PSI, with air consumption from 8 to 22 CFM. Lower viscosity materials can be atomized from 3 to 5 PSI, while heavier materials and higher fluid deliveries require the higher air settings, upwards of 10 PSI.

The Binks MACH series of HVLP equipment operates and handles like traditional spray guns and uses standard factory compressed air. Operators adapt very quickly to the reduced overspray cloud of paint and the "soft spray" pattern provided by HVLP. The MACH series provides the finish quality craftsmen have come to expect from Binks equipment.



Conventional High Pressure Spray Gun Overspray

# MACH 1 HVLP System Features and Benefits

#### Features...

- Compliance with all government regulations for "high volume, low pressure" spray guns
- Unique HVLP nozzle design for optimum materials atomization
- Stainless steel fluid passages, nozzle and needle make it compatible with waterborne coatings
- Oversize air and fluid control knobs
- Lightweight, rugged, aircraft grade forged aluminum alloy body

### Benefits...

- Efficiency
   Transfer efficiency as required by today's air quality regulations
- Material Savings
   Cost efficient compressed air consumption ranges from 8 to 22 SCFM depending on operating pressure. A 1.5 to 5 horsepower air compressor is normally sufficient to supply atomizing air
- Controllable
   Total control of atomizing air pressure, fluid flow, and spray parts.

pressure, fluid flow, and spray pattern, operates with compressed air from your shop or existing plant air supply

**◆** Operator Comfort

Lightweight, slimmer grip fits hand comfortably. And, compact body design centers weight over handle for perfect balance and less fatigue

### Binks...

In 1890, Binks pioneered the spray gun industry with the introduction of the first cold-water paint spraying machine. Today, you can find Binks spray finishing technology at work in virtually every industry around the world. Binks extensive product line includes air and airless spray painting outfits, high and low pressure material handling pumps, pressure tanks, paint circulating systems, and much more.





Compliance with all government regulations for "high volume, low pressure" spray guns

Oversize air and fluid control knobs

Cartridges with selfadjusting packing

Unique HVLP nozzle design for optimum materials atomization

Stainless steel fluid passages, nozzle and needle make it compatible with waterborne coatings

Lightweight, rugged, aircraft grade forged aluminum alloy body, with slimmer grip, fits hand comfortably New, compact body design centers weight over handle for perfect balance and less fatigue

Patented variable air flow within gun body

# Standard Fluid & Air Nozzle

# Selection Guide For (Pressure & Siphon)

Consider the following points when selecting an air nozzle combination:

#### A. Material To Be Sprayed –

Select the type of fluid you want to spray or a fluid which has the same characteristics as one of those listed.

#### B. Method of Feeding -

(Material to the Spray Gun) Consider the speed of application, flow rate and the viscosity of the fluid to be sprayed.

#### Air Nozzle -

Choice is determined by the type of fluid to be sprayed and the volume of air available for the spray gun.

#### External Mix Nozzles -

The most widely used nozzles. Atomization is accomplished outside the nozzle. Spray patterns are adjustable from round to fan with all intermediate patterns.

## Siphon Type External Mix Nozzles –

(Designated with the letter "S") Siphon material from a cup. Used generally for refinishing and touch-up work which do not require large quantities of paint.

#### Pressure Type External Mix Nozzles -

(Designated with the letter "P")
Require pressure to feed the material to
the nozzle. A pressure cup, pressure tank,
or pump is necessary. Used for production
work and where large quantities of fluid
are handled. This type of nozzle has a
greater range of fluid flow and does not
limit the size of the paint container.

#### C. Volume of Air –

(CFM Required)

The cubic feet per minute (CFM) is the actual air used by the air nozzle. An increase of pressure subsequently increases volume of air required by the air nozzle or vice versa. Assume that a compressor will produce 3 - 5 CFM per horsepower. Note: The greater the air consumption, the faster the fluid may be applied or the finer a given amount of fluid can be atomized.

#### Fluid Nozzles -

(1) Choose the fluid nozzle by

determining the application speed you want and the approximate fluid viscosity. The faster the speed or the heavier the fluid, the larger the nozzle orifice size should be.

- (2) Match the fluid nozzle to the desired air nozzle per the chart below.
- (3) Select the material of consideration. **Note:** standard fluid nozzles are made of stainless steel.

### **Pressure**

Viscosity	Fluid Nozzle	Air Nozzle (Pressure)	Air Volume at 10 PSI SCFM	Oz. Per Min. Flow	Pattern at 10"
18	92				
Seconds		92P	7	10.1	15"
In a	(.046)	93P	9	10.1	15"
Zahn		94P	13	12.5	17.5"
#2 Cup	1.2 mm	95P	21	9.2	12.5"
		97P	21	8.4	16"
		95AP	21	10.6	16"
		97AP	21	10.4	16"
44	94				
Seconds		92P	7	7.4	12"
In a	(.55)	93P	9	7.7	14.5"
Zahn		94P	13	11.8	15"
#2 Cup	1.4 mm	95P	21	7.6	10"
•		97P	21	7.6	12"
		95AP	21	7.4	12"
		97AP	21	7.4	12"
25	97				
Seconds		92P	7	9.4	12.5"
In a	(.07)	93P	9	9.8	15"
Zahn		94P	13	13.5	14"
#3 Cup	1.8 mm	95P	21	7.1	9.25"
*		97P	21	5.5	13"
		95AP	21	10.3	14"
		97AP	21	9.46	12.5"

NOTE: Flow rates tested at 3 PSI fluid pressure with a 1 quart pressure cup.

### Siphon

Viscosity	Fluid Nozzle	Air Nozzle (Siphon)	Air Volume at 10 PSI SCFM	Oz. Per Min.Flow	Pattern at 10"
18	948	95AS	22	4.0	13"
Seconds In a	(.055) 1.4 mm				
Zahn	97S	95AS	22	7.1	16"
#2 Cup	(.070)	****			
	1.8 mm				

# MACH 1SL (Slim Line) HVLP

The MACH 1SL HVLP is a lightweight, top quality, high performance spray gun. The superbly balanced forged aluminum body is ergonomically designed with a compact grip size, offering the operator extra comfort and control. All of the spray gun's components are machined and finished to exacting tolerances using only the highest quality materials, including long life self-adjusting packings to ensure years of peak efficiency.

The MACH 1 SL HVLP is simple to operate, and provides exceptional finish quality with all of today's complex coatings, including high solids, waterborne, industrial automotive, and aerospace coatings. All fluid contact surfaces within the spray gun, including inlet, nozzle and needle, are corrosion resistant for use with waterborne coatings.

In addition, specially designed air and fluid nozzles enable the MACH 1SL HVLP to operate at high transfer efficiency in compliance with air quality regulations as an HVLP spray gun.

### Model MACH 1SLA

Same features as the MACH 1SL, but with adjustable fluid inlet.



Body: **Drop-forged aluminum** 

Weight: 16.5 Oz. 1/4" NPS (m) Air Inlet: Fluid Inlet: 3/8" NPS (m) Fluid Passages: Stainless Steel

Feed Type: Pressure / Siphon Feed

Part Sheet: 2665 Gun Repair Kit: 54-4278

### Most Popular Nozzle Set Ups:

MACH 1SL 94 - 94P MACH 1SL 94 - 93P MACH 1SL 92 - 94P MACH 1SL 94 - 97P

Standard Fluid Nozzle and Needle are

303 Stainless Steel

See page 16 for additional standard and specialty fluid nozzle recommendations.

### MACH 1SL Gun Outfits:\*

1 Qt. Siphon Cup <del>98-1176</del>

1 Qt. Pressure Assist Cup 98-1130

1 Qt. Pressure Cup w/Regulator 0-15 PSI 98-1141

2 Qt. Remote Pressure Cup w/hoses 98-1198

# MACH 1 HVLP

The MACH 1 is a full size HVLP 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 (SCAQMD) regulations as a high volume low pressure (HVLP) air spray gun.

Constructed of a lightweight drop-forged aluminum body and stainless steel fluid passages, including long life self-adjusting packings, this spray gun is designed to stand up under hard, continuous use. It operates like a conventional spray system utilizing compressed shop air.

## **Technical Specifications**

Body: Drop-forged aluminum

Weight: 20.1 Oz.
Air Inlet: 1/4" NPS (m)
Fluid Inlet: 3/8" NPS (m)
Fluid Passages: Stainless Steel

Feed Type: Pressure / Siphon Feed

Part Sheet: 2463 Gun Repair Kit: 54-3605

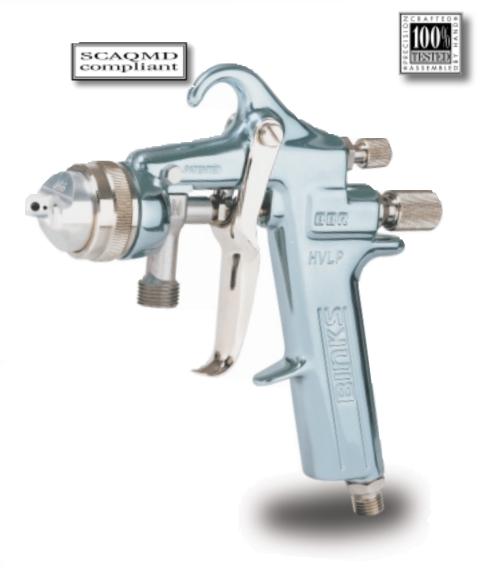
## Most Popular Nozzle Set Ups:

MACH 1 94 - 94P MACH 1 94 - 93P MACH 1 92 - 94P MACH 1 91 - 94P

Standard Fluid Nozzle and Needle are

303 Stainless Steel

See page 16 for additional standard and specialty fluid nozzle recommendations.



# MACH 1 HVLP Featherlite

A high production ultralight spray gun for continuous use spraying. Composite body, ergonomic design with compact grip size and superb balance are all quality features of this gun. The lightest production spray gun in its class. All fluid contact surfaces within this rugged, fine finish spray gun, including inlet, nozzle and needle, are corrosion resistant, for use with waterborne coatings. Long life self-adjusting packings are included, ensuring years of peak efficiency.

The MACH 1 Featherlite uses the full line of air and fluid nozzles and complies with regulations for air quality.

## **Technical Specifications**

Body: Engineered Composite

Weight: 12.8 Oz.
Air Inlet: 1/4" NPS (m)
Fluid Inlet: 3/8" NPS (m)
Fluid Passages: Stainless Steel

Feed Type: Pressure / Siphon Feed

Part Sheet: 2668 Gun Repair Kit: 54-4278

## Most Popular Nozzle Set Ups:

MACH 1 Featherlite 94 - 94P MACH 1 Featherlite 94 - 95AP Standard Fluid Nozzle is 303 Stainless Steel Standard Needle is Nylon Tip Stainless Steel

See page 16 for additional standard and specialty fluid nozzle recommendations.



# M1-G HVLP

The M1-G HVLP gravity feed spray gun not only complies with all air quality regulations, but also atomizes and sprays as quickly as a conventional air spray gun. An innovative low volume air nozzle designed specifically for automotive OEM and industrial use allows the M1-G to spray basecoats, clear coats, waterbornes, and high solids at fast application speeds with material savings of up to 50%. This comfortably light, superbly balanced spray gun is easy to operate and smooth to trigger with only 18 lbs. of inlet pressure required. M1-G employs a unique long lasting self-adjusting cartridge packing for simple replacement. Cup and nozzle are available in standard aluminum or E-Z Clean Solvent Saver coatings.

## **Technical Specifications**

Body: Drop-forged aluminum

Weight: 21.9 Oz.
Air Inlet: 1/4" NPS (m)
Feed Type: Gravity
Part Sheet: 2650
Gun Repair Kit: 54-4367

## Most Popular Nozzle Set Ups:

M1-G 94 - 93P M1-G 97 - 93P Standard Fluid Nozzle and Needle are 303 Stainless Steel



### **Accessories:**

54-4250 1-1/3 Pint (.75 Liter) Aluminum Cup (Standard) (A)

54-4376 1-1/3 Pint (.75 Liter) Teflon®-Coated, Aluminum Cup (B) 54-4350 Gun Stand (C)







# **2001 HVLP**

The 2001 HVLP siphon gun incorporates components and technology from the three best spray guns in the industry: The Binks MAČH 1 HVLP, the Model 7 and the 2001 air spray guns. The forged aluminum alloy body of the 2001 HVLP spray gun is precision machined to insure years of smooth, reliable service. Stainless steel nozzles are designed to emit superior siphon spray. These nozzles spray not only all standard automotive and industrial coatings, but also the increasingly popular waterborne and low VOC coatings. High transfer efficiencies conserve a substantial amount of paint while complying with strict air quality regulations.

## **Technical Specifications**

Body: Drop-forged aluminum

Weight: 22 Oz.

Air Inlet: 1/4" NPS (m) Fluid Inlet: 3/8" NPS (m)

Fluid Passages: Electroless-Nickel Plated,

Brass

Feed Type: Siphon Feed Part Sheet: 2626 Gun Repair Kit: 6-229

## Most Popular Nozzle Set Up:

2001 HVLP 97S - 95AS Standard Fluid Nozzle and Needle are 303 Stainless Steel

### 2001 HVLP Gun Outfits:

1 Qt. Siphon Cup - Teflon® Coated 98-1188



### Standard Nozzles 2001 HVLP Selection Chart\*

Siphon Feed	Fluid Nozzle No.	Applicable Air Nozzles	Compatible Fluid Needle
LIGHT: Light to medium materials. Auto body spot repairs.	94S	95AS	194S
MEDIUM: Medium to heavy materials. Auto body overall finishing.	97S		197S

<sup>\*</sup> Siphon set ups only

### **HVLP Air Nozzles\***

95A

(	Gun Inlet PSI	Nozzle Atomizing Airflow - SCFM	Nozzle Atomizing Pressure - PSI
	20	11.0	3
	30	15.7	5
	45	19.6	9
	50	22.5	10

<sup>\*</sup> Siphon set ups only

# Cub SLG And Cub SL Touch-Up Guns

### Cub SLG and Cub SL

The Cub SLG (gravity-feed) and the Cub SL (siphon/pressure) are the finest touch-up and specialty HVLP coatings guns available today.

Special air and fluid nozzles enable these guns to atomize fluid at low velocities, creating a soft spray effect. A range of fluid and air nozzles are available for both guns, making them adaptable for use with a variety of coatings. Superior transfer efficiencies result in material savings of up to 50 percent. Plus these guns have been ergonomically designed to give operators superb control and comfort over a wide range of uses.

### Cub SLG

A gravity feed, handle grip, touch-up spray gun with an aluminum cup. The Cub SLG gun's standard configuration includes a 4 oz. gravity cup; 8 oz. gravity cups are also available.

### Cub SL

The Cub SL gun is the latest addition to the Binks line of HVLP guns in use throughout the world. Perfect for touch-up or fine finish detail spraying. The Cub SL can be outfitted with an 8 oz. siphon or pressure-assisted cup.



**Cub SLG Specifications** 

Body: Drop-forged aluminum
Weight: 15.2 Oz.
Air inlet: 1/4" NPS (m)
Feed Type: Gravity
Part Sheet: 2735
Repair Kit: 54-4478

## Cub SLG Most Popular Nozzle Set-ups:

Cub SLG 55T - 2S Cub SLG 40T - 2S

# Cub SL Most Popular Nozzle Set Ups:

2734

Pressure / Siphon Feed

Fluid Passages: Stainless Steel

Gun Repair Kit: 54-4479

Cub SL 55T - 2S Cub SL 40T - 2S

Feed Type:

Part Sheet:

### **Cub SL Outfits:**

Siphon - 8 Oz. Siphon Cup

98-637

Pressure Assist - 8 Oz. Cup

98-639

See page 18 for additional air pressure & fluid nozzle selection charts for Cub SLG and Cub SL.

# MACH 3SL & MACH 2A (Automatic)

### MACH 3SL

(Hydraulically-assisted to 6000 PSI) The MACH 3SL combines the proven HVLP efficiency of the award-winning MACH 1 spray gun with hydraulically-assisted atomization to yield a highly reliable, carefully engineered special purpose spray gun.

Hydraulically-assisted atomization allows the fluid to be delivered to the spray gun at pressures up to 6000 PSI. The fluid is pre-atomized through an airless tip and atomization is completed by introducing high volume low pressure air to the pattern. The result is a finely atomized "soft spray" that produces a fine finish rivaling the high quality finish obtained with air atomization.

The MACH 3SL is designed for use with high viscosity coatings and is perfect for high production shops, heavy machinery, and metal fabrication. Consistently uniform finishes, low VOC materials, high solids, and waterbornes can be applied with this spray gun. The maximum operating fluid pressure of the MACH 3SL is 6000 PSI. It operates at high transfer efficiencies and fully complies with all government regulations for HVLP spray guns.

## **Technical Specifications**

Body: Drop-forged aluminum Weight: 23 Oz.
Air Inlet: 1/4" NPS (M)
Fluid Inlet: 1/4" NPS (M)
Fluid Passages: Stainless Steel

#### MACH 3SL (Hand Gun)

Maximum Fluid Inlet Pressure: 6000PSI Part Sheet: 2666 Gun Repair Kit: 54-3645





MACH 2A - (Fluid Inlet Pressure-1000PSI)

### MACH 2A HVLP Automatic

(Hydraulically-assisted to 1000 PSI) The MACH 2A gun combines proven HVLP efficiency with hydraulically-assisted atomization. The MACH 2A provides consistent coating by preatomizing pressurized fluid through a constrictive carbide nozzle. The gun satisfies SCAQMD requirements for HVLP air spray guns. Refer to chart at right for spray tip assemblies available.

#### **MACH 2A Technical Specification**

Maximum Fluid Inlet Pressure: 1000 PSI Part Sheet: 2552 Gun Repair Kit: 54-4405

Part		Orifice	Spray Width
Number	Stamp No.	(inches)	(at 12")
110-0904	0904	.009	4
110-0908	0908	.009	8
110-0910	0910	.009	10
110-1104	1104	.011	4
110-1108	1108	.011	8
110-1114	1114	.011	14
110-1304	1304	.013	4
110-1306	1306	.013	6
110-1308	1308	.013	8
110-1314	1314	.013	14
110-1504	1504	.015	4
110-1508	1508	.015	8
110-1510	1510	.015	10
110-1514	1514	.015	14
110-1804	1804	.018	4
110-1808	1808	.018	8
110-1810	1810	.018	10
110-1814	1814	.018	14
110-1820	1018	.018	20
110-2108	2108	.021	8
110-2110	2110	.021	10
110-2114	2114	.021	14
110-2120	2120	.021	20
110-2608	2608	.026	8
110-2610	2610	.026	10
110-2614	2614	.026	14
110-2620	2620	.026	20
110-3610	3610	.036	10

# AA1500 Air Assisted Airless Spray Gun

The unique tip and air cap design of the new Binks AA1500 Air Assisted Airless Spray Gun allows operators to use lower fluid and air pressure than the competition to achieve a superior finish. This means:

- Better transfer efficiency
- A softer spray pattern
- Less bounceback
- Lower booth maintenance costs
- Less overspray contaminating other parts
- Longer life on wear parts

Superior ergonomics equals superior economics. The "ergo-logic" design of the Binks AA1500 reduces operator fatigue which increases production rates, improves finish quality, and improves efficiency while reducing the risk of painful and costly CTD's (Cumulative Trauma Disorders).

- Handle designed to fit comfortably in the hand
- Weighs 22% less than closest competitor (16 oz. vs. 20.4 oz)
- Trigger Pull Tension is 22% lighter than closest competitor (3.2 lbs. vs. 4.1 lbs.)
- Trigger Span/distance for full trigger pull is 33% less than closest competitor (.4" vs. .6")

The simple design of the Binks AA1500 Air-Assisted Airless spray gun means that parts changeouts can be accomplished in 3 to 5 minutes.

- Only 20 replaceable parts
- Component cartridge design for quick and easy repairs
- No special tools needed for repairs
- Low replacement costs on main wear parts (tips, needle/packing cartridge, seats, and air caps)

Accessory items include hoses, fittings, fluid seats, fluid filters, fluid regulators, repair and cleaning kit. The AA1500 spray gun can be ordered with or without a airless spray tip, and additional tips can be ordered separately. See spray tip selection chart elsewhere on this page for orifice size and fan required.



### **Technical Specifications**

Maximum Fluid Pressure 1500 psi/105 bar Maximum Air Pressure: 100 psi / 6.8 bar Gun Body: Forged Aluminum Fluid Path: Stainless Steel Stainless Steel Ball Fluid Shut Off Type: Seat: Standard UHMW or Optional Tungsten Carbide Fluid Inlet Size: 1/4" NPS (m) Thread Air Inlet Size: 1/8" NPT (m) x 3/8" 0.D. Push-In Tube Fitting or D.M. Nipple

Gun Weight: 16 oz / 500 g Part Sheet: 2666

# Airless Spray Tip - Fluid Flow Rate\* Orifice

Olinec			
Size	500 PSI	1000 PSI	1500 PSI
(Inches)	oz./min.	oz./min.	oz./min.
VERY THIN - W	ash Primers, D	yes, Stains, Sol	vents, Water, Inks
.009	4.5	5.7	6.8
.012	9.2	11.7	15.5
THIN - Sealers	, Lacquers, Prir	ners, Ink, Zinc	Chromate, Acrylics
.015	13.0	19.0	24.0
MEDIUM - Lac	quers, Synthetic	cs, Enamels, Va	rnishes, Shellacs,
.018	12.0	19.0	26.0
ი21	1/10	24 N	32 A

Flow rate of fluid materials through spray tip, oz./min.

\* Based on 1500 PSI with water. Actual results may vary, depending on material viscosity.





## **Spray Tip Selection Charts**

PART NUMBER	SIZE	FAN WIDTH *
113-00906	.009	4" - 6"
113-00908	.009	6" - 8"
113-00910	.009	8" - 10"
113-00912	.009	10" - 12"
113-00914	.009	12" - 14"
113-01206	.012	4" - 6"
113-01208	.012	6" - 8"
113-01210	.012	8" - 10"
113-01212	.012	10" - 12"
113-01214	.012	12" - 14"
113-01506	.015	4" - 6"
113-01508	.015	6" - 8"
113-01510	.015	8" - 10"
113-01512	.015	10" - 12"
113-01514	.015	12" - 14"
113-01806	.018	4" - 6"
113-01808	.018	6" - 8"
113-01810	.018	8" - 10"
113-01812	.018	10" - 12"
113-01814	.018	12" – 14"
113-02110	.021	8" – 10"
113-02112	.021	10" - 12"
113-02114	.021	12" - 14"
113-02116	.021	14" - 16"
113-02410	.024	8" – 10"
113-02412	.024	10" - 12"
113-02414	.024	12" - 14"
113-02416	.024	14" - 16"
113-02710	.027	8" – 10"
113-02712	.027	10" – 12"
113-02714	.027	12" – 14"
113-02716	.027	14" - 16"
* Based on 1500 PSI with	water. Actu	al results may vary,

\* Based on 1500 PSI with water. Actual results may var depending on material viscosity.

# MACH 1A & 1AR HVLP

### MACH 1A

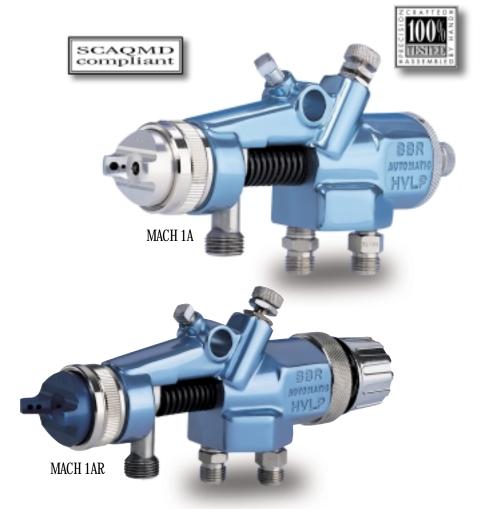
Incorporating some of the best features of our award winning MACH 1 HVLP spray gun, the MACH 1A Automatic offers total control of atomizing air pressure, side port air, fluid flow, and spray patterns in production settings which require automatic equipment. These features give it an exceptionally high degree of atomizing capability with a wide range of coatings. This spray gun provides transfer efficiency in compliance with all regulations for air quality as an HVLP air spray gun and meets SCAQMD Rules for HVLP.

Constructed of a lightweight drop-forged aluminum body and stainless steel fluid passages, the spray gun is designed to stand up under hard, continuous use. Ranges from 6 to 22 SCFM depending on operating pressure. A 1.5 to 5 horsepower air compressor is normally sufficient to supply atomizing air.

The MACH 1A also features independent control of atomizing and side port air, giving it an exceptionally high degree of atomizing capability with a wide range of coatings.

### MACH 1AR

Model MACH 1AR HVLP includes the same features as the MACH 1A Automatic except a ratchet adjustment is located on the back of the gun for indication of exact needle position. This gun is ideal for applications where visual indication of fluid needle location is essential. It is pneumatically activated for application in a variety of automated spray systems.



## Most Popular Nozzle Set Ups:

MACH 1A 94 - 94P MACH 1A 94 - 93P MACH 1A 92 - 94P MACH 1A 91 - 94P Standard Fluid Nozzle and Needle are 303 Stainless Steel

### **Accessories:**

Mounting Bracket: 54-380 Gun Covers: 54-3691 (Package of 20) Needle Packing Guard: 54-4270 Heavy Duty Spring: 54-4096

## **Technical Specifications**

Body: Drop-forged aluminum Weight: 20.5 Oz. Cylinder Air Inlet: 1/4" NPS (M) Cylinder Air Pressure: 40 PSI Min 100 PSI Max **Atomization Air:** 1/4" NPS (M) 3/8" NPS (M) Fluid Inlet: Stainless Steel Fluid Passages: Fluid Pressure: 100 PSI Max Mounting Hole: 1/2" Dia. Part Sheet: 2467 Gun Repair Kit: 54-3980 Packing Kit (Minus Needle): 54-4261

# MACH 1A

## Automatic Nozzle & Needle Selection Charts

## Standard Nozzles MACH 1A Selection Chart

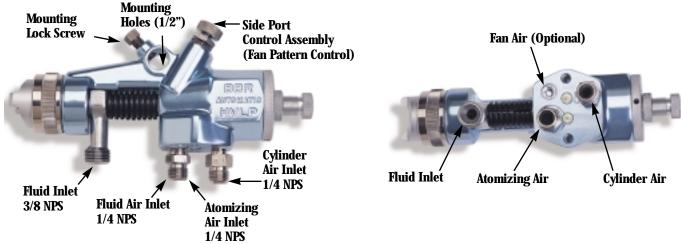
Type of Fluid to Be Sprayed	Fluid Nozzle	Applicable Air Nozzle*	Compatible Fluid Needle +
ULTRA LIGHT / Reduced flow	89 (.020" Dia.) 0.5 mm		47-478
VERY LIGHT / Reduced flow	90 (.030" Dia.) 0.8 mm	<i>95P</i> , 97P,	47-478
LIGHT: Less than 15 to 20 seconds in a Zahn 2 Cup, e.g. stains, varnishes, thin lacquers, automotive refinishing materials	91 (.040" Dia.) 1.0 mm 92 (.046" Dia.) 1.2 mm	92P, 93P 95AP•, 97AP•, 94P	47-478
MEDIUM: 20 to 60 seconds in a Zahn 2 Cup, e.g., general industrial coating	94 (.055" Dia.) 1.4 mm		47-478
HEAVY: Greater than 60 seconds	97 (.070" Dia.) 1.7 mm		47-478

in a Zahn 2 Cup
\* For air nozzle CFM usage see page 16

# Special Purpose Nozzles MACH 1A Selection Chart

Type of Fluid to Be Sprayed	Fluid Nozzle	Air Nozzle	Fluid Needle +
VERY HEAVY MATERIALS:	94VT (.052") 1.3 mm Δ	<i>95P</i> , 97P	54-3966
Block fillers, texture coatings, fire	901VT (.066") 1.6 mm Δ	94P	54-3967
retardants, road marking paint,	903 (.079") 2.0 mm		47-478
bitumastics, adhesives, cellular	905 (.089") 2.3 mm		
plastisols, underbody & vitreous	905VT (.088") 2.3 mm Δ	905P, 907P	54-3968
coatings, special applications.	906 (1.00") 2.5 mm		47-478
	909 (.111") 2.8 mm		47-478
	909VT (.112") 2.8 mm Δ		54-3969
FEATHERING:	90F (.030") 0.8 mm		54-4032
For applications requiring more	91F (.040") 1.0 mm		54-4033
gradual valve opening for fluid	92F (.046") 1.2 mm	95P, 97P	54-4034
flow control.	94F (.055") 1.4 mm	95AP, 97AP	54-4036
	97F (.070") 1.7 mm		54-4039

<sup>+</sup> Stainless steel, standard. Optional Nylon tipped stainless steel, 47-472, available.  $\triangle$  Carbide Tip



<sup>• &</sup>quot;Blue Max" fine finish nozzles

# Air & Fluid Nozzle Selection Chart

## **Standard Air & Fluid Nozzles**

		Applicable	MACH 1	MACH 1 SL	Featherlite
Type of Fluid to Be Sprayed	Fluid Nozzle No.	Air Nozzles	Fluid Needle	Fluid Needle	Fluid Needle
ULTRA LIGHT/Reduced flow	89 (.020" Dia) 0.5 mm				
VERY LIGHT/Reduced flow	90 (.030" Dia) 0.8 mm	90***			
LIGHT: Less than 15 to 20 seconds in a	91 (.040" Dia.) 1.0 mm	95P, 97P			
Zahn 2 Cup, e.g., stains, varnishes, thin		92P*	54-3941♦	54-4382♦	54-4381
lacquers, automotive refinishing fluids.	92 (.046" Dia) 1.2 mm	95AP, 97AP**			(Nylon Tip)
MEDIUM: 20 to 60 seconds in a Zahn 2	94 (.055" Dia.) 1.4 mm	93P			
Cup e.g., general industrial coatings.					
HEAVY: Greater than 60 seconds in a	97 (.070" Dia.) 1.7 mm	94P			
Zahn 2 Cun	l	l	l	l	I

♦ STANDARD: Fluid needle is stainless steel

NOTE: Binks needles AB and ABSS (54-3609 & 54-3616) may be used, but require readjustments of the needle cap and locknut position

OPTIONAL: Stainless steel with nylon tip (54-3940 MACH 1) (54-4381 MACH 1SL Featherlite)

## **Special Purpose Nozzles**

				•	1
Type of Fluid to Be Sprayed	Fluid Nozzle No.	Applicable Air Nozzles	MACH 1 Compatible Fluid Needle	MACH 1 SL Compatible Fluid Needle	Featherlite Compatible Fluid Needle
VERY HEAVY MATERIALS:	94VT (.052") 1.3 mm	95P, 97P	54-3950	54-4383	54-4383
Block Fillers, Texture Coatings,	Carbide Tip	94P			
Fire Retardants, Bitumastics,	901VT (.066") 1.6 mm		54-3951	54-4384	54-4384
Road Marking Paint, Adhesives,	Carbide Tip			,	
Cellular Plastisols, Underbody &	903 (.079") 2.0 mm		54-3941 / 54-3940	54-4382 / 54-4381	54-4382 / 54-4381
Vitreous Coatings,	905 (.089") 2.3 mm		54-3941 / 54-3940	54-4382 / 54-4381	54-4382 / 54-4381
Special Applications.	905VT (.088") 2.3 mm	905P	54-3952	54-4385	54-4385
	Carbide Tip				
	906 (.100") 2.5 mm		54-3941 / 54-3940	54-4382 / 54-4381	54-4382 / 54-4381
	909 (.111") 2.8 mm		54-3941 / 54-3940	54-4382 / 54-4381	54-4382 / 54-4381
	909VT (.112") 2.8 mm		54-3953	54-4386	54-4386
	Carbide Tip				
FEATHERING:	90F (.030") 0.8 mm	94P	54-4022	54-4387	54-4387 / 54-4388
For applications requiring more	91F (.040") 1.0 mm	95P, 97P	54-4023	54-4388	
gradual fluid needle valve opening	92F (.046") 1.2 mm	92P*	54-4024	54-4389	54-4389
for metering control of fluid flow	94F (.055") 1.4 mm	95AP**•	54-4026	54-4390	54-4390
with trigger.	97F (.070") 1.7 mm	97AP**•	54-4029	54-4391	54-4391
SIPHON FEED-FINE FINISH:	94s (.055") 1.4 mm		54-4026		
Light to medium fluids		95AS•		54-4390	54-4390
Auto body spot repairs	97s (.070") 1.7 mm		54-4029	54-4391	54-4391
Medium to heavy fluids					
Auto body overall finishing					

<sup>92</sup>P Low volume nozzle for general industrial and automotive fine finish 95AP High solids nozzle for hard to atomize coatings and higher flow rates 97AP Same as 95AP, but for wider fan if needed 90P Low volume nozzle, 1 1/2 HP compressor or bigger - (6 CFM) required 95AP, 95AS, 97AP, air nozzles do not require separate retainer ring

# **HVLP Air Nozzles - CFM Ratings**

# HVLP Air Nozzle\*

Nozzle	Nozzle	#6 (Standard) Side Port Control
Atomizing	Air Flow	
PSI	SCFM	PSI
3	4.0	5
5	4.5	7
7	5.0	10
9	5.5	12
10	6.0	15

# HVLP Air Nozzles\*

Nozzle Atomizing PSI	Nozzle Air Flow SCFM	Side I Gun	(Standard) Port Control     Regulator*   PSI
3	4.5	6.0	9
5	6.0	8.5	10
7	6.8	11.0	14
9	7.5	13.5	18
10	8.0	15.0	19

# HVLP Air Nozzles\*

Nozzle Atomizing PSI	Nozzle Air Flow SCFM	Side I Gun	Standard) Port Control Regulator* PSI
3 5 7 9	5.5 7.0 8.0 9.5 10.0	8.0 11.5 14.5 17.0 18.0	10.0 14.0 18.0 22.5 24.0

# HVLP Air Nozzle\*

Nozzle Atomizing PSI	Nozzle Air Flow SCFM	#6 (Standard) Side Port Control Gun Inlet PSI
3	7	14
5	9	21
7	11	27
9	12	30
10	13	33

## **HVLP Air Nozzles\***

95P, 97P, 95AS, 95AP, 97AP, 905P,

	1	#6 (	Standard)	
		Side Port Control		
Nozzle	Nozzle	Gun		
Atomizing	Air Flow	Inlet	Regulator*	
PSI	SCFM	PSI	PSI	
3	11.0	20	27	
5	15.7	30	40	
7	17.5	38	50	
9	19.6	45	58	
10	22.5	50	64	

\* Note: Regulator pressures are based on 25' of 5/16" diameter hose in good condition without Quick-Disconnects or other restrictive fittings. Use the Air Nozzle Test Gauge accessory to confirm the atomizing/regulator pressure relationship for your actual air supply set-up. These recommendations are for "typical" or "average" fluids and are intended to serve as a starting point. Adjust as necessary for your specific application.

### **HVLP Extensions**

Length	For MACH1,	Price
	MACH1SL and	
	MACH 1A Guns	
6"	52-3706	\$342.00
12"	52-3712	348.00
18"	52-3718	364.00
24"	52-3724	369.00
30"	52-3730	481.50
36"	52-3736	508.00
42"	52-3742	561.75
48"	52-3748	609.90
49"	52-3749	615.00
54"	52-3754	722.25
60"	52-3760	749.00

<sup>\*</sup>Other lengths and styles are available – please call customer service for pricing. Gun extensions are special order and are not subject to return

#### HOW TO ORDER AND PRICE EXTENSION

Prices which are listed for various type extensions ONLY. Please order as follows:

Extension with gun, (1) MACH1SL No. 52-3712 . . . . . 12" Extension and Gun (Specify Nozzle Set-up)

Extension ONLY, (1) MACH1SL No. 52-3712 . . . . . 12" Extension (Specify Nozzle Set-up)

To figure price of any extension complete with gun, take price of gun, add price of extension, and then DEDUCT Standard Charge of \$117.00 for removing standard Nozzle kit from gun. Thus, above gun would be priced (MACH1SL Gun) \$385.00 plus \$348.00 (for 12" No. 52-3712 extension) less \$117.00 (for leaving off standard nozzle kit) or \$616.00.

# **Cub SLG & Cub SL Charts**

### **Air Pressure Recommendations** (Cub SLG & Cub SL)

Type Of Fluid To Be Sprayed	Atomizing PSI	Gun Inlet PSI
Light Stains, Inks	3-4	20-26
Primers / Surfaces	4-5	26-30
Acrylic Enamels	6-7	35-40
Lacquers	7-8	40-42
Low VOC Clears, Basecoats and Urethanes	8-10	42-50

### **Cub SLG & SL Accessories**

Part / Description	Part No.
Cub SLG Spray Gun with 54-4458 4 oz. cup 55T x 2S	Standard
3 oz. Gravity-Feed Cup Assembly	54-4147
8 oz. Gravity-Feed Cup Assembly	81-381
Cub SL Spray Gun (gun only) 55T x 2S	Standard
8 oz. Cub SL Siphon Cup Outfit (gun and cup)	98-637
8 oz. Cub SL Pressure Assist Cup Outfit (gun and cup)	98-639
8 oz. Siphon Cup Assembly	81-384

The Cub SL part sheet number is 2734; the Cub SLG part sheet number is 2735.

## Fluid Nozzle Selection Chart for MACH 1 Cub SLG & Cub SL

Type Of Fluid To Be Sprayed	Fluid Nozzle No.
VERY LIGHT / 14 to 16 seconds in a Zahn 2 Cup	20T (.020 in. [.4mm] dia. opening)
e.g., wash primers, dies, inks, water.	25T (.025 in. [.6mm] dia. opening)
	30T (.030 in. [.8mm] dia. opening)
LIGHT / MEDIUM: less than 15 to 20 seconds in a	
Zahn 2 Cup, e.g., stains, varnishes, thin lacquers,	
automotive refinishing materials	40T (.040 in. [1.0mm] dia. opening)
MEDIUM: 20 to 30 seconds in a Zahn 2 Cup, e.g.,	
general industrial coatings	55T (.055 in. [1.4mm] dia. opening)
HEAVY: greater than 30 seconds in a Zahn 2 Cup,	
e.g., low VOC coatings	55T (.055 in [1.4mm] dia. opening)

All fluid nozzles use the 2S (siphon).

### Air Pressure & Flows

Gun Inlet Pressure (PSI)*	Nozzle Atomizing Air Flow (SCFM) 2S Air Nozzle†	Nozzle Atomizing Pressure (PSI)
20	6.0	3
30	7.5	5
45	10.0	9
50	11.0	10

<sup>\*</sup>Gun inlet pressure is measured at the gun inlet fitting with the gun triggered.
'8" to 10" spray pattern at 8".

<sup>\*</sup>For Cub SI. spray guns using pressure or pressure-assist, use nozzle 20T for light/medium materials, and nozzle 30T for heavier materials. Use of larger nozzles or very light materials with a pressurized gun will result in excessive material flow and is not recommended.

# **HVLP** Accessories

#### **Check Valves**



**54-4322** 3-pack. Used with (98-1130) Short **54-4321** 3-pack. (98-1141, 98-1142) Long

#### 45 & 90 Deg. Angle Heads



For MACH 1 and MACH 1A spray guns only. Part Number 54-4090 90 degree angle head, Part Sheet 2635 Part Number 54-4091 45 degree angle head, Part Sheet 2635

#### 85-250 Regulator



Part Number 85-250
Air Regulator controls air pressure in the 80-280 one quart pressure cup and provides accurate control of fluid pressure for optimum spray pattern control. Prevents over-pressurizing the cup and is adaptable to all MACH 1 spray guns.

Inlet: 1/4" NPS(m)
Outlet: 1/4" NPS(f)

#### 80-300 Cup



Part Number 80-300 Stainless Steel Cup consists of 80-292 1 Qt. Clamp Type Cup with Vent Valve, 85-250 PLUS Regulator, and Connector Tube.

#### 81-375 No Drip Cup For Siphon Gun (EZ2)



Also Available:
Part Number 80-272 SS Pressure Cup
(No regulator)

#### 80-350 SG-2 Cup



Part Number 80-350 Ideal for automotive component spraying and industrial applications where small batch production spraying is required. (2 qt. capacity)

#### SG2 Cup Liners



 $\label{limited} \textbf{Part Number 80-356} \ \ \text{includes 12 plastic} \\ \ \ \text{liners for easy clean-up.}$ 

#### **Extensions**



52-3706	6"	52-3736	36"
52-3712	12"	52-3749	49"
52-3718	18"	52-3760	60"
52-3724	24"		

Note: Extensions may be joined together for added length. Specify new needle length. Extensions are sold less air cap and fluid nozzles. Specify spray gun model that will be used with the extension. Part Sheet 2557.

#### Fluid Inlet



Part Number 54-4330 Adjustable fluid inlet allows finger-tip control of coatings without fluid needle interference. Fits both hand & automatic guns.

#### **Needle Packing Kits**

Part Number 54-4261
Self Adjusting Packing
Part Number 54-4262
Self Adjusting Packing with Needle
Part Number 54-4370
Cartridge Packing

#### Repair Kits

MACH 1
MACH 1A & 1AR54-3980
MACH 1SL
MACH 3SL
MACH 2A
MACH Featherlite54-4278
M1-G Gravity
2001 HVLP 6-229
MACH 1 Cub SL
MACH 1 Cub SLG54-4478

#### Ratchetback (Auto-Gun)

#### Part Number 54-3582

Specially designed for applications where visual indication of fluid needle location is essential. Adjustments numbered 1-9 on the back of the spray gun conveniently indicate exact needle position. Part Sheet: 2672

### Air Nozzle Test Gauge



Part Number	Description
54-3622	92HA & 93HA Nozzle
	(MACH 3SL)
54-3774	95HA MACH 2SL & 3SL
54-3902	91P & 92P Nozzles
54-3908	900 Series
54-3935	95 & 97 Series
54-4078	95AS & 97AS Nozzles
	(Siphon)
54-4150	2S, 2P Cub Gun
54-4345	90P Nozzle
54-4356	93P Nozzle
54-4066	94P Nozzle

## Sales and Service Through a Nationwide Network of Industrial Distributors



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Technical Support Tel. 888-992-4657 Fax 888-246-5732





