

Standard and Low-Flow 100 PLUS Powder Feed Pumps

Introduction

Standard and low-flow 100 PLUS powder feed pumps are used to pump organic and metallic powder coatings to powder spray guns. They are venturi-type pumps with flow-rate and atomizing air nozzles.

Flow-rate air lifts fluidized powder from a feed hopper and forces the powder and air mixture through the feed hose to the spray guns. Atomizing air dilutes and atomizes the powder stream as it exits the pump.

Pump Versions

These pumps are equipped with flow-rate and atomizing air fittings for 6-mm ($1/4$ -in.) air tubing. The pumps are shipped with SMART™ engineered plastic venturi throats with integral seals and retainer.

Standard Flow Pump: Most general powder coating applications. Uses $1/2$ -in. powder feed hose.

Low-Flow Pump: For powder flows below 10 kg/hr (22 lb/hr). Uses $3/8$ -in. powder feed hose, typically not longer than 4 m (13 ft).

Standard Pump Options

Table 1 Standard 100 PLUS Pump Options

Standard 100 PLUS Pump P/N 249500		
Options	Part	Description
Venturi Throats	114221	Tivar
	114223	Stainless Steel
	249504	PTFE
	174215	Glass-filled PTFE
Purge Adapter	136624	Includes mounting and 18-in. pickup tube, for 50-lb hoppers
Pump Mounting Kits	163555	Top-mount, with 18-in. pickup tube, for 50-lb hoppers
	163556	Top-mount, with 24-in. pickup tube, for 80-lb hoppers
	1051479	Side-mount
Low-Flow Conversion (Refer to the <i>Low-Flow Powder Pump Conversion Kits</i> instruction sheet.)	114217	Does not include mounting. Includes 18-in. of pick-up tubing for use with obsolete mounting and adapter kits on Nordson 25-lb HRV-1 or 50-lb HRS-1 or HRS-2 hoppers.
	118743	Includes mounting and pickup tube. Use with Nordson 50-lb HRS-1 or HRS-2 hoppers.

Low-Flow Pump Options

Table 2 Low Flow 100 PLUS Pump Options

Low-Flow 100 PLUS Pump P/N 142062		
Options	Part	Description
Venturi Throats	109101	PTFE
	114219	Tivar
	174213	Glass-filled PTFE
Pump Mounting Kits	163555	Top-mount, with 18-in. pickup tube, for 50-lb hoppers
	163556	Top-mount, with 24-in. pickup tube, for 80-lb hoppers
	1051479	Side-mount

Installation



WARNING: All conductive equipment in the spray area must be connected to a true earth ground. Ungrounded or poorly grounded equipment used in a powder spray area can become electrically charged. This charge can deliver a severe shock, or create sparks hot enough to cause a fire or explosion.

1. The pump mounting kits include pick-up tubes. Install the mounting kits on the hopper lid or side as shown in Figures 3 and 4 on pages 6 and 8.
2. Install the pump on the adapter with a slight twisting motion.

NOTE: The pump adapter O-rings are conductive silicone, to provide a ground connection between the pump body and the hopper. Do not replace these O-rings with non-conductive O-rings.

3. Refer to Table 3 for air tubing color codes. Connect air tubing to the pump fittings and route the tubing to the control unit output fittings.

Table 3 Air Tubing Connections

Air	Control Unit Air Function Symbols	Color Tubing	Pump Fitting Label
Atomizing	or	Blue	A
Flow-Rate	or	Black	F

4. Connect the powder feed hose to the pump outlet and secure it with a hose clamp. Install a short length of spiral-cut tubing around the hose at the pump outlet to prevent it from kinking and cutting off the flow of powder.

NOTE: For best results, the powder feed hose should be no longer than 7.6 m (25 ft) and rise vertically over its length no more than 2.7 m (9 ft).

Operation

Typical operating pressures are:

Atomizing: 1.4 bar (20 psi)

Flow Rate: 2.1 bar (30 psi)

These pressures are average starting points. They can be adjusted higher or lower to achieve the desired delivery volume and cloud density.

Maintenance



WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

Daily

Disconnect the powder feed hose and atomizing and flow-rate air tubing and blow out the pump with compressed air.

Blow out the powder feed hose with compressed air. Always blow out the feed hose from the pump end into the booth, not from the spray gun end into the pump. Make sure the booth exhaust fan is running.

Periodically



WARNING: Do not replace conductive O-rings with non-conductive O-rings. Conductive O-rings provide a path to ground that is required with powder spray equipment. Failure to observe this warning could result in personal injury, fire, or explosion.



CAUTION: Do not scrape impact-fused powder off the pump parts with any sharp metal tools. Powder will build up in any scratches on the powder contact surfaces, causing impact-fusion and pump clogging.

Disassemble the pumps and clean the parts with low-pressure compressed air and clean, lint-free cloths. The parts may be wiped clean with a non-toxic solvent such as alcohol after removing the O-rings. The O-rings could be damaged by the solvent.

Inspect all parts and replace any that are worn or damaged.

Inspect the powder feed hoses and replace any hoses that are worn or damaged. Replace the feed hose if impact fusion is present on the inner walls.

Parts

To order parts, call the Nordson Finishing Customer Support Center at (800) 433-9319 or your local Nordson representative.

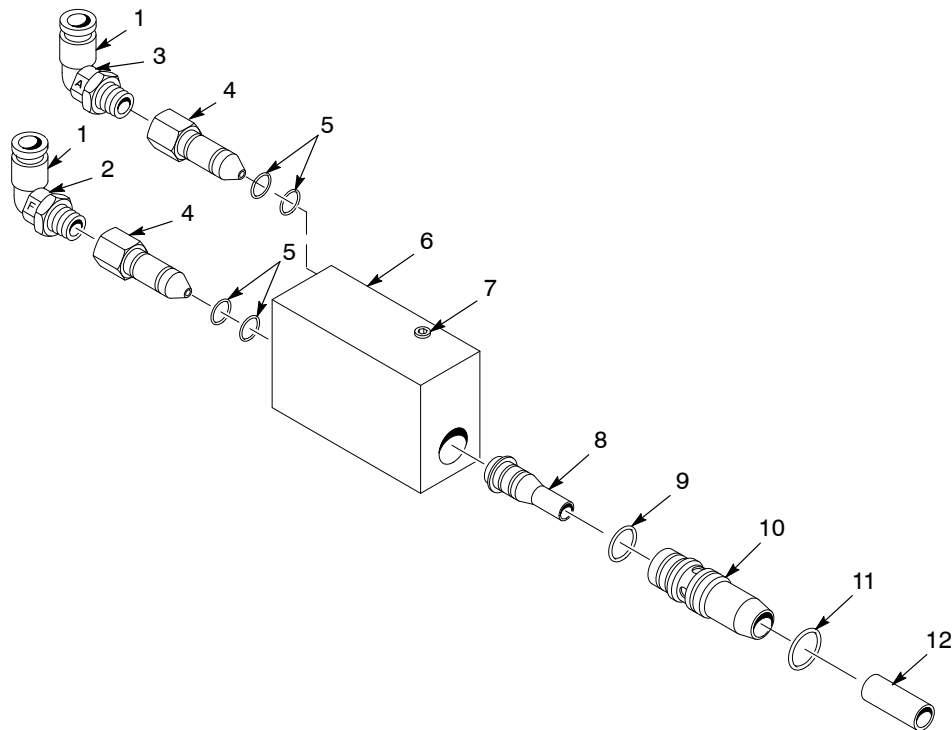
Standard Pump

See Figure 1.

Item	Part	Description	Quantity	Note
—	249500	PUMP, powder, 100 PLUS	—	
1	972119	• ELBOW, male, 1/4 in. tube x 1/8 in. NPT	2	A
2	939109	• MARKER, clip "F"	1	
3	939108	• MARKER, clip "A"	1	
4	249503	• NOZZLE, venturi	2	
5	940129	• O-RING, silicone, conductive, 0.375 x 0.50 in.	4	
6	249502	• HOUSING, pump, powder	1	
7	973402	• PLUG, pipe, socket, flush, 1/8 in., zinc	1	
8	1064256	• THROAT, venturi, SMART™	1	B
9	940163	• O-RING, silicone, 0.625 x 0.75 x 0.063 in.	1	
10	249506	• HOLDER, throat	1	
11	940184	• O-RING, silicone, conductive, 0.75 x 0.875 in.	1	
12	249507	• TUBE, wear, holder	1	

NOTE A: For pumps with metric air tubing fittings, refer to manual 106699, 100 Plus Metric Standard and Low-Flow Powder pumps.

B: This throat does not require O-rings and retaining ring. Refer to page 6 for optional throats.



1400937A

Figure 1 Standard 100 PLUS Powder Pump

Low-Flow Powder Pump

See Figure 2.

Item	Part	Description	Quantity	Note
—	142062	PUMP, powder, 100 PLUS, low-flow	—	
1	972119	• ELBOW, male, 1/4 in. tube x 1/8 in. NPT	2	A
2	939109	• MARKER, clip, F	1	
3	939108	• MARKER, clip, A	1	
4	249503	• NOZZLE, venturi	2	
5	940129	• O-RING, silicone, conductive, 0.375 x 0.50 in.	4	
6	249502	• HOUSING, pump, powder	1	
7	973402	• PLUG, pipe, flush, 1/8 in. zinc	1	
8	1064257	• THROAT, venturi, low-flow, SMART™	1	B
9	940163	• O-RING, silicone, 0.625 x 0.75 x 0.063 in.	1	
10	249506	• HOLDER, throat	1	
11	940184	• O-RING, silicone, conductive, 0.75 x 0.875 in.	1	
12	139943	• CONNECTOR, pump, powder	1	

NOTE A: For pumps with metric air tubing fittings, refer to manual 106699, 100 Plus Metric Standard and Low-Flow Powder pumps.
 C: This throat does not require O-rings and retaining ring. Refer to page 6 for optional throats.

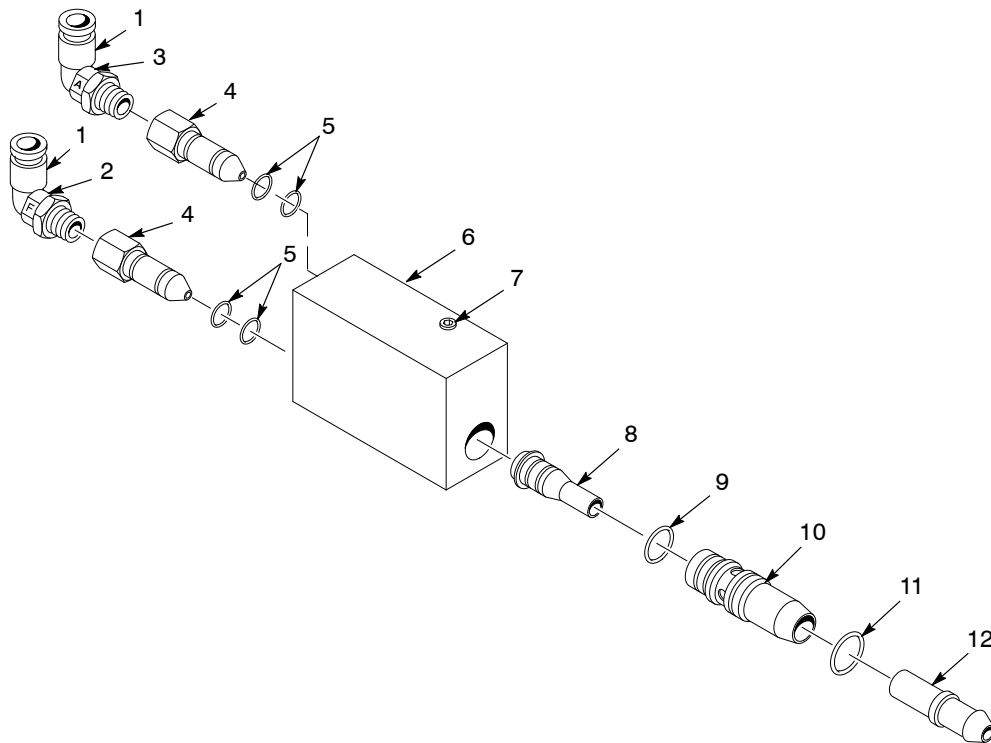


Figure 2 Low-Flow 100 PLUS Powder Pump

Options

Venturi Throats

Optional material venturi throats may exhibit better performance with certain powders.

Part	Description	Quantity	Note
249504	THROAT, venturi, PTFE (standard flow)	1	A, E
174215	THROAT, venturi, glass-filled PTFE (standard flow)	1	B, E
114223	THROAT, venturi, stainless steel (standard flow)	1	C, E
114221	THROAT, venturi, Tivar (standard flow)	1	D, E
109101	THROAT, venturi, PTFE, low-flow	1	A, E
174213	THROAT, venturi, glass-filled PTFE, low-flow	1	B, E
114219	THROAT, venturi, Tivar, low-flow	1	D, E
986100	• RETAINING RING, extension, 50, invert	1	E
940126	• O-RING, silicone, 0.375 x 0.50 x 0.063 in.	2	E
NOTE A: May exhibit less impact fusion with certain powder materials, but has a shorter wear life.			
B: May exhibit better wear life than a PTFE throat, and less impact fusion than a Tivar throat.			
C: Used in special applications with non-paint powdered materials.			
D: May exhibit better wear life, but more impact fusion, than a PTFE throat.			
E: All optional throats include these O-rings and retaining ring.			

Top-Mount Pump Mounting Kits

Pump Mounting Kit with 18-in. Pickup Tube

See Figure 3. Use this kit with the following hoppers:

- Model HRS-1 23-kg (50-lb) capacity
- Model HRS-2 23-kg (50-lb) capacity
- Model HR-2-50 23-kg (50-lb) capacity

NOTE: These hoppers include one mounting kit.

Item	Part	Description	Quantity	Note
—	163555	MOUNT, pump, with pick-up tube, 18 in.	1	
1	152227	• ADAPTER, pump	1	
2	941185	• O-RING, silicone, conductive, 0.875 x 1.062 in.	2	
3	164063	• MOUNT, pump	1	
4	941145	• O-RING, silicone, conductive, 0.625 x 0.812 in.	2	
5	164065	• TUBE, pick-up, 0.36 in. ID x 18 in.	1	
6	983055	• WASHER, pump mount	1	
7	939613	• LOCKNUT, conduit, $\frac{3}{4}$ in. NPS	1	

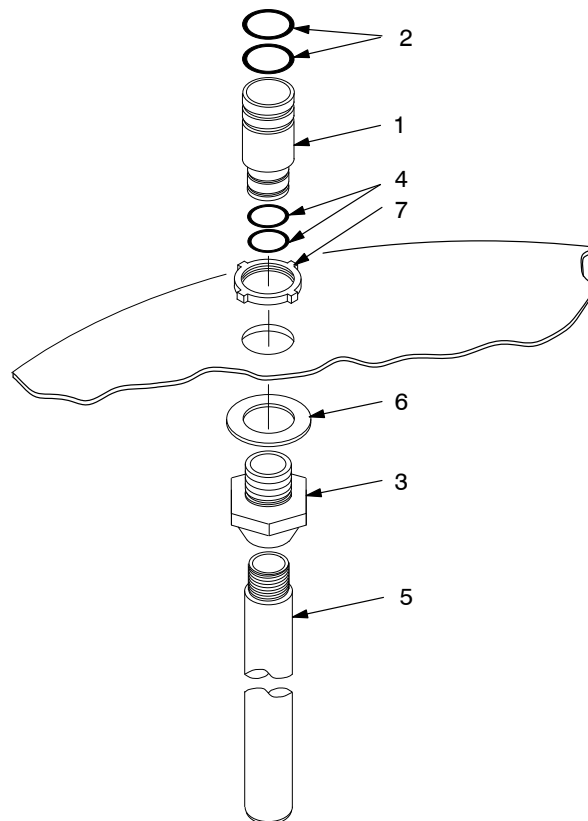
Pump Mounting Kit with 24-in. Pickup Tube

See Figure 3. Use this kit with the following hoppers:

- Model HR-2-80 36-kg (80-lb) capacity
- Model HR-8-80 36-kg (80-lb) capacity

NOTE: These hoppers include two mounting kits.

Item	Part	Description	Quantity	Note
—	163556	MOUNT, pump, with pick-up tube, 24 in.	1	
1	152227	• ADAPTER, pump	1	
2	941185	• O-RING, silicone, conductive, 0.875 x 1.062 in.	2	
3	164063	• MOUNT, pump	1	
4	941145	• O-RING, silicone, conductive, 0.625 x 0.812 in.	2	
5	152223	• TUBE, pick-up, 0.36 ID x 24 in.	1	
6	983055	• WASHER, pump mount	1	
7	939613	• LOCKNUT, conduit, $\frac{3}{4}$ in. NPS	1	



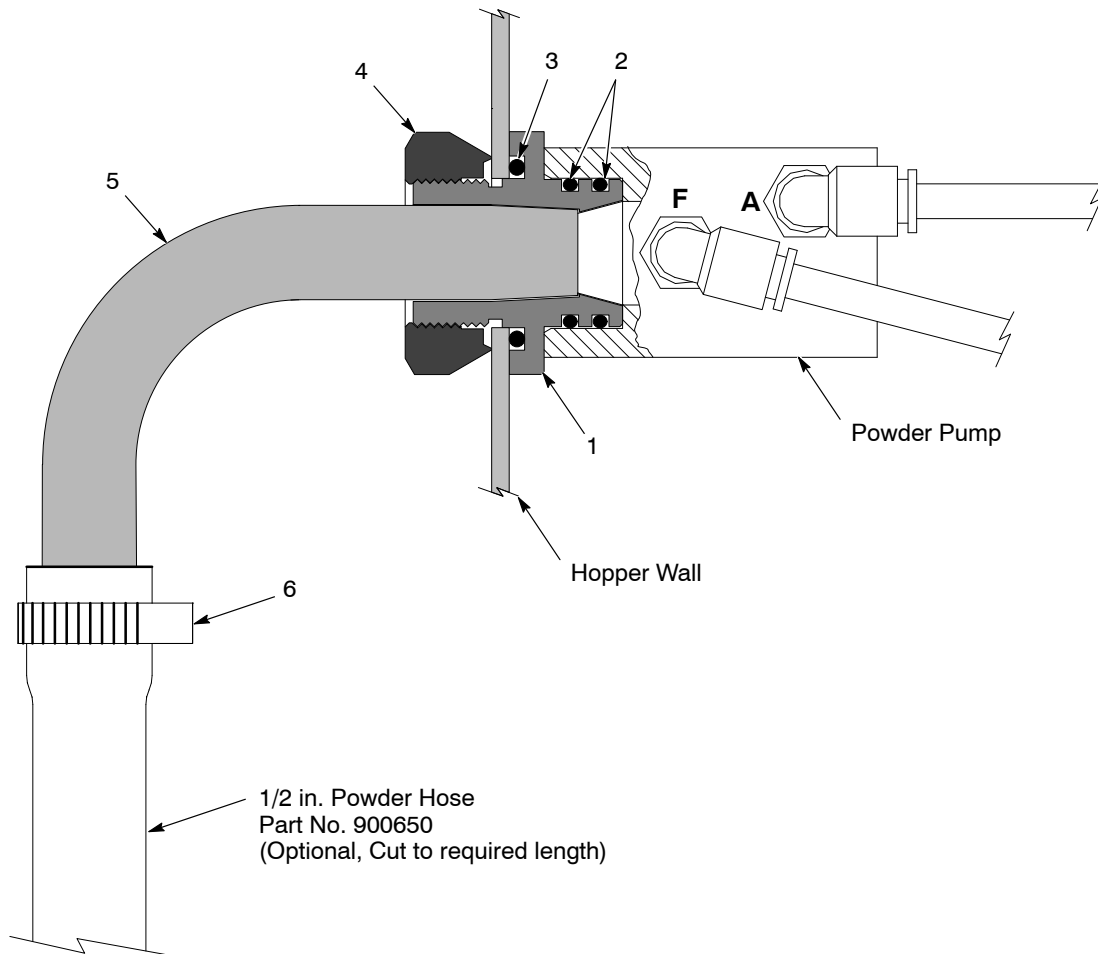
1400460A

Figure 3 Top Mount Pump Mounting Kit Installation and Parts

Side-Mount Pump Mounting Kit

See Figure 4.

Item	Part	Description	Quantity	Note
-	1051479	KIT, pump mount w/90-degree angled pickup tube	1	
1	114225	• MOUNT, pump	1	
2	941185	• O-RING, silicone, conductive, 0.875 x 1.062 in.	2	
3	942161	• O-RING, silicone, 1.125 x 1.375 x 0.125 in.	1	
4	142382	• NUT, ground, pump mount	1	
5	1051448	• TUBE, pickup, angled, 90 degrees	1	
6	939247	• CLAMP, hose, snap-it	1	



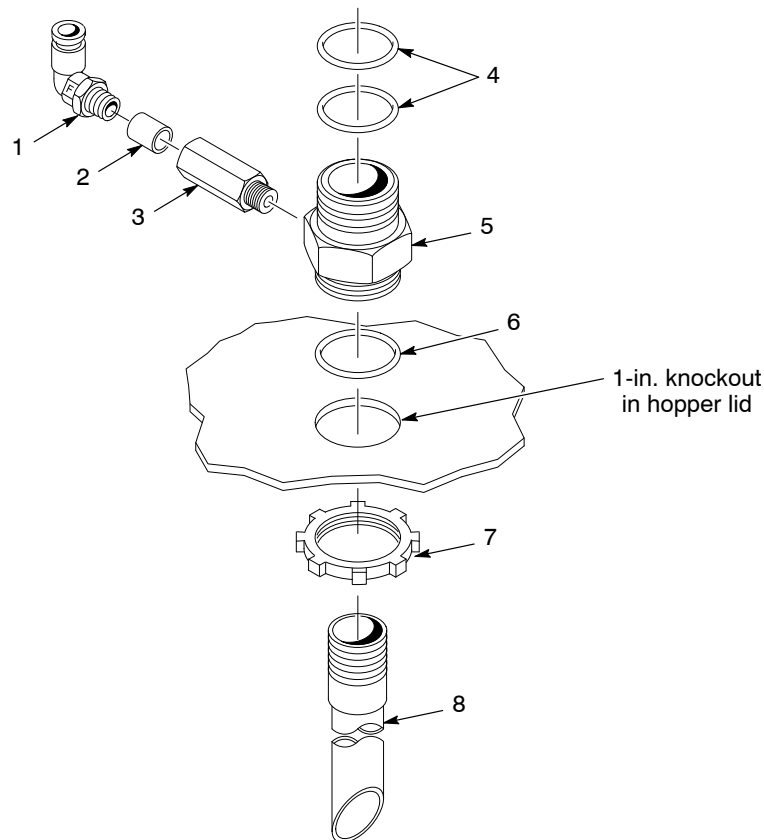
1401338A

Figure 4 Side Mount Pump Mounting Kit Installation and Parts

Optional Purge Adapter

This kit is used with 50-lb Nordson HRS-1 & HRS-2 feed hoppers. Air flowing into the purge adapter blocks the flow of powder from the feed hopper, allowing flow-rate and atomizing air to purge powder from the pump, feed hose, and powder spray gun.

Item	Part	Description	Quantity	Note
—	136624	PURGE ADAPTER, with pick-up tube	—	
1	971266	• ELBOW, male, 0.25 tube x 0.25-in. NPT	1	
2	118841	• VALVE, check, cartridge, 0.37 in.	1	
3	-----	• HOLDER, check valve	1	
4	941185	• O-RING, silicone, conductive, 0.875 x 1.062 in.	2	
5	136623	• MOUNT, pump, purge	1	
6	942161	• O-RING silicone, 1.125 x 1.375 x 0.125 in.	1	
7	939613	• LOCKNUT, conduit, $\frac{3}{4}$ in. NPS	1	
8	118740	• TUBE, pick-up, 0.250	1	



1400941B

Figure 5 Optional Purge Adapter

Air Tubing

Tubing is not included with pumps. It must be ordered in increments of one foot.

Part	Color	Material	Size, OD, in.	Usage
900509	Black	Polyethylene	$\frac{1}{4}$	flow-rate air
900534	Natural	Polyethylene	$\frac{1}{4}$	atomizing air
900730	Blue	Polyurethane	$\frac{1}{4}$	atomizing air

Powder Feed Tubing

Tubing is not included with pumps. It must be ordered in increments of one foot.

Use $\frac{1}{2}$ in. tubing for standard flow pumps and $\frac{3}{8}$ in. tubing for low-flow pumps.

Part	Description	Note
900649	$\frac{3}{8}$ in. ID, blue	A
900648	$\frac{7}{16}$ in. ID, blue	A
900650	$\frac{1}{2}$ in. ID, blue	A
900549	$\frac{3}{8}$ in. ID, black	B
900550	$\frac{1}{2}$ in. ID, black	B

NOTE A: Recommended for use with metallics and most organic powders.
B: For organic powders.

Issued 8/05

Original copyright date 1994. Nordson and the Nordson logo are registered trademarks of Nordson Corporation.

Tivar is a registered trademark of Poly-Hi Corporation.