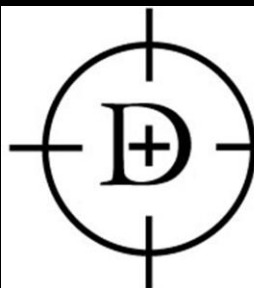


DOYLE CUP/SHROUD CLEANER

DRH12-135-6



CIRCLE
DYNAMICS INC.

Why do you want a Cap Cleaner?

As you know the single most important aspect to running an efficient paint line is cleanliness. This cleanliness extends to paint caps or cups as well. Dirty cups cause drips, spits and KV faults. This can cost millions in wasted time, paint, parts and man-hours.

All coating applicator manufacturers and painting experts agree that clean dry parts and equipment are fundamental to high first run capability. As paint leaves the applicator the shape air ring becomes contaminated with overspray. Paint defects are the result.

The solution to paint line defects caused by dirty cups and shape air rings, is a robotic cup cleaner that is:

- Effective
- Easily installed
- Low maintenance

The Doyle Robotic cup cleaner will eliminate all problems and paint defects caused by dirty cups and shape air rings. Trouble shooting paint line problems and defects requires identifying the cause of the problem. By eliminating all problems related to dirty cups, identifying the root cause becomes much easier, contributing to the success and morale of the paint line team.

How the Doyle Cap Cleaner works

During the cup cleaning, the applicator descends and retracts as follows:

- Shape air is turned on and remains on.
- Solvent is turned on and the applicator descends into the cleaner a specified distance, at 50mm/second.
- Solvent is turned off.
- Drying air is turned on.
- Applicator is retracted at 20mm/second until clear of the cleaner.
- Drying and shape air are turned off and the cup and shape air ring will be clean and dry.

Programming instructions give ideal starting positions and speeds. Changes to the programming may be necessary to suit each plants application and solvent consumption.

Installing the DRH12-135-6 Cap Cleaner

The DRH12-135-6 has a footprint of 9.5" x 9.5" (240mm x 240mm) and must be installed over grating or vented area, in an easily accessible location for the robot.

Install a 1/4" or other suitable non-regulated solvent supply at a recommended operating pressure of 80-90 psi.

Optimum solvent temperature for a water/amine/alcohol mix is 120-125 degrees F.

Toluene/MEK type solvent requires no heat.

Solvent supply valve should be mounted directly to the stainless flow restrictor on the lower plate of the cleaner.

The cap cleaner contains a check valve in the spray block and will not allow siphoning of the solvent.

Install a 3-way regulated (optional) air valve that has a minimum CV rating of 1.7 supplied with plant air pressure, directly on to the brass fitting on the lower plate of the cleaner.

Recommended air pressure 70- 90 psi.

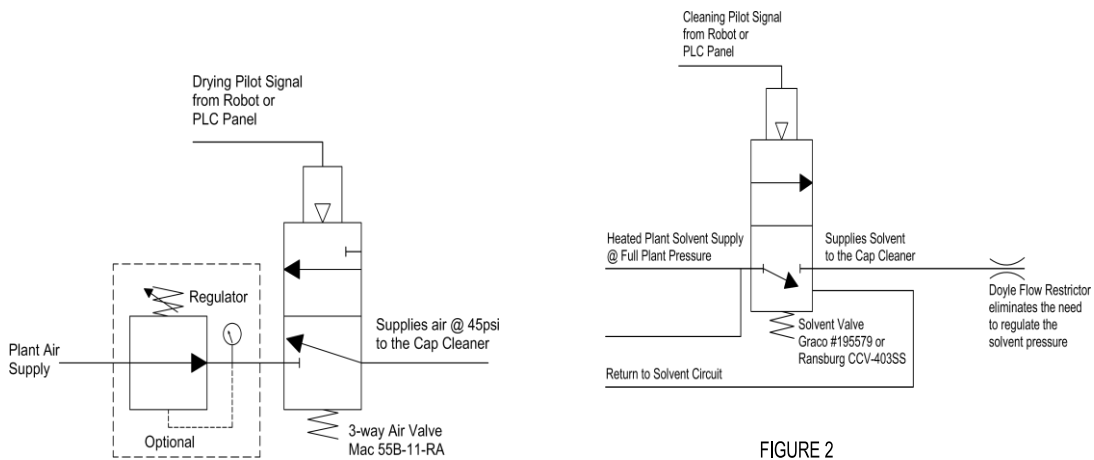


FIGURE 2

Flow Restrictor

The flow restrictor is supplied to eliminate the need for solvent regulation and has a built-in 40 micron stainless steel filter.

At 100 psi supply

- #50 restrictor will allow 40cc/sec.
- #55 restrictor will allow 30cc/sec.
- #60 restrictor will allow 20cc/sec.

Operating the Doyle DRH12-135-6 Cap Cleaner

Initiate the clean cycle.

Insert the applicator into the docking station. (Home position)

Turn the shape air on at 200 litres/min.

Turn the solvent on.

Lower the applicator @ 50mm/sec. to a depth of 90mm. This position may vary depending on your individual needs.

Turn the solvent off.

Turn drying air on.

Retract the applicator @ 20mm/sec. until Home

Turn drying air and shape air off.

Applicator may now leave the station.

Maintenance

Maintenance on the DRH12-135-6 requires replacing the balls, springs, o-rings, and nozzles in the spray heads once per year. Use kit #500-030W. See Figure 1

Disassemble head:

- Remove 2 screws (8)
- Remove retainer plate (7)
- Remove nozzle, o-ring, spring, check ball. (6,5,4,3)

Reassemble head:

- Replace nozzle, o-ring, spring, check ball.
- Reinstall original retainer plate (7) with original screws (8)

***DO NOT re-use teflon o-ring.**

***Remaining components do not require dis-assembly under normal circumstances.**

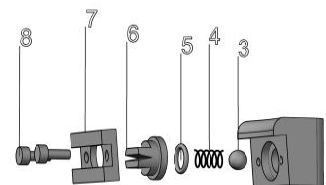
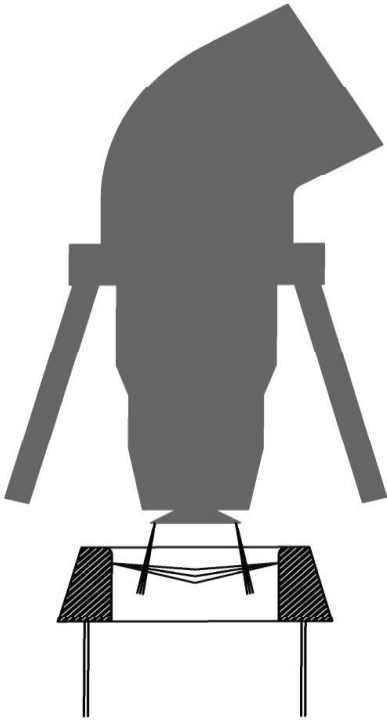
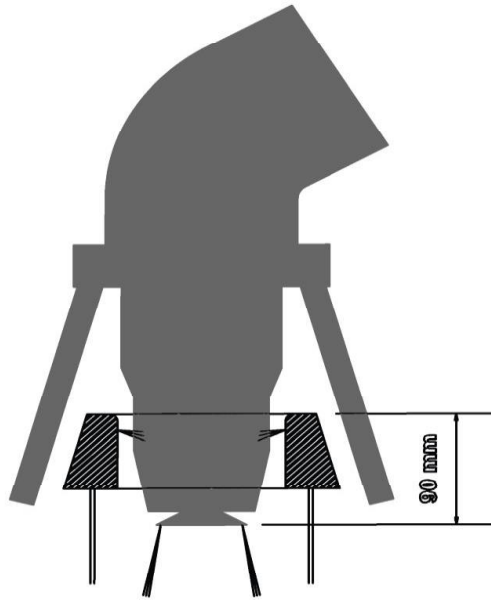


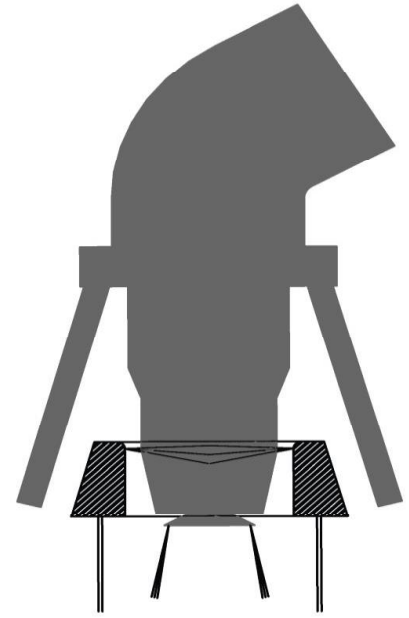
FIGURE 1



**APPLICATOR IN HOME POSITION
SHAPE AIR ON
SOLVENT ON**

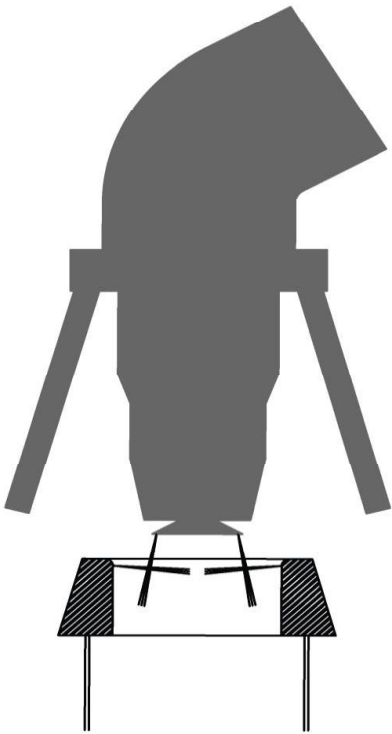


**LOWER APPLICATOR
TO DEPTH OF 90mm
TURN SOLVENT OFF**

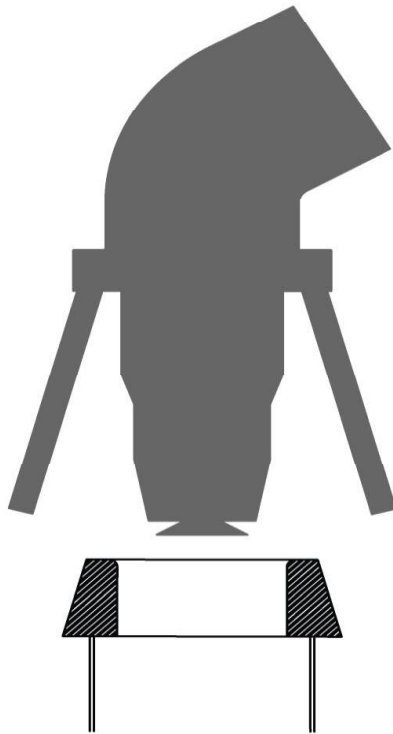


TURN DRYING AIR ON

CLEANING SEQUENCE



**RETRACT APPLICATOR
UNTIL HOME**

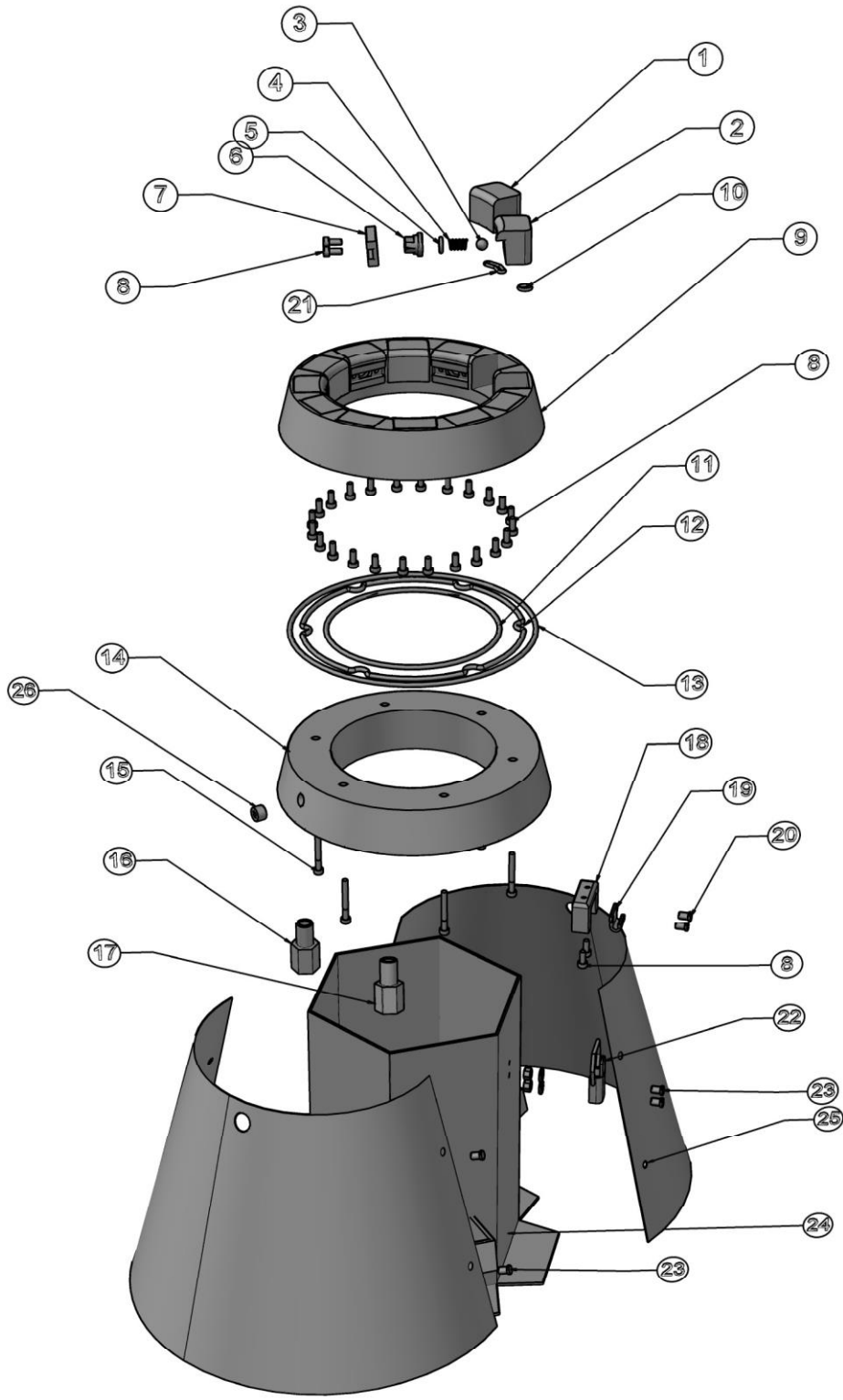


**TURN DRYING AIR
OFF**

PARTS LIST 1 of 2
MODEL DRH12-135-6

1	59150	AIR BLOCK
2	59126	SOLVENT BLOCK
3	500-002	CHECK BALL
4	500-003	SPRING
5	500-004	SOLVENT NOZZLE O-RING
6	500-005	SOLVENT NOZZLE
7	59104	RETAINER PLATE
8	500-007	8-32 3/8" S.S. SOCKET CAP SCREW
9	59123	TOP PLATE
10	60143	SOLVENT BLOCK O-RING
11	60145	INNER O-RING VITON
12	60146	MIDDLE O-RING VITON
13	60147	OUTER O-RING VITON
14	59124	BOTTOM PLATE
15	60148	1/4-20x1-1/2" S.S. SOCKET CAP SCREW
16	500-011	BRASS AIR SUPPLY
17	59004	S.S. # 50 SOLVENT FLOW RESTRICTOR (supplied) S.S. #55 SOLVENT FLOW RESTRICTOR S.S. # 60 SOLVENT FLOW RESTRICTOR
18	60150	LATCH COVER
19	500-009	STRIKE
20	60149	1/8" DIA. x 1/4" LG. S.S. RIVETS
21	60144	AIR BLOCK O-RING VITON
22	500-025	CATCH
23	500-028	6-32x1/2" S.S. BUTTON HEAD BOLTS c/w WASHERS & NUTS
24	60151	S.S. HEX STAND
25	60152	S.S. COVER
26	60155	S.S. PLUG
	60153	MAC AIR VALVE
	60154	GRACO COLOR VALVE

PARTS LIST 2 of 2
MODEL DRH12-135-6



One Year Limited Warranty

PRODUCT LIMITED WARRANTY:

Manufacturer Circle Dynamics Inc. warrants its products to be free from defects in workmanship and/or materials for one (1) year from date of shipment from factory. Manufacturer shall have no liability under the warranty or otherwise if:

1. The product is not inspected by the buyer within ten (10) days after delivery.
2. The product is used other than in accordance with current operating instructions.
3. The product is subject to any abuse or abnormal or unintended use.
4. A claim in writing under this warranty is not presented to the manufacturer at Peterborough, Ontario, Canada, address on or before ninety (90) days after the date of alleged defect was first known or could reasonably have been known, whichever is sooner.
5. The product is not returned unaltered to Manufacturer within such ninety (90) day period for inspection.

Any warranty extends only to the first user of the product.

DISCLAIMER:

The above Limited Warranty is EXCLUSIVE of any and all other warranties, liabilities, or obligations of manufacture. MANUFACTURER DISCLAIMS ANY OTHER WARRANTY AND MAKES NO REPRESENTATIONS OR WARRANTY OF ANY KIND EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR MATTER. Manufacturer neither authorizes nor assumes responsibility for any affirmation of fact, description or other representation with respect to its product.

LIMITATIONS OF LIABILITY:

Manufacturer's liability shall be limited to:

1. Product replacement.
2. Product repair or
3. A refund of the product purchase price F.O.B. point of manufacture, and as Manufacturer, at its opinion may elect.

The above remedies shall be Buyer's exclusive remedies for any and all loss or damage claimed by or through Buyer from any cause whatsoever including, without limitation, inability to supply product, errors or delays in shipment. Manufacturer shall not liable for any incidental, special, or consequential damages.

CE: When plastic hoses are used, the plastic hoses must be according to EN13463-1 (anti-static). There is no self-ignition source in the DRH12-135-6 Applicator Cleaner.

Attach bonded cable to all ground lugs.

Shut down all high voltage to applicator prior to entering the cleaner.

