Simple Solution To Internal Pipe Painting

ORBITER — An innovative and highly efficient solution to the difficult job of applying paint to the inside of pipe or tubing. Designed to produce a uniform layer of paint at remarkable speed and is easy to operate and maintain. Typical coating rates of 10 lineal feet per minute (3m/min) are obtained for most types of paint. In general, these tools can use any coating that can be sprayed by an airless pump.

In operation, a rotating head, powered by an air motor, throws paint by centrifugal force at an evenly metered flow against the surface. The ORBITER tool is manually pulled through pipe at a pre-determined speed based on paint film thickness and type of coating.

The two ORBITER models cover internal diameter sizes from 4” to 38” (90mm/950mm). ORBITER I handles 4” to 7” (90mm/180mm). ORBITER III is designed for 7” to 38” (180mm/950mm).

Control Gun Assembly consists of adjustment lever and pressure regulator for centering carriage, start and stop knob for air motor and paint spray gun adapter. Specially designed paint spray gun mounts on Control Gun Assembly. Centering carriages expand and collapse by use of an air cylinder. Adjustment of leg expansion is also possible during operation to compensate for bends or protrusions in pipe.
Uniquely designed air control hose is furnished for the ORBITER. It is actually three hoses in one serving several purposes. Inside the larger outer nylon hose are two smaller nylon hoses. One small hose supplies air direct to the air motor. The other small hose connects to the centering carriage air cylinder. Outer hose carries exhausted air from the carriage when it is collapsed. Exhausted air escapes through a sintered bronze filter on the Control Gun Assembly.

Tungsten Carbide spray tip is installed in the ORBITER paint hose connection. Standard size furnished with the tool is .026 on ORBITER I and .036 on ORBITER III. Other size tips ranging from .018 to .043 are available to accommodate various coatings. Coating manufacturer or supplier should be consulted on proper spray tip size.

Any standard airless paint spray pump may be used with the ORBITER tools. Size of airless pump depends on paint viscosity and hose length. As a minimum, however, the pump pressure ratio should be 30:1 with a capacity of 1.0 U.S. gallons per minute (4 litres/min). Best performance may be obtained utilizing 44:1 or 45:1 ratio pumps with capacity in the 2.5 U.S. gallon per minute range.

Two models have been developed for pipe or tubing ranging from 4” to 38” (90mm to 950mm) inner diameters. Both models are designed similar in function however, ORBITER I is miniature in size to the ORBITER III. Only the rotating head has been engineered differently because of the small area in which it operates.

ORBITER I and ORBITER III are furnished with scissor-type expansion legs operated by an air cylinder and regulated by the Control Gun Assembly. Air valve and pressure regulator, mounted on Control Gun, open and close air cylinder to extend or retract centering legs. Pressure regulator allows adjustment to the amount of air passing through to the air cylinders.

Pressure may be reduced to slightly collapse carriage when going around pipe bends or if a ridge is interfering with the carriage travel. By returning the pressure to its higher reading the carriage will expand to its full extension.

ORBITER I is assembled with an integral set of centering legs that allow this tool to function within diameters of 4” to 7” (90mm to 180mm). ORBITER III is delivered with a full set of centering legs to reach the maximum I.D. of 38” (950mm). At its lowest point, ORBITER III will work in 11” (260mm) diameter. To cover 7” to 11” (180mm to 260mm) diameters, simply unbolts the outer leg sections and attach wheels to inner leg sections.

Compressed air supply is connected to the back of the Control Gun Assembly. Air requirement is only 15 CFM (400 litres/min) on Model I and 22 CFM (600 litres/min) on Model III. Air pressure requirement on all units is 75 to 85 psig (5 to 6 bar).
ORBITER III incorporates a double disc feature that is designed to cover larger diameters. Paint flows into the rotating head cavity where it is metered onto the spinning discs that are traveling at 10,000 RPM. Centrifugal force propels paint to the surface in equal and uniform amounts. High speed and accurately measured quantities make pipe coating a simple, fast and cost effective job.

Control Gun Assembly is the very heart of the entire system. Assembly consists of start and stop knob for rotating head air motor, air valve and pressure regulator for operation of the centering legs air cylinder, attachment for airless paint spray gun, and connection points for air supply and air control hoses. Specially designed airless paint spray gun has been developed to work with the ORBITER tools. Spray gun, which is supplied with a customized paint hose fitting, is utilized as the on-off mechanism for paint flow to ORBITER tools. Spray gun constructed for a maximum of 4500 pounds of paint pressure (300 bar).

Highest rate of speed and most accurate coating will be performed by having one man operate the Control Gun Assembly while another man pulls the ORBITER tool through the pipe. Paint application is remarkably fast, therefore, responsibility of the ORBITER's travel will require one man's complete attention.

SPECIFICATIONS

ORBITER I:

Inside diameter range ........ 4" to 7" (90mm to 180mm)
Air consumption ........ 15 CFM (400 litres/min)
Operating speed (underload) 20,000 RPM (Air motor rated at 25,000 RPM)
Spray tip .................. .026

ORBITER III:

Inside diameter range ........ 7" to 38" (180mm to 950mm)
Air consumption ........ 22 CFM
Operating speed (underload) 10,000 RPM (Air motor rated at 15,000)
Spray tip .................. .036

Altogether the air control hose is used to pull the ORBITER through pipe and tubing. It is ruggedly constructed to withstand normal operation of the tool while offering excellent protection for the smaller air feed hoses. Available in 10 feet, 16 feet and 32 feet (3m, 5m and 10m) lengths which may be coupled in any number of sizes for the job. Precision couplings on both ends ensure positive seal against air leaks and intrusion of dust and dirt into the tool.

The working end of the ORBITER is the rotating head. Paint flowing through the spray tip and paint tube is metered into the rotating head. In ORBITER I, the slotted head, which is turning at 20,000 RPM by its air motor, slings the paint onto the surface. In smaller diameters, the slotted head design provides a large spray pattern with an even thickness of the coating.
B. Air Control Hoses:

For use up to 12 ft. (4m) long pipe. Includes 16 ft. (5m) Air Control Hose and 18 ft. (5.5m) Paint Hose.

ORBITER I
4" to 7" (90mm to 180mm) I.D. OBS 93327
ORBITER III
7" to 38" (180mm to 950mm) I.D. OBL 93328

C. High Pressure Paint Hoses:

Hoses may be coupled to obtain various overall lengths.
11 ft. (3.5m) ... OBT 93054
18 ft. (5.5m) ... OBT 93056
34 ft. (10.5m) ... OBT 93057

Spray Tips

.018 OBT 93250
.021 OBT 93251
.026 OBT 93078
.031 OBT 93252
.036 OBT 93253
.043 OBT 93254

ORDERING INFORMATION

ORBITER Systems:

Systems include: Paint Spray Tool with Centering Legs, Control Gun Assembly, Paint Spray Gun, Air Control Hose and High Pressure Paint Hose.

A. For use up to 6 ft. (2m) long pipe. Includes 10 ft. (3m) Air Control Hose and 11 ft. (3.5m) Paint Hose.

ORBITER I
4" to 7" (90mm to 180mm) I.D. OBS 90901
ORBITER III
7" to 38" (180mm to 950mm) I.D. OBL 90902

Blast Cleaning Tools to Prepare Pipe for Painting...

Spin-Blast with Small Carriage
Spin-Blast with Large Carriage
Hollo-Blast Junior

Clemco also offers three internal pipe cleaning tools to blast clean pipe prior to painting. All three tools are equipped with centering devices that permit uniform cleaning throughout the pipe interior. Operating range of the three is from 3/4" to 36" (19mm to 915mm) I.D. These tools allow pipe to be cleaned without rotation of the pipe. Hollo-Blast tools utilize deflection tips to direct abrasive to pipe walls. The Spin-Blast tool incorporates a rotating head with two nozzles to propel abrasive to the surface. These tools are used with standard Clemco Abrasive Blast Machines and are powered by compressed air. Clemco’s Spin-Blast/Hollo-Blast pipe cleaning equipment and Orbiter pipe painting units are the ideal combination to quickly and efficiently recondition pipe. For further information and specifications on internal pipe cleaning tools, write for Product Study 09335.

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