Hand-Held Scarifiers

Needleguns

Walk-Behind Scarifiers

Impact Tools

Sanders

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Industrial Vacuums

Eductor

A device to introduce a concentrated liquid into a water stream at a user selectable metered dilution rate

The fastest and easiest way to dilute and apply ***SUPER BLAST OFF*** cleaner in one easy step. Great for ***flight decks*** and other large areas.

Pictured without adapter ring used to connect to a fire hose.

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Contents

Operating and Maintenance Instructions

These instructions are provided to allow safe and efficient use of this product. All personnel expected to use these products should be trained in their use as described in this manual.

Technical Specifications

Inlet size:	1.5" NPSH*
Outlet size:	1.5" NPSH*
Flow rate:	60gpm (227 lpm)
Meter rate:	0, 0.5, 1, 3, 6 percent
Weight:	9.5 lbs.
Length:	11.75"

*NPSH: Acronym: National Pipe Straight Hose. The American Standard Straight Pipe for Hose Couplings.

Principles of Eductors

An eductor is a device that uses the Venturi principle to introduce Super BlastOff concentrate into the water stream. Water coming in the inlet of the eductor is directed through a tapered section and out through a small orifice (the Venturi) into a larger chamber thus creating a low pressure area within the chamber. A metering valve is attached to an inlet to this chamber and when open allows the higher atmospheric pressure outside the chamber to push the Super BlastOff concentrate into the chamber. The Super BlastOff concentrate then mixes with the water coming out the Venturi and the mixture travels out the reverse tapered section in the discharge end of the eductor.

Desco eductors are calibrated to operate at 200 psig inlet pressure. This is the pressure that will produce the rated flow (water + Super BlastOff) and the pressure at which the metering valves are calibrated to deliver the correct amount of Super BlastOff. The eductors can educt Super BlastOff concentrate at inlet pressures as low as 100 psig when used with a recommended constant flow nozzle but the Super BlastOff concentration will be richer. This is because at 100 psig the water flow rate is less but the Super BlastOff concentrate is still coming in at a rate calibrated for the higher water flow rate at 200 psig. (Once the low pressure is created the difference between it and atmospheric pressure stays fairly constant over a wide range of inlet pressures. Because of this we recommend operating your Desco eductor at 200 psig inlet pressure.)
Note: if you are using an automatic nozzle you must always operate your eductor at 200 psig inlet pressure because at lower pressures the nozzle may not flow enough to keep the eductor working.

Setting the Metering Valve

The Desco eductor has a push & turn removable metering valve with 0, ½%, 1%, 3%, & 6% setting selections. These positions will work for most concentrates. The 6% position is recommended for Super BlastOff. To set the metering valve push in on the knob as far as it will go and turn it until the pointer on the side of the knob points to the desired percentage on the valves label, (clockwise for lower setting & counter clockwise for higher) and release the knob. Make sure the knob pops back out. The higher the number the farther back out the knob should come. It's ok to give the knob a pull to make sure it has come back out all the way. There are 2 pointers on the knob and 2 sets of numbers on the label to make it easier to set regardless of the position of the valve. Figure 1 shows the valve set for the 0 (positive off) position.

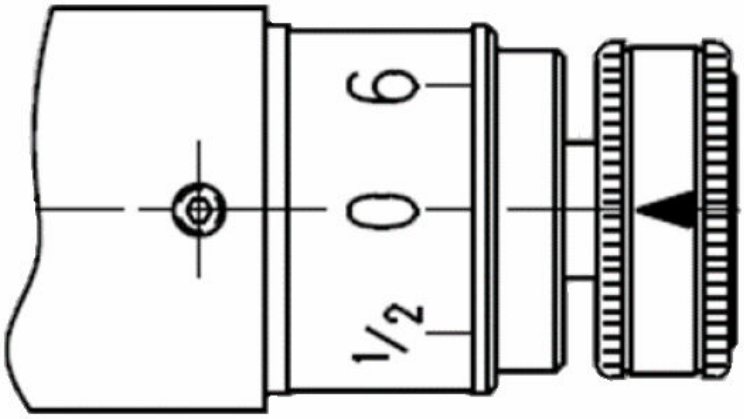

Figure 1

Setup and Operation

- Connect the educator inlet to the water source discharge. If needed the educator can be attached to hose from the water source discharge.
- Attach recommended size and length of hose to discharge of educator.
- Attach recommended nozzle to hose.
- Set Super BlastOff concentrate container(s) close enough so the eductors pickup wand can be inserted to the bottom of the container(s).
- Set the metering device to the desired percentage position.
- Open discharge valve and charge the hose line slowly.
- With the nozzle fully open raise the discharge pressure to provide 200 psig at the educator inlet. If you are using hose between water source discharge and educator inlet, adjust pressure to allow for hose loss so educator inlet pressure is 200 psig.

Maintenance

After every use flush the eductors metering valve with fresh clean water.

- When you are done educting Super BlastOff place the metering valve in the 6% position and replace the Super BlastOff concentrate with fresh clean water. Educt at least 10-15 gallons of fresh clean water to flush out all of the Super BlastOff concentrate from the metering valve.
- Visually inspect the educator, metering valve, pick-up hose, and pick-up wand for damage. Repair or replace as needed.

Troubleshooting

Anything that causes excessive back pressure on the downstream side of the eductor can cause the Super BlastOff pick-up rate of the eductor to slow or stop altogether. Below are some of the common problems.

MISMATCHED NOZZLE – The eductor will not perform correctly if the nozzle flow does not match the GPM rating of the eductor with a nozzle pressure of 100 psig or less. Selectable flow nozzles must be in a flow setting that allows the nozzle flow to match the rated GPM of the eductor at a nozzle pressure of 100 psig or less. Best results are when the nozzle flow matches the rated GPM of the eductor at a nozzle pressure from 75-100 psig.

NOZZLE SHUT-OFF IS NOT FULLY OPEN – A partially closed shut-off will cause excessive back pressure and cause the eductor to stop picking up Super BlastOff.

CLOGGED NOZZLE – If the nozzle waterway is partially clogged with debris it may not flow enough water causing excessive back pressure. Place the nozzle in its flush position to pass the debris or remove the nozzle and physically remove the debris.

NOZZLE ELEVATED TOO FAR ABOVE THE EDUCTOR – The maximum total downstream pressure that an eductor can work properly with is 130 psig. This is the nozzle pressure at the rated flow of the eductor added to the friction loss in the hose between eductor and nozzle. For every foot the nozzle is elevated above the eductor you must add ½ psig to this total. To reduce the total you may choose to use a nozzle that flows the rated flow of the eductor at a lesser pressure like 75 psig or if you are using a selectable flow nozzle place it in the next higher flow position. Either of these can reduce the total downstream pressure but will result in less stream reach due to reduced nozzle pressure. Testing should be done to determine if the reduced stream reach will meet your needs.

KINK IN THE HOSE LAY BETWEEN EDUCTOR AND NOZZLE – A kink can cause excessive back pressure and cause the eductor Super BlastOff pick-up rate to slow or stop.

HOSE LAY BETWEEN EDUCTOR AND NOZZLE TO SMALL, TO LONG, OR DAMAGED – Using too small or too long of a hose lay can cause excessive back pressure, consult the Eductor/Nozzle performance chart (FIGURE 7) for

recommended size and length of hose lay. Sometimes damaged lining in a fire hose can cause excessive back pressure, replace if needed.

METERING VALVE CLOSED OR IN THE WRONG POSITION – Check that the metering valve is in the correct position and if it's a push & turn style pull on the knob to be sure that it has come back out all the way.

CLOGGED METERING VALVE, PICK-UP HOSE ASSEMBLY, OR STUCK CHECK BALL – If the metering valve is not flushed properly after every use (see maintenance section) Super BlastOff concentrate may have dried inside the valve preventing it from working correctly. Remove the metering device from the eductor and remove the pick-up hose/wand assembly. Submerge the valve in hot water (not hot enough to scald) for an hour or so then put the valve in the 6% position. Check that the check valve ball is loose by shaking the valve, if it's loose you should hear it rattle. If it's not loose insert a blunt tool such as the eraser end of a pencil into the pick-up hose nipple to dislodge the ball. Flush warm water through the valve from the hose nipple through to the eductor connection. Repeat soak & flush until valve is cleaned out. You may have to soak & flush the pick-up hose/wand assembly also if it has dried Super BlastOff in it.