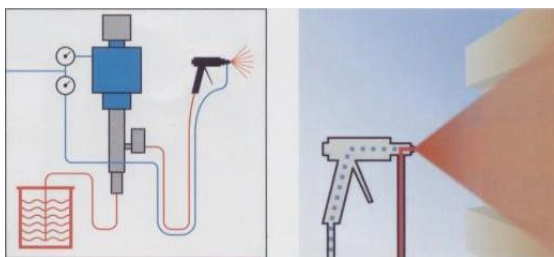


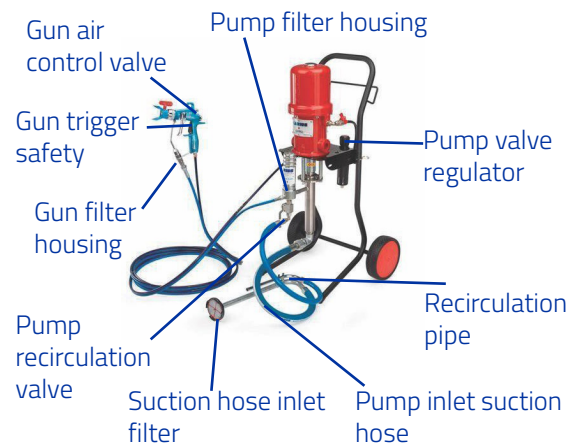
OPERATING PRINCIPLES AAA SPRAY EQUIPMENT

PROCESS DESCRIPTION

This method of spraying has various generic names dependant on the equipment manufacturer. Air Assisted Airless, Aircoat and Air Combi are just a few of the descriptions used. For all types, the basic operating principles are the same.

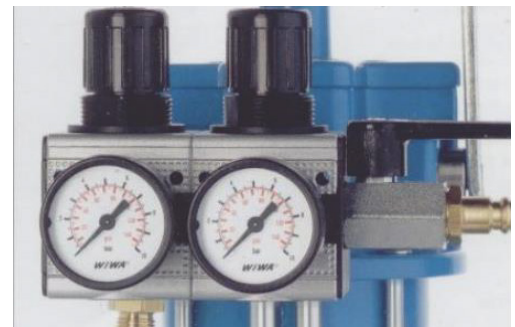


- The material is atomised by the pressure of the material being forced through the spray tip creating an atomised spray fan
- An air jacket is then formed around the spray fan by low pressure air fed to the spray fan by the Air Cap
- The use of the air jacket minimises overspray



HOW IT WORKS

- Paint is fed to the spray gun through a pneumatic pump at pressures ranging from 60-100 bar (900-1500 psi)
- When the gun trigger is operated, the low pressure air valve is opened, followed by the material valve



Pump pressure and gun soft air regulator valves

GETTING STARTED

- Make sure the compressed air system is operating and the air delivery valve to the pump is open.
- Check the gun trigger safety is set to on and ensure the pump inlet suction hose is in a container with sufficient clean water to cover the bottom 100 mm of the suction hose wet end.
- With all in line filters in place, the pump & soft air regulators set to zero and all system pressures (pump & gun) released and de-pressurised.
- Set the pump regulator to a minimum pressure needed to operate the pump - approx. 1.5 bar (approx. 20 to 25 psi).
- Where fitted on the pump, gradually open the pump recirculation valve so the water in the pump is recirculated back into the water container via the dumper valve / recirculation hose for several minutes, particularly when following the "Low Climatic Temperature", recommendations. Close the recirculation valve.
- Take the gun and set the trigger safety to off. Aiming the spray gun into a waste container, slowly pull the trigger to full, allowing water to pump through the system back to the water container for between 15 to 20 seconds – longer in line with the "Low Climatic Temperatures", recommendations. (The gun should not be fitted with a spray tip or have atomising air on at this point).
- Turn the pump regulator air gauge back to zero and safely release the pressure from the system by aiming the gun into the water container and fully pulling the trigger.
- Set the soft air regulator to 1 bar. Pointing the gun safely away, pull the gun trigger gently to the first restriction so there is air feed only. This will help clear the airways on the system line and gun. Checking full function of the gun air control valve should be part of this process.
- Release the soft air regulator to zero and release the soft air gun pressure by pulling the trigger to the first restriction
- Set the trigger safety to on. Take a soft cloth or tissue and make sure all areas of the guns wet end and airways are clean and dry. If not, repeat this process procedure.
- The system is now performance checked and ready for "Priming the system with paint"
- If the system is not going to be primed with paint, hang the gun with the trigger safety set to on, and so any retained moisture in the gun or lines can drain away from the gun air valve and towards and out of the wet end of the gun.

PRIMING THE SYSTEM WITH PAINT

- With all in line filters in place, the pump & soft air regulators are set to zero and all system pressures (pump & gun) released and de-pressurised.
- Check the gun trigger safety is set to on
- Lift from the water, and drain the pump inlet suction hose back into the water container. Then place the suction hose into the pre stirred paint container, ensuring the liquid level is above the inlet suction hose filter
- Set the pump regulator to 1.5 bar (approx. 20 - 25 psi)
- Set the gun trigger safety to off. Aiming the gun at the waste water container, pull the trigger to full and purge the paint through via the spray gun. Once pure paint is circulating, re direct the gun to the paint container and continue pure paint purging for another 10 to 15 seconds. This process may require the pump regulator pressure to be gradually increased.
- At all times during the paint purging process, take care not to contaminate the paint, if unsure purge or wash out only to waste.
- Where fitted on the pump, make sure the recirculation hose is pointed into the waste container and gradually open the pump recirculation valve so any remaining waste water mix is purged into a waste water container and until pure paint is being delivered through the recirculation hose, then close the recirculation valve. N.B. The paint pushes the water through the pump system and into the waste container. Attention to the change from water to paint should be closely monitored.
- Re position the recirculation hose into the paint container and re circulate paint by opening the recirculation valve. Once the paint is sufficiently circulated, mixed and stirred, turn off the recirculation valve. If there is no circulation valve, the priming of the pump will already have been attended to in bullet point 5.
- Release the pump regulator gauge to zero and aiming the gun into the paint container, pull the trigger to full to release the inline pressure.
- Set the soft air regulator to 1 bar. Pointing the gun safely away, pull the gun trigger gently to the first restriction so there is air feed only. This will help clear the airways on the system line and gun. This process may require the soft air regulator pressure to be gradually increased. Checking full function of the gun air control valve should be part of this process.

- Release the soft air regulator to zero and safely aiming the gun away, pull the trigger to the first restriction to release any inline air pressure
- Set the trigger safety to on. Take a soft cloth or tissue and make sure all areas of the guns wet end and airways are clean and dry. If not, repeat this process procedure.
- Fit the tip and air cap assembly to the gun, making sure the tip is correctly aligned for spraying and the air cap assembly is screw tightened down to achieve correct application seal to the wet end of the gun.
- The system is now ready for setting to application pressures for the paint type being used and then subsequent QC function checks on the tip spray fan pattern & atomising quality

CHANGING COLOURS

Care has to be taken when changing colour to avoid cross colour contamination and if frequent colour changes are inevitable, it is advisable to have a second dedicated pump to facilitate. This could incorporate a 5 litre hopper. Further advice on this is available.

1. With all in line filters in place, the pump & soft air regulators are set to zero and all system pressures (pump & gun) released and de-pressurised.
2. Check the gun trigger safety is set to on.
3. Remove the spray tip and cap assembly from the gun, dropping them into a container of water.
4. Remove the pump suction hose from the previously used paint container, brushing the excess paint on the suction hose and filter, back into the paint container.
5. Place the pump suction hose into a container of water, ensuring the liquid level is above the inlet suction hose filter. Using a brush, wash off the paint residue from the suction hose and filter.
6. Set the pump regulator to 1.5 bar (approx. 20 to 25 psi). The regulator pressure may need to be increased / decreased to control flow rate.
7. Set the gun trigger safety to off. Aiming the gun at the open matching paint container, pull the trigger to full and empty unused paint back into the paint container via the spray gun. At all times during the paint purging out process, take care not to contaminate the paint, if unsure purge or wash out to waste.
8. Replace and secure the paint container lid and re-store product.
9. Make sure the position of the recirculation valve hose is into the waste water container and continue the flushing process by reopening the pump recirculation valve.
10. N.B. The water pushes the pure paint through the pump

system and into the paint/waste container. Attention to the change from paint to waste water should be closely monitored. If there is no pump recirculation valve, purge and clean through using the gun.

11. Allow the pump to continue to recirculate / flush through to a waste container for a minimum of 5 minutes. If the water source is different to the waste material, make sure that the pump does not run dry. An introduction of clean water can be made at any stage of the process.

12. All the pump & soft air regulators are set to zero and all system pressures (pump & gun) released and de-pressurised. Set the gun trigger safety to on.

13. If the colour change-over is a very close match, further cleaning may not be required, however, best practice would be to clean all inline filters before a final water flush through is done. This is due to the filters holding paint residue that is more effectively dealt with by a breakdown of the system and individual thorough washing of each filter. This generally reduces the volume of water waste generated by the cleaning process. Another improvement option to help colour change-over would be to fit a 5 litre hopper to the infeed pipe on the pump.

14. Once all filters have been cleaned and the system is reassembled, re prime the pump system with clean water and circulate through the pump & gun for several minutes to further clean the inner parts of the equipment.

15. Set the soft air regulator to 1 bar. Set the gun trigger safety to off and pointing the gun safely away, pull the gun trigger gently to the first restriction so there is air feed only. This will help clear the airways on the air line and gun. Checking full function of the gun air control valve should be part of this process.

16. Release the soft air regulator to zero and safely aiming the gun away, pull the trigger to the first restriction to release any inline air pressure

17. Set the gun trigger safety to on. Take a soft cloth or tissue and make sure all areas of the guns wet end and airways are clean and dry. If not, repeat this process point.

18. Follow the "Priming the system with paint" instruction.

19. If the system is not going to be primed with paint, leave the pump system wet and hang the gun with the trigger safety set to on, and so any retained moisture in the gun or lines can drain away from the gun air valve and towards and out of the wet end of the gun.

SHUTTING DOWN THE PUMP AT THE END OF PRODUCTION

Follow points 1 to 12 of the "Changing Colour" procedure and then continue with points A to H.

A. Break down and clean all inline filters before a final water flush through is done. This is due to the filters holding paint residue that is best dealt with by a breakdown of the system and individual thorough washing of each filter. This can also reduce the volume of water waste generated by the cleaning process.

B. Once all filter have been cleaned and the system is reassembled, re prime the pump system with clean water and recirculate through the pump & gun for a few minutes to further clean the inner parts of the equipment.

C. With the trigger safety on, refit the tip and air cap assembly and then spray water through the tip into a waste container to clean out any residual paint. The regulator valve may need to be increased to deliver adequate flow rate pressure

D. Release pump regulator valve to zero, and pull the trigger to full to release all pressures to waste. Remove tip and air cap assembly and drop them in water during the period of none use.

E. Set the soft air regulator to 1 bar. Pointing the gun safely away, pull the gun trigger gently to the first restriction so there is air feed only. This will help clear the airways on the system line and gun. Checking full function of the gun air control valve should be part of this process.

F. Set the trigger safety to on. Take a soft cloth or tissue and make sure all areas of the guns wet end and airways are clean and dry. If not, repeat this process procedure

G. Leave the pump system wet and hang the gun with the trigger safety set to on, and so any retained moisture in the gun or lines can drain away from the gun air valve and towards and out of the wet end of the gun.

H. Make sure the compressed air supply valve to the pump is set to off.

The pump is now safe, clean and in rest status - ready for the next production session.

Next coating application sessions - Follow the "Getting Started" & "Priming the system with paint" instruction.

HELPFUL ADDITIONAL TIPS

- The tip and air cap assembly should be left resting in water during the period of none use
- Make sure the equipment is always left clean, depressurised and with water in the system
- Make sure the correct spray tips and inline filters are

installed to suit the coatings being used

- During the application process, it is best practice to fit a loose cover lid to the paint container (20 litre can). This has cut-outs for the pump inlet suction hose and recirculation pipe and helps prevent contamination from airborne particles and evaporation that can have a detrimental impact on the paint.
- When cleaning the filter, make sure that a light source can be seen passing through the filter to demonstrate the mesh is free from blockages and debris
- General wear and tear can have a performance impact on the pump delivery pressures and may subsequently reduce the material supply pressures as against the recommended pressure regulator settings. Fitting an inline fluid pressure gauge to the paint line outlet offers a secondary monitoring point.
- Never leave the gun fully immersed in water

LOW CLIMATIC TEMPERATURES

If the equipment and /or ambient room temperatures are <10°C, it may be beneficial to circulate hot/warm water through the pump and gun to help maintain residual paint temperature when introduced. Do this under the "Getting Started" set up instead of using standard mains water. Judging the effect and benefit can be measured by using an infrared temperature gauge laser gun. This can also be used to monitor paint temperature.



Always refer to the Technical Datasheet for full instructions on how to use Teknos products.

For further support, contact your local Teknos coating expert or visit teknos.com