

Kwazar® Orion Upright Sprayer

From **enviROscience**

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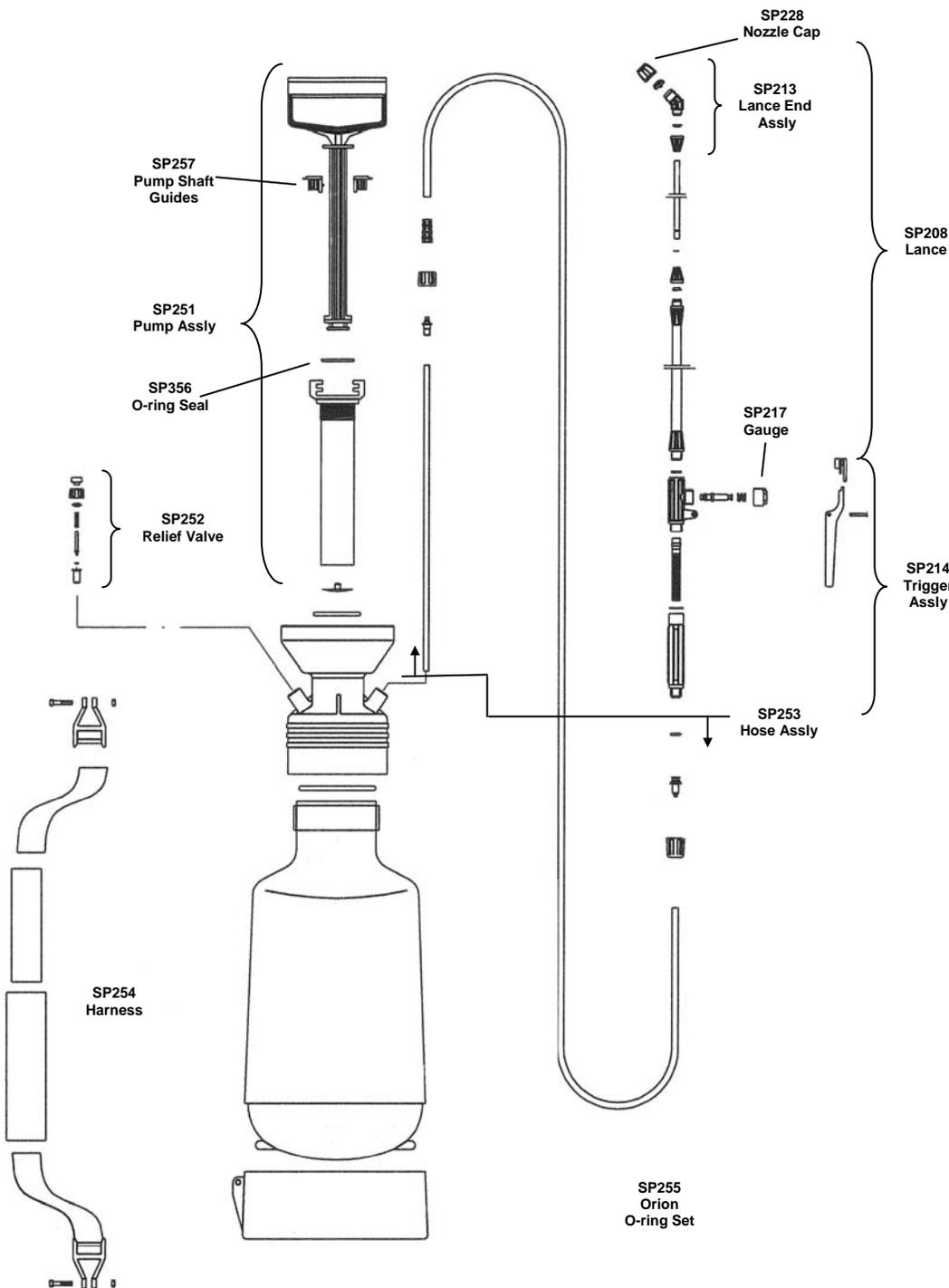
Kwazar® Orion Upright Compression Sprayer 6 or 12 litre

The ideal sprayer for a professional job

The Orion sprayers are reliable professional compression sprayers with a tank capacity of 6 litre (SP060) or 12 litre (SP120).

These durable, multi-purpose sprayers are perfect for plant protection and tending. They are ideal for orchards horticulture, including greenhouse cultivation, decorative plant nurseries, forest plantations, other nurseries and agricultural applications. They are mainly earmarked for the application of liquid agents, including foliage fertilisers and soluble substances providing plant protection from disease, weeds or pests.

- 6 or 12 litre capacity tank that is 100% leak-proof with no openings below the level of the liquid
- All components are manufactured from highly durable and chemical resistant materials
- Ease of pumping and handling with ergonomic handle
- Volume scale on tank enable precise measurement of liquid
- Stable base for additional safety and storage.
- Easily viewed pressure gauge for optimum performance and minimum pumping
- Has a wide funnel shaped mouth for safe and easy filling
- Has a double filtration system to help prevent blockages and prevent down time
- Viton O-rings for optimum life
- Pressure relief valve for the automatic release of excess pressure and convenient depressurization
- Comes complete with a 1.2m long telescopic lance, conveniently clipped in the handle for transport and storage
- Variety of spray tips to suit specific applications and promote efficient use of chemicals
- Comes complete with spare lance seals
- Ease of service for replaceable parts. Tool - Free
- Screw on compression connections without clamps
- Ergonomic and convenient to use
- Adjustable carrying strap with shoulder pad for operator safety and comfort
- Stores conveniently and safely away for handling, transport and storage



THE IMPORTANCE OF SPRAY NOZZLES

The Spray nozzle governs the flow rate, spray pattern and droplet size. Choosing and using the correct spray nozzle and operating at the correct pressure is an essential factor in any treatment to try and ensure the correct application rate and optimise the chemical usage; promoting efficiency and reducing cost.

As a general rule, herbicides should be applied at a low pressure (1Bar) using a nozzle that gives large droplets. Remember low pressure = Less drift

When fine coverage is required use a nozzle giving small/medium droplets and apply at a higher pressure (3 Bar) such as some insecticides, fungicides and disinfectants.

Selecting the required pressure on top of your Bastion sprayer and using your pressure gauge will help you maintain the correct pressure.

It is strongly recommended that you experiment in nozzle selection, using clean water, before you commence application of any chemicals.



SRAYER NOZZLE TIPS

The following tips come supplied with your Bastion/Orion sprayer:

DS Code	Colour	Type	BCPC Code	Spray Width 0.5m height	Flow Rate ltr/min	Droplet Size	Uses
SP222	Blue	Flat Fan	110SF03	N/A	1.2 @ 3Bar	Medium	Disinfectant, Timber Treatments
SP223	Yellow	Hollow Cone	HC02	N/A	0.6 @ 3 Bar	Fine/Mist	Insecticide, Fungicide
SP226	Green/Brown*	Polijet	DEF05	1m	1.18 @ 1 Bar	Coarse	Weedkillers esp.in rows
SP362	White	Adjustable	N/A	N/A	N/A	N/A	

These nozzle tips are also available from your stockist:

SP227	Yellow/Lilac*	Polijet	DEF025	0.5m	0.58 @ 1 Bar	Coarse	Weedkillers esp.in rows
SP225	Blue/White*	Polijet	DEF08	1.5m	1.85 @ 1 Bar	Coarse	Weedkillers esp.in rows
SP224	Red/Brown*	Polijet	DEF105	2.0m	2.43 @ 1 Bar	Coarse	Weedkillers esp.in rows

The exact same polijet nozzle may be of either colour

Polijet nozzle tips are also known as Deflector, Floodjet or Anvil

CAUTION!

Any information contained within these instructions is intended as a guide only, to what is a complicated subject and does not constitute a contractual offer. More detailed technical information is available on request.

All of our sprayers have been designed to withstand most of the chemicals with which they might be used in compliance with the manufacturers recommendations. If in doubt over compatibility please contact us for advice. Always read the chemical label and use the appropriate personal protective equipment. We reserve the right to alter specifications without prior notice.

GENERAL SAFETY RULES

HEALTH AND SAFETY REGULATIONS AND PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS FOR WORKING WITH CHEMICALS MUST BE ADHERED TO.

1. Read the user instructions prior to filling, operating, cleaning or maintaining the sprayer.
2. The user must wear the appropriate Personal Protective Equipment (PPE) as advised by the chemical manufacturer when preparing, using, cleaning and maintaining the sprayer.
3. Ensure the sprayer is properly prepared and calibrated for use with the correct nozzle and pressure.
4. It is not advisable that pregnant women and children are allowed to work with the sprayer.
5. Avoid eating, drinking and smoking while working with chemical substances.
6. Chemical substances used for spraying must be prepared and applied in accordance with manufacturers instructions and regulations.
7. Working solution should be prepared in a separate container clearly labelled for this purpose and fill the sprayer via the filter provided.
8. Do not mix more chemical than can be used during the work period.
9. Pay attention that the working solution does not penetrate into water sources: rivers, lakes, ponds, etc (also when disposing of the residues).
10. Use of explosive, corrosive, caustic and flammable substances is forbidden.
11. Do not fill the sprayer with hot liquids.
12. Work using of chemicals in cultivations under covers and in enclosed spaces should not be done alone.
13. The sprayer should be depressurized when work is completed, prior to cleaning, transportation and storage. It is not permitted to leave chemical agents and spray residues in the sprayer when work is completed.
14. When work with chemical substances is completed, one should wash oneself thoroughly.
15. After each use the residues of the working solution in the tank should be diluted with water and sprayed out on the previously sprayed area. The sprayer should be washed using clean water and water disposed of in accordance with local guidelines.
16. Any worn or damaged parts should be replaced with genuine parts.
17. The sprayer filters including the handle filter should also be cleaned of any particles.
18. The sprayer, its accessories and chemical substances should be stored in a bunded place, out of direct sunlight that is inaccessible to children or persons not qualified to use it.
19. Worn out sprayer should be washed before dismantling and handing over to a chemical waste recycling facility.
20. When lending the sprayer, always provide the user's manual.
21. Safely dispose of all unwanted packaging. It is not for children to play with.

RESIDUAL RISK

Although KWAZAR takes responsibility for the sprayer's design and construction which aim at elimination of any hazard, some elements of risk during sprayer operation are unavoidable. The residual risk results from incorrect actions of the user.

The greatest danger occurs when the following forbidden activities are performed:

- Safety rules described in the user's manual are not observed;
- Sprayer is used for purposes other than those described in the user's manual;
- The sprayer is subject to wilful (unauthorized) modifications.

For the purpose of residual risk description the sprayer is deemed to be a device, which was designed and manufactured in accordance with the state-of-the-art technology in the year of its manufacture.

APPLICATION

ORION sprayers are used for protective and nurturing activities in vegetable gardening, fruit farming, floriculture and forestry. They are used for spraying with pesticides, herbicides, liquid chemical fertilizers and clean water.

STANDARD EQUIPMENT

Tank with pump and safety valve; 1.2 m lance; suction tube; hose-and-handle kit; carrying strap kit (including bolts and nuts); set of spare parts; conical filling strainer; user's manual.

WARNING SIGNS

Warning signs placed on the sprayer must be legible and clean. If a sign is damaged, it should be replaced (by the user).

STORAGE AND MAINTENANCE

When the work is finished; the sprayer along with its lance and hose should be the roughly rinsed with clean water.

The filler located in the lance handle (see the drawing below) and the spraying tip should be cleaned periodically. O-ring in the pump and in the safety valve should be lubricated periodically.

The sprayer should be stored at a temperature not lower than 0°C (ranging from 0°C up to +40°C), out of direct sunlight and away from heat sources, **UNPRESSURIZED**.

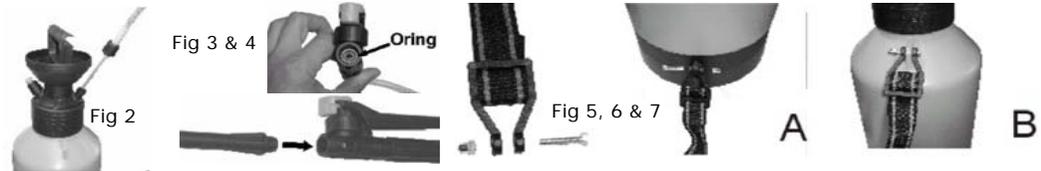
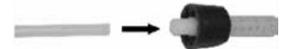


PREPARING THE ORION SPRAYER FOR OPERATION

Remove the sprayer elements from the packaging.

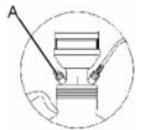
- 1 Put the suction pipe into the hose connector (until you feel a resistance).
- 2 Assemble the hose kit as shown on the drawing. Tighten up until you get a leak proof connection. Fig 2
- 3 Check that the O-ring is present in the trigger handle. If present, screw in the lance. If not, look for the O-ring inside the box, put in place and screw in the lance. Fig 3 & 4
- 4 Fasten the belt in the fixing points (A) and (B) by passing the bolt through the openings in the clamps and eyes in the base of the tank (as shown on the drawing). Screw the acorn nut on. The belt should be fastened in such a way that its ends are located on the inner Side. Fig 5, 6 & 7.

Fig 1

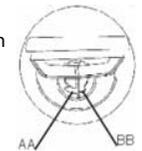


ORION SPRAYER OPERATING INSTRUCTIONS

Prior to using the sprayer it is necessary to check the correct operation of the safety valve by pumping in some air by means of the pump (several strokes) and - subsequently - by gently pulling the head of the safety valve (detail A). You should feel that pressure inside the tank is released and the safety valve should move freely without sticking or jamming.



1. Pump Operation: In order to start pumping it is necessary at first to turn the handle by a quarter revolution to unlock it from the clamps of the pump body. Subsequently pumping can be started by moving the piston upwards and downwards. The piston handle when locked in the pump body clamps can be used as a handle for carrying the sprayer. In order to lock the piston in the pump body clamps, one should push the handle in and turn clockwise until a 'click' is felt (see the drawing: pump body clamps-AA, piston- BB).
2. Prior to filling the tank the user should adjust the length of the shoulder strap by putting the sprayer on his/her shoulder. The length of the strap should be adjusted to make carrying the sprayer on the user's shoulder comfortable and convenient.
3. Before removing the pump for filling it is necessary to depressurize the tank by lifting the head of the safety valve. The pump should be removed with the handle fully down and unscrewing it anticlockwise. In order to fill the tank remove the pump and pour the working solution into tank using the conical filling filter provided which locates where the pump has been removed. When the tank is filled to the desired level, the filter should be removed and the pump replaced with the handle in the fully down position turning in a clockwise direction using such final force as to ensure a leak proof connection.
4. The sprayer should be carried to the workplace depressurized. When the sprayer is in the workplace, air should be pumped into the tank (see the section relating to pump operation).
5. The pressurized sprayer should be put on the shoulder with its spraying nozzle directed to the working area. In this position the user should depress the lance trigger and spraying should commence. When the tank pressure drops, it should be increased by placing the sprayer on level ground and pumping it again.
6. Depending on sprayer application, standardized spraying nozzles of different output can be used (it results in either a faster or a slower pressure drop).



The lance can be lengthened. Ease the nut (A), pull out the inner tube, tighten up the nut (A).



NOTES:

The tank must always be depressurized before the pump is removed!!!

It is forbidden to block the safety valve!!!

It is forbidden to use other compressors for pumping air into the sprayer!!!

It is recommended to renew the sprayer after 5 years from the date of its purchase. (Material fatigue)

Trouble-shooting

Sprayer pressurises but nothing comes out from the nozzle.

Check that the nozzle is not blocked (see figure 12)

Check that the inline trigger filter inside the trigger assembly (shown in figures 13—17) is clean

Check that the white plastic safety valve at the bottom of the trigger barrel is not stuck.

Check that the pick-up tube at the end of the hose inside the sprayer tank has not become detached (see figures 19 & 20)

Sprayer will not pressurise

Check that the piston rod O ring (SP356) is attached (see figure 7)

Check that the relief valve SP236 is clear, clean and not sticking (see figure 1)

REMEMBER: - AFTER EACH USE HALF FILL TANK AND PUMP THROUGH WITH CLEAN WATER. IF NECESSARY PURCHASE A TANK CLEANER FROM YOUR SUPPLIER AND CLEAN THOROUGHLY.



Wear the appropriate Personal Protective Equipment when handling your pump for service. The photos shown for service demonstration purposes were taken while servicing a new unused pump.

Removing the pump and replacing the piston O ring and non return valve

1. Before removing the pump for service make sure it is empty of all liquid and depressurized by gently lifting the orange knob on the pressure relief valve
2. To remove the pump, push the pump handle down turn anticlockwise until it locks into the carrying position and then continue to turn anticlockwise until the pump unscrews
3. Remove the pump by lifting it out from the sprayer body, take care of any residues on or in the pump body which should be immediately rinsed off with clean water.
4. To remove the pump shaft from the pump body take hold of the pump body and turn the pump handle clockwise a quarter turn to the pumping position.
5. Pull the pump handle and shaft out of the body to its full extent and keep it in this full withdrawn position
6. Now carefully turn the handle anticlockwise until you feel the inner stop locate against the shaft clamps then apply a little more force anticlockwise and the shaft clamps will unlock.
7. Be careful once the shaft clamps are unlocked as they are in two halves.
8. Withdraw the shaft further complete with the shaft clamps and it will reveal the piston O ring located in its groove at the end of the piston shaft.
9. The O ring is designed to be a loose fit and will easily roll out of the groove. The non return valve (also green) is on the bottom of the pump body and can be carefully pulled out from the central locating hole.
10. When fitting the new O ring cover with silicone grease before placing it back in the piston groove. The non return valve central locating plug simply pushes into the central locating hole at the base of the pump base.
11. When reassembling the pump, carefully insert the shaft back into the pump body and insert the shaft clamps. While holding the shaft clamps in the pump, lift the pump shaft back to the top, turn the pump handle clockwise until the inner stop locate against the shaft clamps continue to turn clockwise until you here the shaft clamps click back into the lock position. The pump is now ready to be put back in the sprayer ready for testing prior to use.



To clean a blockage from the spray nozzle.

12. The lance end assembly (SP213) can be removed from the lance end by taking hold of the lance end nut and turning the 45° nozzle body in an anticlockwise direction until it can be pulled off the end of the lance, taking care not to loose the square section O ring which locates in a groove in the end of the lance between the 45° nozzle body and the lance nut. The spray nozzle cap is also removed in an anticlockwise direction, the sprayer nozzle can then be clean, changed or replaced before reassembling.

To clean the inline trigger filter.

Unscrew the lance from the end of the trigger and unscrew the hose from the other end of the trigger.

13. Unscrew the trigger body in an anticlockwise direction
14. Remove the trigger body
15. This reveals the inline trigger filter
16. The inline trigger filter can be pulled out from the trigger
17. When reattaching the lance to the trigger ensure that the O ring is in place inside the trigger lance housing. This must be present before the sprayer is used again.

Filling the sprayer

18. To try and eliminate any foreign matter entering the sprayer which may cause blockages. Always fill the sprayer using the conical filling filter which is supplied. This locates in the hole from where the pump has been removed to allow the sprayer to be filled. Ensure that the conical filling filter is properly cleaned at the end of work or when changing chemicals.

Pick up tube detached

19. If the spray pressurises but does not spray remove the pick up tube assembly by unscrewing the hose retention nut.
20. Ensure that the pick up tube is securely pushed into the white sealed housing.

