

ROVIC EVENFLOW[®]

Orchard Mist Blower

SYNCROFLOW[®] Technology
RSA Patent F2017/00593



CONSERVATION AGRICULTURE

The ROVIC philosophy is focussed on Conservation Agriculture. SYNCROFLOW[®] Technology is used in the design of the ROVIC EVENFLOW[®] Orchard Mist Blower, achieving the following objectives:

- The AIR MOMENTUM generated by the fan system is balanced with the tree structure and spraying speeds used in industry to supply the whole tree structure with spray-laden air, without undue losses due to spraying through the target. This increases the recovery levels of active ingredient and reduces the risk of drift contamination.
- The AIR VELOCITY PROFILES generated are balanced with the tree structure and dimensions to facilitate reach to all target areas without oversupply of air speed in the lower outside areas, resulting in blowing active ingredient off the target. This improves the uniformity of recovery of active ingredient throughout the target for improved efficacy.
- The ANGLE OF IMPACT on the tree structure by the air momentum is not perpendicular, but at an angle, to facilitate improved catch efficiency on the target, improving the uniformity of recovery of active ingredient on fruit, branches and leaves.
- The LATERAL BALANCE (left and right) of AIR MOMENTUM and AIR VELOCITY PROFILES is achieved to ensure even results on both sides of the sprayer.
- The amount of ENERGY consumed in this process is as low as possible to support minimum carbon footprint and reduce the cost of operation.



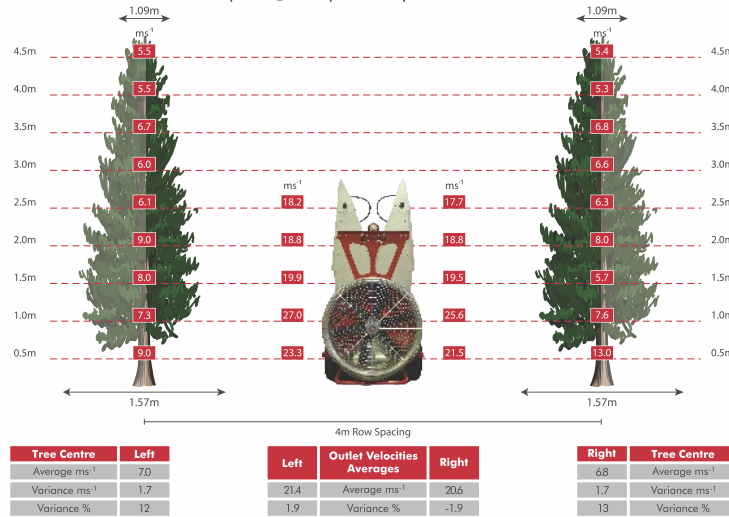
AIR VELOCITY PROFILES

The patented ROVIC EVENFLOW® air velocity profiles are designed and proven by independent research to be optimised for the modern high density central leader and spindle type orchards.

FRUITGRO SCIENCE, EXPERICO, PROCROP, the Mechanical Engineering Faculty as well as the Plant Pathology Departments of the University of Stellenbosch were all involved in the development over a period of 8 years in optimising these profiles for increased chemical recovery (FPC%) and reduced variance on target surfaces throughout the tree structure.

EVENFLOW® Turret Air Velocity Profiles @ 28.5°

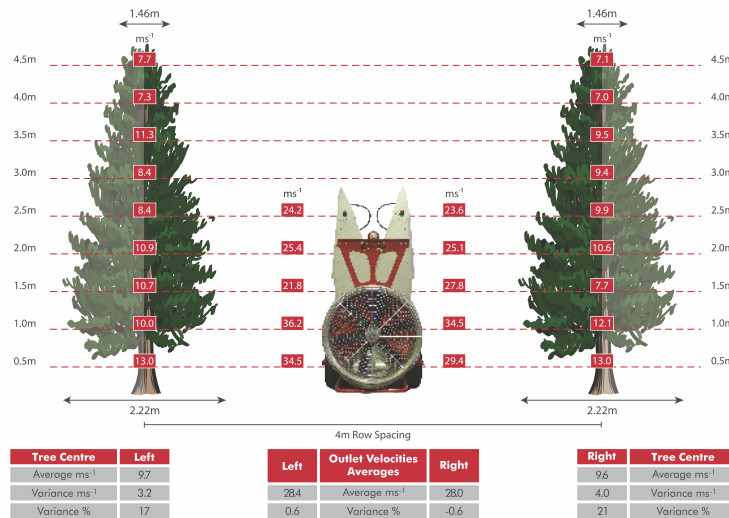
Low Speed @ 540rpm PTO Speed : 26 600m³ /hr.



EVENFLOW® Turret Air Velocity Profiles @ 38.5°

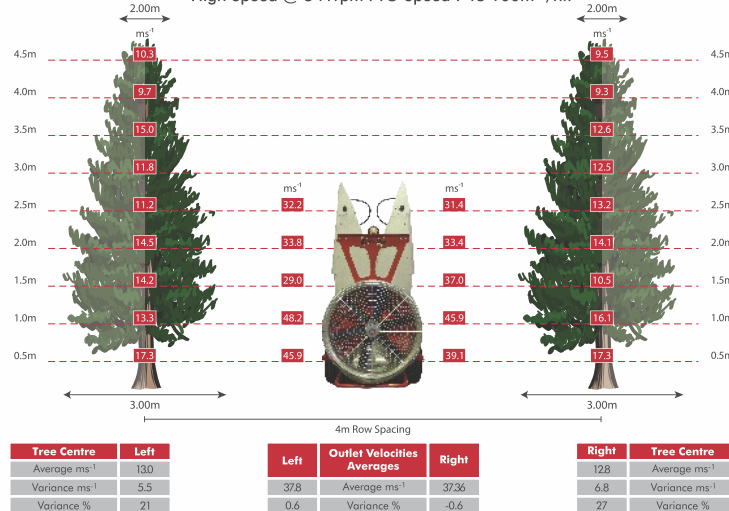
Low Speed @ 540rpm PTO Speed : 36 200m³ /hr.

@ 28.5°: High Speed @ 520rpm PTO Speed : 36 100m³ /hr.



EVENFLOW® Turret Air Velocity Profiles @ 38.5°

High Speed @ 541rpm PTO Speed : 48 100m³ /hr.



AIRFLOW DISTRIBUTION

Airflow Distribution in 3D views:



Side view



Watch this video

EVENFLOW® Turret Kit

Overview

- The EVENFLOW® Turret Kit is a bolt-on attachment, available for all units in the orchard range.
- The turret itself is constructed of stainless steel and interfaces seamlessly with the 940mm Fan Group Assembly.
- The turret is fitted with twelve Double Rollover Nozzle Bodies (six on each side).
- The turret has two easily adjustable deflectors, to cater for different tree row heights.
- The pressure gauge, which forms part of the kit, is piped through a shuttle valve, ensuring that an accurate pressure reading is given whether both or only one spray section is active.

Design

The Air Momentum and Air Velocity profiles are designed to achieve the following:

- Maximise recovery of active ingredient on the target.
- Minimise variation of recovery on the target.
- Optimise energy required balance.

Results

- Reduced drift losses and air contamination.
- Reduced run-off losses and soil/ground water contamination.
- Enhanced vector control per litre applied.
- Reduced running costs and smaller carbon footprint.

VAM® (Variable Air Momentum) SA Patent Application No. 2018/04367

The already proven superior application recoveries of the patented SYNCROFLOW® and EVENFLOW® technologies are now introduced to include:

- Auto Calibration.
- VAM® Variable Air Momentum.

The addition of these technologies takes the consistency of efficiency and efficacy of the ROVIC EVENFLOW® VAM® to levels never previously experienced in orchard application.



View test report



Drone footage VAM®



- Variable ground speeds can now be used, allowing the operator to drive into and out of the spray row at safe speeds, whilst accelerating to maximum safe speeds in the spray row.
- The increase in hectares sprayed per day without compromising safety or efficacy will allow for faster turnaround times and better timing of applications.
- The real time re-calibrations on the fly will support accuracy and optimal use of chemicals.
- Operator mistakes are largely managed and prevented.
- The VAM® management process will optimise air momentum balances throughout the series of spraying speeds, supplying the correct amount of air momentum at all times, supporting the best possible recovery of active on the target, whilst optimising energy requirement.
- For the first time a standardised tank concentrate can now be prepared for all sprayers, changing the actually applied volume (L/ha) at the entrance to the orchard to suit the true TRV (Tree Row Volume). This means that any machine can spray in any orchard.

The EVENFLOW® Turret Kit draws its name from its ability to achieve a spray distribution, from ground to tree tip and left to right tree row, with minimal variance.

SPECIFICATIONS

Tank and Chassis

- 1500/2000/3000 litre Polyethylene tank with 5% additional foam capacity.
- Dual filling lids.
- Two tank-level indicators, front and side.
- A 116 liter clean water rinse tank and a 15.8 litre hand wash tank.
- Integrally moulded tunnel for drive shaft.
- Fully galvanised chassis.

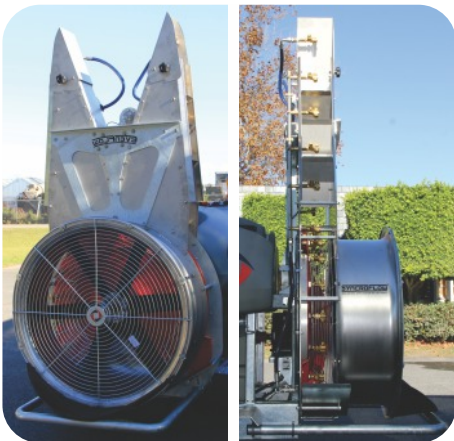


Pump

- COMET APS 145 Diaphragm pump (50bar, 145L/min).
- Electrical control valves for open and close, left and right (standard).
- Also available in a manual option.

Pressure Gauge

- Full size calibration pressure gauge on rear spray booms for accurate calibration (on EVENFLOW® Turret only).



EVENFLOW® Turret

- SYNCROFLOW® Technology inside (RSA Patent F2017/00593).
- Stainless steel fan cowling.
- EVENFLOW® Turret with Roll over nozzles:
 - Turret: 12
 - Fan: 14
 - Turret Fan Combination: 22 (4 not in use).
- The Deflector Kit is a stainless steel sub-assembly that bolts directly to the 940mm Fan Group Assembly, used across the orchard range where tree structures are not suited for the EVENFLOW® Turret.



Fan Blades and Safety Grid

- Glass reinforced Polypropylene with a 300% overspeed safety factor.
- Light and simple shaped for cost and fuel efficiency.
- 6 Blades for less noise and thus less energy required.
- No fan clutch required.
- 26 600 - 48 100m³/hr achievable.
- Very low noise levels.
- Hands/fingers cannot reach rotating parts from either side of the impeller.



Belly Plate

- Adjustable width axle with flotation tyres and BELLYPLATE Protection.
- Tyre specifications on Model Specification Sheet.



Below illustrates the Easy Access Service System



Easy Access Service System - EASS®

- EASS® - Easy Access Service System and PTO Shaft.
- Adjustable drawbar with free rotational tow eye and heavy duty height-adjustable jack stand.
- Class 6 Constant Velocity (CV) PTO shaft.

ROVIC EVENFLOW® Model Specifications

SPECIFICATIONS

Model	Tank Capacity	Rinse Tank	Hand Wash Tank	Control	Fan Diameter	No. Fan Blades	Track Width	Tyres
1500 Orchard	1500L	116.4L	15.8L	Electrical	940mm	6	1.35-1.65m	10.5/80R18
2000 Orchard	2000L	116.4L	15.8L	Electrical	940mm	6	1.45-1.75m	10.5/80R18
3000 Orchard	3000L	234L	15.8L	Electrical	940mm	6	1.65-1.95m	10.5/80R18

Suggested Tractor Ratings

Model	Engine kW
1500L	45kW
2000L	45kW
3000L	50kW

Optional Equipment

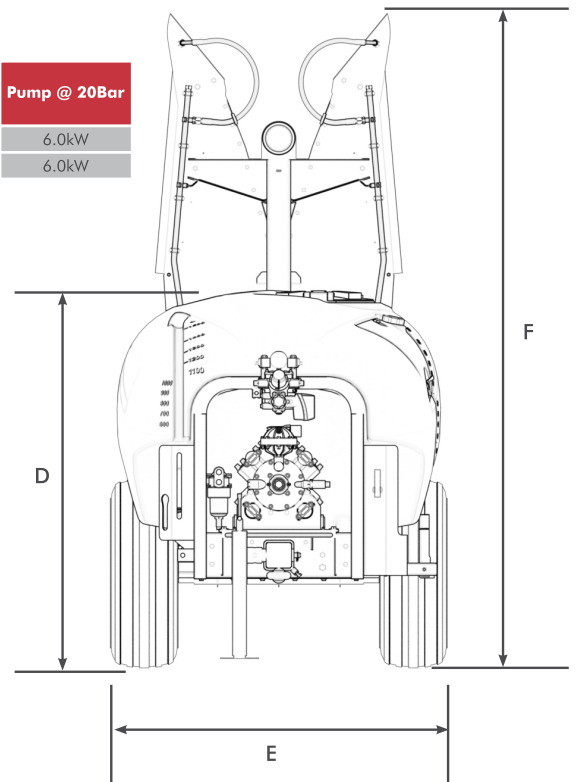
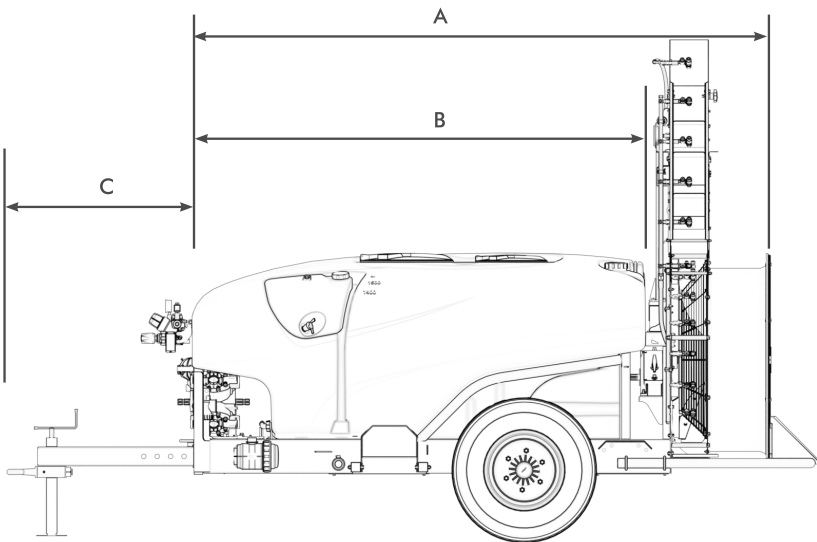
Part No.	Description
REF002	EVENFLOW® Orchard Turret
REF003	Fan Air Deflector

Complete Sprayer Dimensions and Weights

Dimensions	1500 L	2000 L	3000 L
A	2990mm	3130mm	3410mm
B	2360mm	2490mm	2760mm
C	600 - 950mm	600 - 950mm	600 - 950mm
D	1510mm	1590mm	1860mm
E - Track Width	1350 - 1650mm	1450 - 1750mm	1650 - 1950mm
F - Turret Max Height above ground	2625mm	2625mm	2705mm
Empty Mass without Turret	650kg	685kg	835kg
Empty Mass with Turret	738kg	773kg	923kg

Fan Capacity

Fan Diameter	Pitch	Low Gear 1:3	Fan	High Gear 1:4	Fan	Pump @ 20Bar
940mm	28.5 Degrees	26 600m³/h	4.05kW	36 200m³/h	9.60kW	6.0kW
940mm	38.5 Degrees	36 100m³/h	7.89kW	48 100m³/h	18.70kW	6.0kW



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DESIGNED, DEVELOPED AND MANUFACTURED IN SOUTH AFRICA



ALSO AVAILABLE
 ROVIC EVENFLOW® CITRUS MIST BLOWER &
 ROVIC VINEYARD MIST BLOWER

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