



**SMART
SOLUTIONS**
for a
**MODERN &
ECO-FRIENDLY
FARMING**

*The Proven Low Volume -
Electrostatic Mist Blower*

PHANTOM

M748 – M120 – M612 series

Cuts Spray Costs up to 65%



 **ELECTROSTATIC**[®]
AGRO SPRAY SYSTEM

...since 1981

MUCH MORE THAN AN AIR BLAST-SPRAYER

- The most suitable and effective method of applying chemicals to fruit trees, vines and field crops.
- The Phantom delivers its spray in a fine mist that penetrates dense foliage, covering leaves, fruit and twigs alike with a fine coating of chemical on all sides. No bare areas and no wasteful chemical run-off.



Since 1946

*Leaders in
mist-blowing
and low volume
technique*



MARTIGNANI

The "MARTIGNANI" concept mist blowers employ a pneumatic mist spraying, which has been successfully in use all over the world since the introduction of the first KIEKENS-DEKKER patents in 1946 than completed in 1981 by the micro-droplets electrostatic charge device. It assures:

- high speed operation
- very fine and constant mist independently on the water flow rate
- uniform coverage and distribution of chemicals
- exceptional working range and penetration in any crop, of whatever shape - and even in difficult weather conditions
- superior efficiency in fungicide and insecticide spraying and in particular in the fight against weevil, cochineal insects, mites, aphides, etc.

savings:

WATER	over 90%
CHEMICALS	over 30%
LABOUR/TIME	over 60%
FUEL	over 40%

with no damage to plants (liquid at low pressure) and no soil pollution (no run-off from leaves).

The MARTIGNANI mist-blowers can spray:

- HIGH VOLUME (over 1000 lt/ha or 100 gal/acre)
- MEDIUM VOLUME (500-1000 lt/ha or 50-100 gal/acre)
- LOW VOLUME (200-500 lt/ha or 20-50 gal/acre)
- VERY LOW VOLUME (50-200 lt/ha or 5-20 gal/acre)
- ULTRA-LOW VOLUME (less than 50 lt/ha or 5 gal/acre)

of chemicals dissolved in water or oil without replacing nozzles or discs, and with uniform coverage (mist droplets of 130 microns avg. diameter) at unchanged pressure (1.5 bar - 22 psi).

This top performance and versatility can only be achieved by the MARTIGNANI system - though it was widely imitated. Its special design is based on the technical know-how gained in over 60 years practical experience and research carried out in cooperation with the best ranking Agricultural Institutes in EUROPE - NORTH and SOUTH AMERICA - SOUTH AFRICA and AUSTRALIA.

TECHNICAL PRINCIPLE

Fig. 1 represents a cube 300 μ long, wide and height (1 μ = 0.001 mm) and other of 50 μ . If the big cube is divided along its length, width and height into six equal pieces, then $6 \times 6 \times 6 = 216$ cubes of 50 μ are produced. The ratio applies not only to the division of cubes, but also the spheres, i.e. droplets. The big cube is comparable with the average size of the droplets formed by a high pressure spraying machine, and the small cube with those of the mistblower.

From one drop of 300 μ , which is the average size droplet produced by a high volume machine, 216 droplets of 50 μ are produced by the mist blower and millions of such droplets are produced from a pint of water.

Around each droplet a zone of 100 μ width has been drawn within which the spray chemical is active, see Fig. 2. If we compare the area covered, we see that the 216 droplets of the mist blower protect a much larger area than the one 300 μ drop of the high pressure sprayer, see Fig. 3. This is the main reason why a mist blower can give an adequate cover with spray chemicals and yet use only a small quantity of water. This makes it possible to obtain a spray chemical economy of 30 to 50% compared with dilute spraying, while only 10 to 20% of the quantity of water is required.

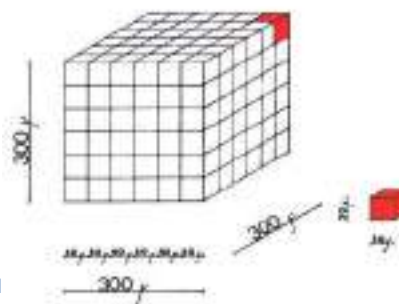


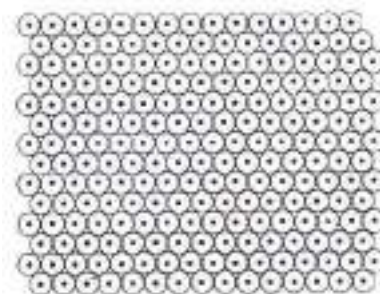
Fig. 1



Dilute spraying



Fig. 2



Concentrate
MARTIGNANI
mist spraying

Fig. 3





ELECTROSTATIC[®]
AGRO SPRAY SYSTEM

Since 1981

*first to be produced
in Europe and the only
one to be experimented
with excellent results*

TECHNICAL PRINCIPLE

Thanks to the ELECTROSTATIC FIELDS formed between the plants, which are good conductors (sap, mineral salts, moisture, etc.) and the CHEMICAL MIST sprayed from MARTIGNANI blowers with their SPECIAL ELECTROSTATIC CHARGE, droplets saturated with active principle are attracted by the vegetation (branches, leaves, etc.). This reduces losses through drifting even in windy weather. Years of research and practical experiments already conducted to date in this particular field by eminent institutes in NORTH AMERICA (CALIFORNIA), SOUTH AMERICA (ARGENTINA - URUGUAY), ASIA (PHILIPPINES), AFRICA (TUNISIA) AND EUROPE (HOLLAND, FRANCE, GERMANY, HUNGARY, ITALY) have given surprising results. All this has allowed researchers to affirm that electrostatic mist-blowing sensibly improves the many advantages acknowledged by everyone when it comes to low-volume plant-protection treatments while eliminating those few aspects that certain people still question once for all.

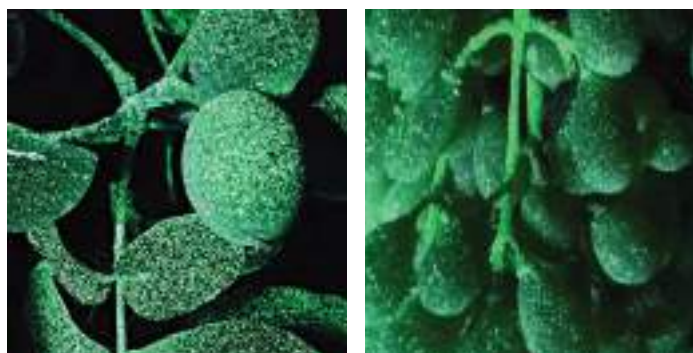
THE MAIN ADVANTAGES:

- The plant protection products are evenly distributed and adhere perfectly to even the undersides of the leaves.
- Less loss thru drifting.
- Total use of the pesticides, thus even less product required per hectare/acre.
- Total coverage of even the tallest parts of the trees (where conventional mist blowers are unable to reach) since the chemical mist that forms above the plants is attracted by these latter.
- Job are done faster (up to 12 KPH or 7.5 MPH).
- More time saved.
- Healthier plants and better quality produce.
- A notable reduction in environmental pollution.
- The risk of the operator being contaminated by pesticides (both by inhalation and contact) is reduced by 70%.
- Fruit and wine with no residues.



MARTIGNANI ELECTROSTATIC SPRAY DEVICE.

Already established in farming practice with thousands of vine and fruitgrowers throughout the world, this device represents one of the most important contributions towards progress in research into new solutions able to optimize application techniques. Numerous tests have shown that it can REDUCE LOSSES THROUGH DRIFTING by 85%. On request, it can be applied to the entire Whirlwind range.



Martignani fluorescent dye electrostatic mist blowing show impressive (even) coverage





EYE TYPE DRAWBAR



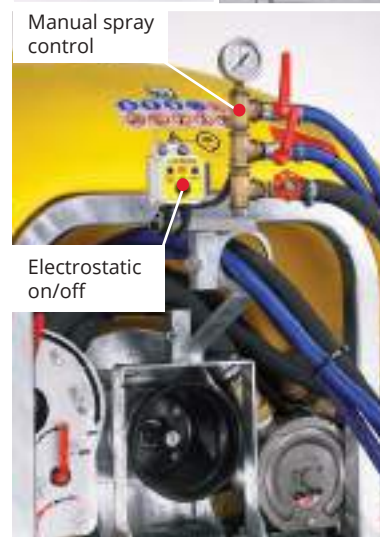
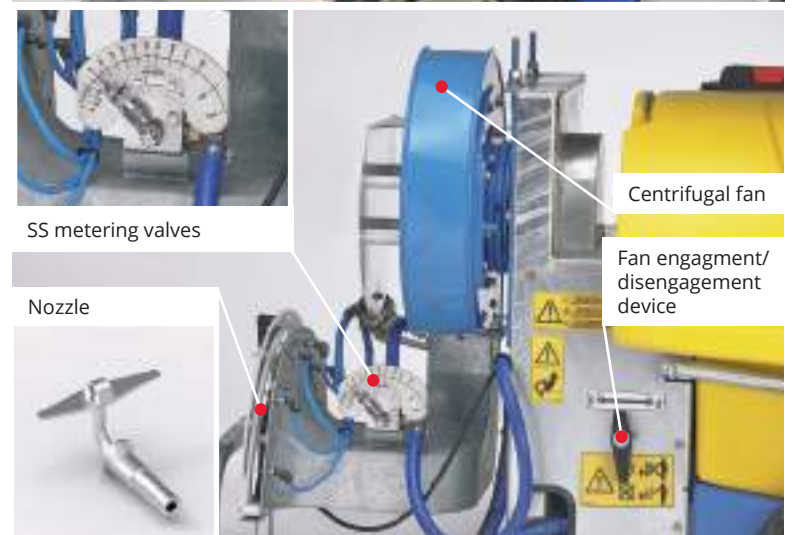
FORK TYPE DRAWBAR (OPTION)



ARTICULATED DRAWBAR (OPTION)

TECHNICAL FEATURES

- **CENTRIFUGAL FANS** of special design and exceptional efficiency, producing large volumes of air and remarkably high air flow rate at very low rev number and absorbed power.
- **DRIVELINE** with gears in oil bath and fan engagement/disengagement device.
- **SPRAY NOZZLES** (patented - with special profile and large - 4 mm. - diameter), thus no clogging, no jamming, no wear, no deformation. They are situated in the point where the air stream reaches a speed of up to 300 KPH and thus divide the liquid flow into extremely fine and even droplets.
- **STAINLESS STEEL HIGH PRECISION METERING VALVES** (patented): the output of liquid can be easily changed from 0 to 550/1300 l/h each; depending on the quantity (or volume) of fluid to be sprayed per hectare or acre, according to the desired tractor speed, concentration of chemicals (from normal to 2,3,4 . . . 10 . . . 20 times), soil conditions, density of foliage, etc.
- **LOW PRESSURE, HIGH DELIVERY (120 TO 250 L/M) SELF PRIMING CENTRIFUGAL PUMP** with special seals for nozzles feed, adjustable agitation of the spray fluid, rapid, non-polluting tank self-filling and for the PRE-MIX-ECO attachment supply.
- **PRE-MIX-ECO ATTACHMENT**, ideal for preparing chemical mixtures in a closed tank, both during self-filling and when the tank is already full, by simply operating a valve.
- **TANKS**: made of polyethylene or stainless steel. Every tank (excepting for the stainless steel version) has two small tanks built in to it for rinsing the circuit and hand washing respectively (in compliance with EU standard). The intake wells have been built in such a way as to guarantee the full use of the concentrated mixtures even when working on a slope. The liquid gauge is clearly visible from the driving position.
- **THE SUCTION FILTER** is external and it can be easily cleaned even when the tank is full.
- **FRAMES** made in oversized hot galvanized metal sections with draw bars and axles that can be adjusted for the pull-type models. Fixed (with Eye or Fork) and Articulated draw bars are available. The pull-type models are further available with European Road HOMOLOGATION (Mother regulation 167/2013).
- **ELECTRIC SPRAY CONTROLS**, within reach of the operator complete with glycerine pressure gauge and solenoid valves with incorporated anti-drip device (patented) in compliance with EU standard with Spray On & Off individually.
On request:
 - **MANUAL SPRAY CONTROLS** (only for export to countries outside the EU).
 - **ARAG BRAVO SPRAY COMPUTER.**





TECHNICAL DATA	M748	M120	M612
TRACTOR REQUIRED (HP)	starting from 20 HP	starting from 30 HP	starting from 70 HP
FAN EFFICIENCY	up to 4500 m3/hour	up to 10500 m3/hour	up to 20000 m3/hour
CENTRIFUGAL PUMP FLOW RATE	120 l/m	from 120 to 250 l/m	from 120 to 250 l/m
OPERATING PRESSURE	1.5 bar	1.5 bar	1.5 bar
METERING VALVES FLOW RATE	from 0 to 550/1300 l/h	from 0 to 550/1300 l/h	from 0 to 550/1300 l/h
PNEUMATIC NOZZLES	d. 4 mm.	d. 4 mm.	d. 4 mm.
ADJUSTABLE AGITATION	Hydraulic	Hydraulic	Hydraulic

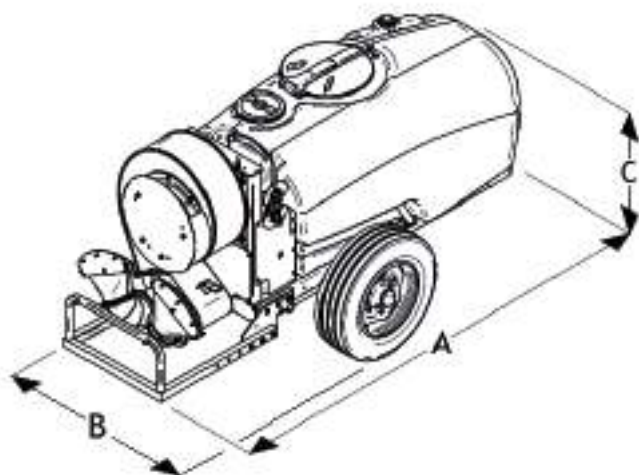
MODEL	CAPACITY	TANKS	A* cm	A1* cm	B* cm	C* cm	WEIGHT Kg. (empty)	STANDARD WHEELS
M748	200 l (50 gal) 3P Mounted	Polyethylene	135	102	98	130	250	/
M748	400 l (100 gal) 3P Mounted	Polyethylene	140	115	121	126	365	/
M748	500 l (130 gal) 3P Mounted	Polyethylene	140	115	121	135	375	/
M748	600 l (160 gal) 3P Mounted	Polyethylene	140	115	121	143	385	/
M748	600 l (160 gal) Pull-Type	Polyethylene	260	233	100	125/135	450	205/65-15.0
M120	400 l (100 gal) 3P Mounted	Polyethylene	150	125	121	130	395	/
M120	500 l (130 gal) 3P Mounted	Polyethylene	150	125	121	135	405	/
M120	600 l (160 gal) 3P Mounted	Polyethylene	150	125	121	143	415	/
M120	600 l (160 gal) Pull-Type	Polyethylene	270	250	105	125/135	585	205/65-15.0
M120	1000 l (260 gal) Pull-Type	Polyethylene	310	290	128	138/148	640	225/70-15.0
M120	1500 l (400 gal) Pull-Type	Polyethylene	360	340	141	152/162	870	340/55-16.0
M612	400 l (100 gal) 3P Mounted	Polyethylene	295	210	135	230	735	/
M612	500 l (130 gal) 3P Mounted	Polyethylene	295	210	135	230	745	/
M612	600 l (160 gal) 3P Mounted	Polyethylene	295	210	135	230	755	/
M612	2000 l (500 gal) Pull-Type	Polyethylene	430	380	175	165/175	1120	300/80-15.3
M612	2000 l (500 gal) Pull-Type	Stainless steel	440	390	185	175/185	1200	300/80-15.3

*A= Length with FIXED 180° - GIB-DOR - KOMBY - MULTI-FLOW - CALIFORNIA spray heads.

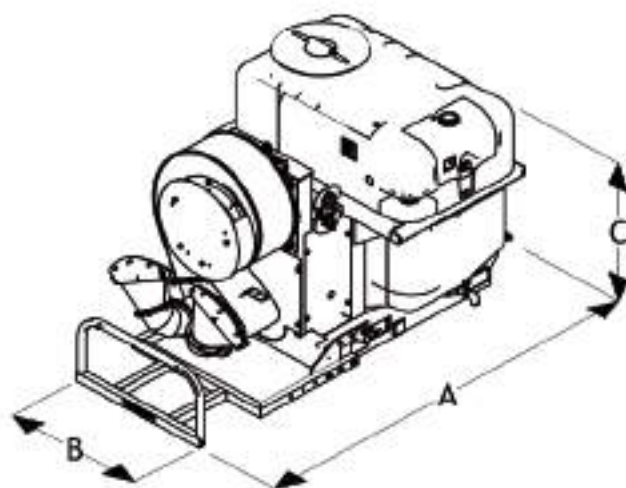
*A1= Length with CANNON head.

*B= Width (pull-type models) with standard wheels.

*C= Tank height.



PULL-TYPE



3P MOUNTED

WE RESERVE THE RIGHT TO MAKE CHANGES WITHOUT PRIOR NOTICE.



10 IMPORTANT ADVANTAGES

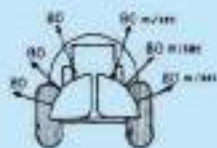
1. Low volume from 50 LPH (13 GPH) and high volume up to 3200 LPH (850 GPH).
2. Same range and penetration both at low and high volume.
3. Perfect and uniform mist blowing of any chemicals.
4. Also concentrated mixture can be sprayed: copper oxychloride, white and yellow oils, barium and calcium polysulphide, the latter even pure in the commercial formula (without dilution water).
5. No clogging, no jamming - no wear of nozzles, discs, plates.
6. Instant and accurate adjustment of the liquid flow.
7. No run-off from foliage even at high volume.
8. Each nozzle can be individually closed or calibrated.
9. High versatility in use and wide selection of attachments.
10. Simple and reliable operation with minimum maintenance.



REPLYING TO MANY QUESTIONS, HERE ARE THE MOST IMPORTANT DIFFERENCES CONCERNING HOW AIR IS USED BY THE MARTIGNANI MIST BLOWER AND THE TRADITIONAL AIR BLAST-SPRAYER



1. All the air sucked in by the dual intake blower is used.



2. Uniform air flow on all of the outlet section and perfectly directed airstream.



3. The special streamlined design of the spray-heads directs the air almost with no loss of power.



4. Continuous air stream of high speed and penetrative power, but without violence and turbulence.



5. The two outlets can be turned through 90°, thus for every shape of tree the air stream can be directed individually to the most important parts of the tree.



6. Both heads can be directed in one direction: this doubles penetration so that perfect coverage is possible also under windy conditions.



7. Straight flow air stream and the absence of turbulence gives a high output. Add to this the advantages of the many adjustments possible for single and double sided spraying - the Martignani Mist Blower can be considered as using 100% of the power required.

100%



8. DOUBLE AIR ACTION: uniform droplet production and transport of liquid. (PNEUMATIC SYSTEM)



1. Only 2/3rds of the axial fan produces air: 1/3rd of the fan is not used although it requires power.



2. The air turns round the impeller shaft, causing turbulence and non-uniform airstream at the outlet (the stream is mainly upwards on one side and downwards on the other).



3. The air must suddenly turn through 90° causing a loss of speed and power of 20%.



4. Heavy turbulence in the air stream causing great loss of speed and power.



5. No adjustment or adaptation to the tree shape possible.



6. When working one sided, the liquid output on one side must be closed, the air capacity of this side will remain unused through power is absorbed.



7. It has a loss of power of 20% and 33% (see points 1, 2, 3) leaving only less than 50% which on the other hand is used inefficiently.

100
- 50
50%



8. SINGLE AIR ACTION: only transport of the liquid divided into droplets of different size by the pressure nozzles (AIR CONVEYANCE).



FIXED 180°



GIB-DOR



KOMBY



MULTI-FLOW



CALIFORNIA - ORCHARD



CALIFORNIA - VINEYARD



FIXED CANNON DOUBLE SIDE HEAD



FIXED CANNON SINGLE SIDE HEAD



ARTICULATED CANNON - 2 MOVEMENTS



ARTICULATED CANNON 90° BEND

OPTIONAL ATTACHMENTS AND CONFIGURATIONS

- **KOMBY** with two adjustable heads. The aerodynamic design and accurate production of these elements make it possible to direct each jet of air towards the target to be treated without losing the flow rate and in the most natural way according to tree type and form. Ideal for treating all types of crops.
- **FIXED 180°** ideal for treating pergola/tendon type systems (e.g. table grapes, kiwi, etc.).
- **GIB-DOR** in addition to the usual KOMBY or FIXED 180° outlets, this particular configuration makes it possible to effect targeted Gibberellic/GA3 specific applications on the bunch line in tendon table grapes.
- **MULTI-FLOW** with multiple adjustable heads ideal for low crops with small spacing between rows such as vineyards, berries, asparagus, nurseries, etc.
- **CALIFORNIA tower** with adjustable upper and lower DOUBLE OUTLET (tower extensions of various heights are available) ideal for Orchards, Citrus Groves, Olive Groves, Vineyards etc.
- **FIXED CANNON** for treating open field crops or in greenhouses, hothouses, tall trees etc. - Spray Ranges according to the type of fan and tractor power available up to 40 mt. horizontally and 30 mt vertically.
- **ARTICULATED CANNON 90° BEND OR WITH TWO MOVEMENTS E.G. WITH 90° BEND + HORIZONTAL ROTATION FOR AROUND 300°** to treat tall trees, ornamental trees, etc. - Spray Ranges according to the type of fan and tractor power available up to 40 mt. horizontally and 30 mt vertically.
- **NURSERY CANNON (Two movements: 50° bend + 180° horizontal)** with small side head so as to be able to work in nurseries, protected or open field crops (e.g. Vegetables, Maize fields etc.) or on ornamental plants - Spray Ranges according to the type of fan and tractor power available up to 40 mt. horizontally and 30 mt vertically.

THE MOST EFFICIENT SYSTEM FOR COMBINING TWO EQUALLY VITAL REQUIREMENTS OF MODERN LIFE:

- THE USE OF PESTICIDES FOR SAVING THE FRUITS OF THE EARTH
- THE NEED TO AVOID POLLUTION TO THE ENVIRONMENT AND TO MAN.

*Often imitated.
Not yet equalled.*





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11



12



13



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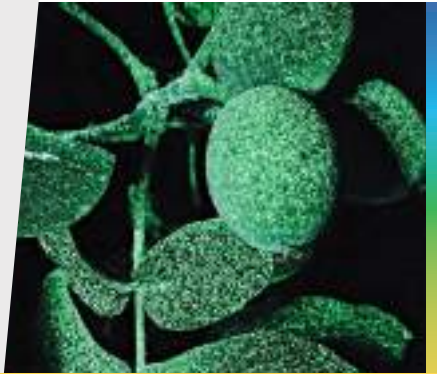


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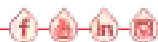


NUMBER 1 *for* LOW VOLUME

- The only one with over 60 years worldwide experience.
- The only one that was tested for treatment efficiency by eminent Agricultural Research Institutes Worldwide.
- The only one used with no problems at high concentration by thousands of top wine and fruit growers worldwide, from California to Australia.
- Multi-Awarded in the Most Important Agricultural International Contests.



www.martignani.com



MARTIGNANI SRL

Via Fermi, 63 - Zona Industriale Lugo 1
48020, S. Agata sul Santerno (RA) Italy
Tel. (+39) 0545 230 77
Fax (+39) 0545 306 64
martignani@martignani.com

DEALER

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