www.martignani.com

The Proven Low Volume-Electrostatic Sprayer

B120 - B612

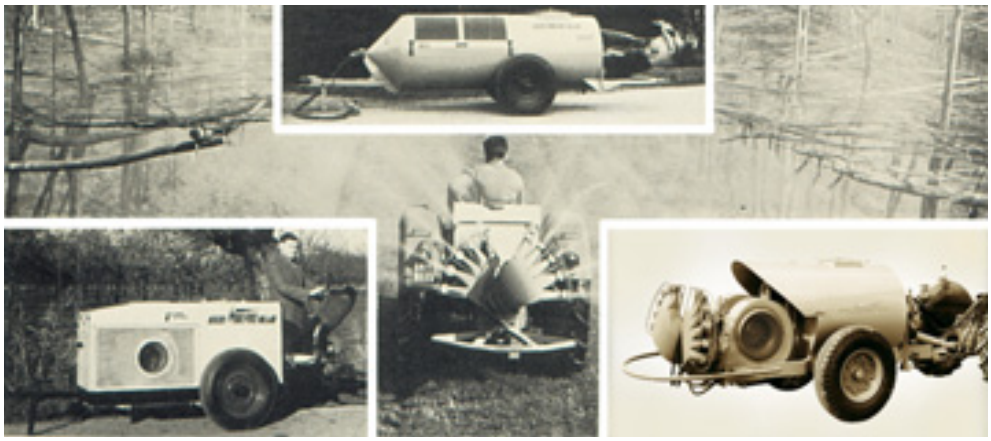
Whirlwind®

Cuts Spray Costs up to 65%

It is much more than an Air-Sprayer

- The Most Suitable and Effective method of applying chemicals to fruit trees, vines, and field crops.
- The B612 "Whirlwind" 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.

MARTIGNANI®



Since 1946...

LEADERS IN

MIST-BLOWING AND LOW VOLUME TECHNIQUE

The "MARTIGNANI-KWH" system mist blowers employ a pneumatic mist spraying, which has been successfully in use all over the world since the introduction of the first **"Kiekens Whirlwind Holland"** patents. 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 B-612 mist-blower 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 50-20 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 from 50 to 150 micron) at unchanged pressure (1.5 bar - 22 psi)

This top performance and versatility can only be achieved by the KWH 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.

---

kwh® 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 devided along its length, width and height into six equal pieces, then 6 x 6 x 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.

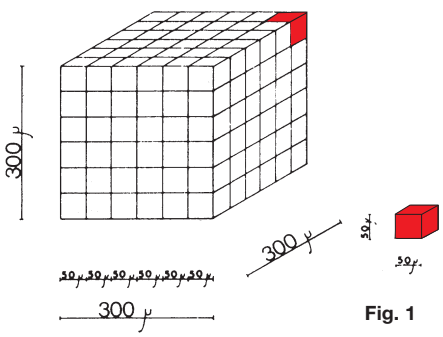


Fig. 1

Dilute spraying

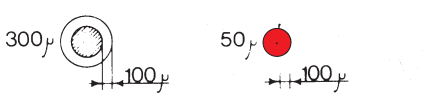


Fig. 2

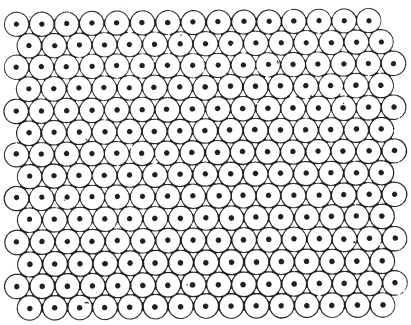


Fig. 3

Concentrate K.W.H. mist spraying

600 lt. (160 gal.) “SHUTTLE”
800 lt. (200 gal.) “SHUTTLE”

1000 lt. (260 gal.) “SHUTTLE”
1500 lt. (400 gal.) “SHUTTLE”

B120 - 3P 400 lt. (100 gal.)
B120 - 3P 500 lt. (130 gal.)
B120 - 3P 600 lt. (160 gal.)

B612 - 3P 600 lt. (160 gal.)

B612 - 3P 400 lt. (100 gal.)

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.*
- ***Multi-power flow*** *device: a 6-position lever (+ idle) makes it possible to modify the air flow for most suitable use of air volumes and power available at power take-off .*
- ***Double spray head 90°*** *- adjustable and independent - with wide air outlets and 6+6 nozzles.*
  The streamlined design and perfect construction of all elements make it possible to direct each air stream towards the target, without any losses of power and in the best way for every type and shape of tree.
- ***Spray nozzles*** *(patented - with special profile and large - 4 mm. - diametre), 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 50 to 3200 l/h; 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 self priming centrifugal pump*** *made in stainless steel for nozzle feed - adjustable, continuous agitation of the spray fluid, rapid, non polluting self-filling. It also powers the large capacity:*
- ***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.*
- ***Tank,*** *made of reinforced polyester resin or PVC, for 3-point hitch and tow types; made of stainless steel for engine driven models and the 2000 lt. - 500 gal. / PTO. The suction sumps are specially designed to assure thorough spraying even when operating on sloping grounds. The level of the liquid is clearly visible in the tank side.*
- ***The suction filter*** *is external and it can be easily cleaned even when the tank is full.*
- *Sturdy, oversized* ***frames*** *of hot galvanized steel profile with adjustable draw-fork, support feet, adjustable axles. All p.t.o. models are perfectly balanced (center of gravity on the axle) thus very maneuverable when empty; in operation, 50% of the useful load advantageosly rests on the tractor’s hindwheels.*
- ***Remote control unit*** *within driver’s reach; equipped with glycerine pressure gauge and calibrating valve, delivering the fluid to both spray heads or one only.*

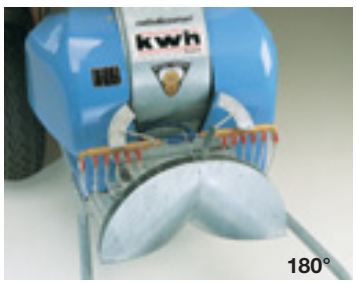
1000 lt. (260 gal.) "COMPACT"
1500 lt. (400 gal.) "COMPACT"

2000 lt. (500 gal.) STAINLESS STEEL

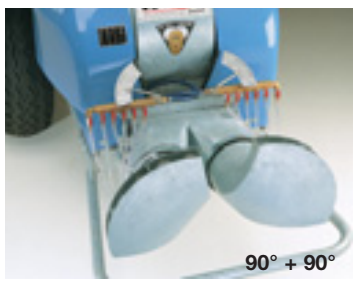
OPTIONAL ATTACHMENTS AND CONFIGURATIONS:

- ***B612 "Major" fan*** *(delivering 25 % more of Air Volume than the "Standard") for high capacity treatments, suitable in tall trees with high density foliage (Walnuts, Citrus, Almonds, Avocados, Mangos, etc.) – tractors of 85-90 HP and up, are required.*
- *"**90°+90°" head:** regular adjustable spray head with 6+6 nozzles to spray whatever crop*
- ***"Vineyards" head:** with 2+2 adjustable spray heads with 3 nozzles each, suitable only for narrow row crops (vineyards, berries, nursery crops, etc.)*
- ***"180° Fixed" head:** featuring 12 nozzles – suitable for roofed crops (ex. table grapes) or whenever reduced dimensions are important (with this head sprayer 40 cm. shorter)*
- ***"Gun + 90°" head:** suitable for covering field and row crops, greenhouse crops, tall trees, etc. (Vertical Swath: 20 m – Horizontal Swath: 25 to 30 m.)*
- ***"Multi-Flow" head:** each nozzle can be individually oriented, suitable in narrow row crops (vineyards, berries, nurseries, coffee trees, etc.)*
- ***"California" head:** Double spraying system – one from the top and one from the bottom – to spray two Vineyard rows at a time*
- ***"France" head:** Double spraying system supported by adjustable (height and width) frame with hydraulic folding system to spray every second or third vineyard row*
- ***"Turbo 2" head:** Double spraying system – one from the top and one from the bottom - to penetrate the thickest vegetations (suitable in Citrus groves, Mango, Papaya, Orchards etc.)*
- ***"Cognac" head:** to spray 2 complete rows of vineyards*
- ***"Turbo 3" head:** to spray 2 to 3 complete rows of vineyards (Awarded in various International Shows)*
- ***"Albatros" boom head:** suitable for field crops (Melons, Vegetables, Pineapple, etc.)*

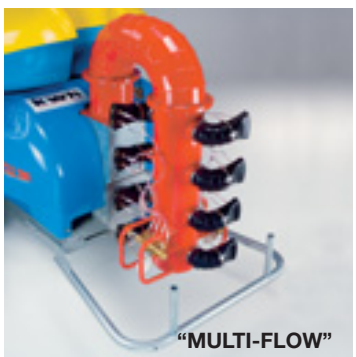

VINEYARDS



180°


90° + 90°

GUN + 90°


"MULTI-FLOW"


"CALIFORNIA"


"FRANCE"

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


90 +90


FRANCE


TURBO 2 - CITRUS


TURBO 2
WALNUTS


TURBO 3 / 2 ROWS


TURBO 3 / 3 ROWS

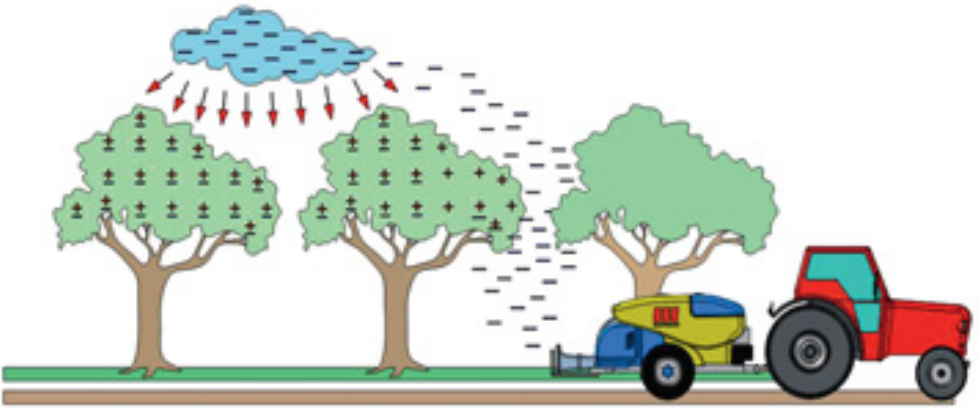

COGNAC


ALBATROS

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 K.W.H. 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.



These are 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%.

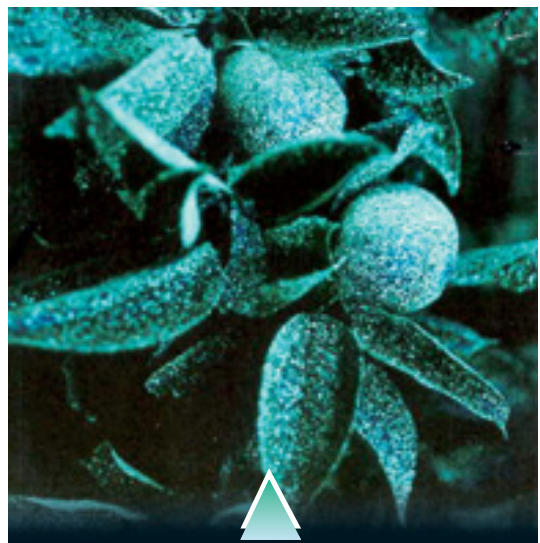
...since1981

ELECTROSTATIC SPRAY SYSTEM®

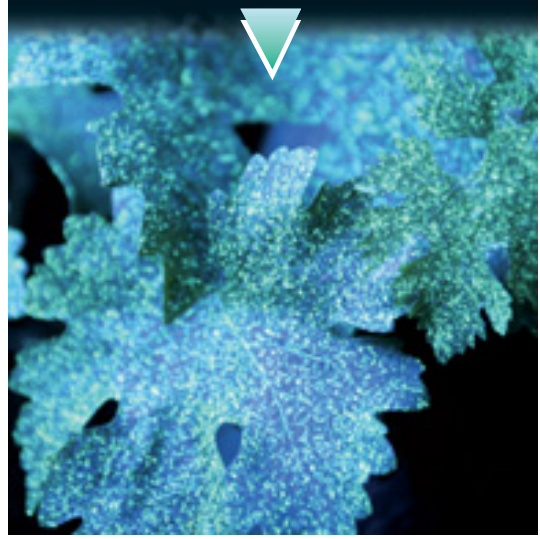
"MARTIGNANI" ELECTROSTATIC DEVICE

The FIRST to be produced in EUROPE (1981)
PRIZE-WINNER in numerous international competitions
The ONLY ONE to be experimented by eminent Institutes Worldwide with excellent results

Already established in farming practice with thousands of vine and fruit-growers 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.



IMAGES OF MARTIGNANI FLUORESCENT DYE ELECTROSTATIC MIST BLOWING SHOW IMPRESSIVE (EVEN) COVERAGE

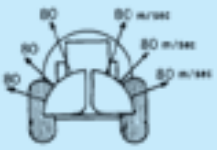


TEM IMPORTANT ADVANTAGES

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: for instance 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.

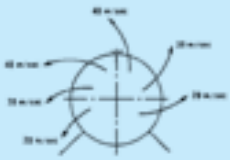
6.
Both heads can be directed in one direction: this doubles penetration so that perfect coverage is possible also under windy conditions.

100%

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 K.W.H. B 612 can be considered as using 100% of the power required.

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.

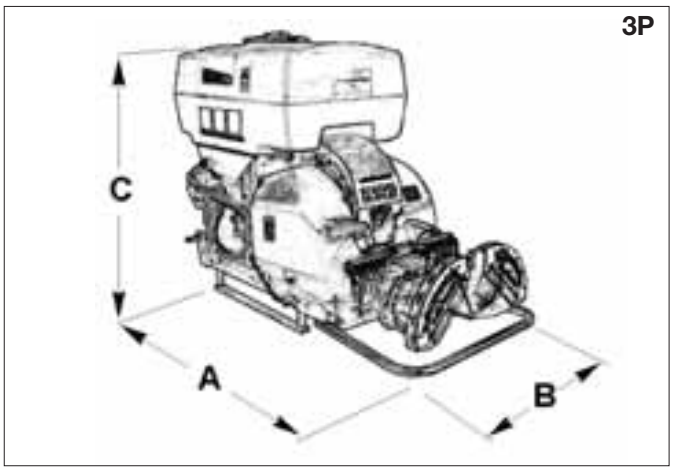
100
-50
50%

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.

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

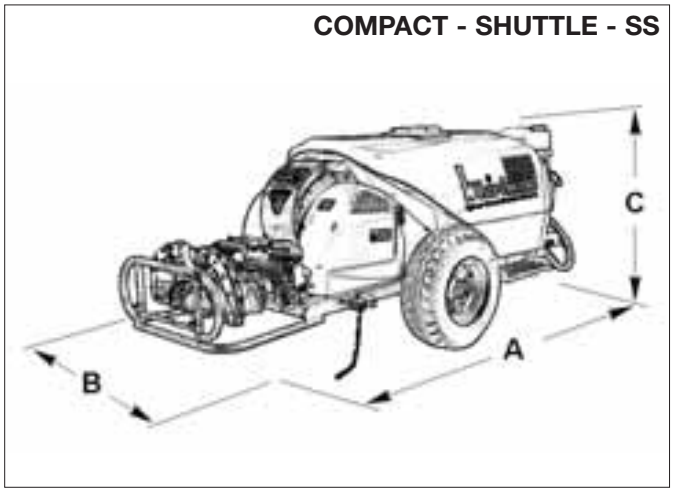
PTO Models B120	A	B	C	Weight kg.
400 l (100 gal) 3P	137	120	135	250
500 l (130 gal) 3P	137	120	143	255
600 l (160 gal) 3P	137	120	154	260
600 l (160 gal) shuttle	264	114/124	137/147	500
800 l (200 gal) shuttle	274	114/124	147/157	525
1000 l (260 gal) shuttle	322	132/142	150/160	600

Lengths are intended with 180° head
With 90°+90° spray head: 40 cm. longer



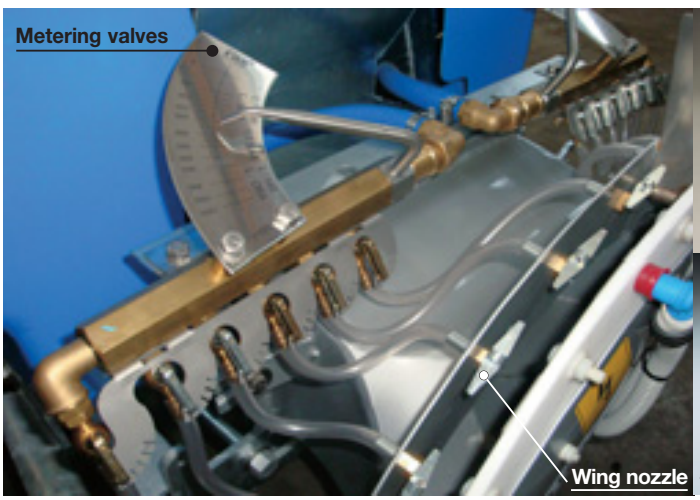
PTO Models B612	A	B	C	Weight kg.
400 l (100 gal) 3P	162	92	150	375
600 l (160 gal) 3P	162	140	165	395
1000 l (260 gal) compact	322	138/148	132/142	590
1500 l (400 gal) compact	350	142/152	150/160	715
600 l (160 gal) shuttle	264	114/124	137/147	525
1000 l (260 gal) shuttle	322	132/142	150/160	625
1500 l (400 gal) shuttle	350	135/145	170/180	750
2200 l (500 gal) SS	430	155/165	175/185	950

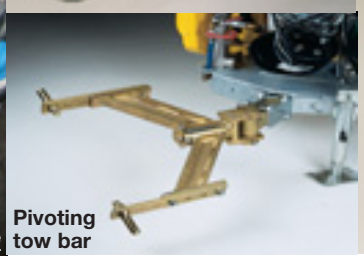
Lengths are intended with 180° head
With 90°+90° spray head: 30 cm. longer



Engine Driven Models B612	A	B	C	Weight kg.
2200 l (500 gal) SS	520	187	164	1350

A = Length
B = Width
C = Height





TECHNICAL DATA	B120	B612 Standard	B612 Major
Needed tractor (HP)	45 HP and up	65 HP and up	80 HP and up
Fan efficiency	9000 m3/min.	up to 20000 m3/min.	up to 26000 m3/min.
Air speed	80 m/s	80 m/s	80 m/s
Pump delivery	120 to 250 l/m	120 to 250 l/m	120 to 250 l/m
Operating pressure	1,5 bar / 22 psi	1,5 bar / 22 psi	1,5 bar / 22 psi
Liquid flow from metering valves	0 to 1200 l/h each	0 to 1200 l/h each	0 to 1200 l/h each
Wing nozzles	d. 4 mm.	d. 4 mm.	d. 4 mm.
Adjustable agitation	hydraulic	hydraulic	hydraulic

The renowned and proven line that introduced and imposed the CONCENTRATE SPRAYING SYSTEM (50 to 200 lt/ha or 5 to 20 Us Gal/acre): an innovation that was the most debated one over the last 40 years of AGRICULTURAL KNOW-HOW DEVELOPMENT.

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**

MANUFACTURER:
MARTIGNANI s.r.l.
Via Fermi, 63
(Zona Industriale Lugo 1)
48020 S.Agata sul Santerno (Ra) Italy
Tel. (+39) 0545.230.77
Fax (+39) 0545.306.64
e-mail:martignani@martignani.com

www.martignani.com
www.electrostaticspraysystem.com

DEALER:

GRAFICHE MORANDI - FUSIGNANO - 3000 - 10-10