CARRAROSPRAY

by O.C.L.L.

NPA

NPF

NPA-S

COMPANY WITH QUALITY SYSTEM CERTIFIED
N.I274/2403D
UNI EN ISO 9001 : 2000

3PT HITCH MOUNTED MIST BLOWER AT LOW VOLUME

NP

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General features

- hot galvanized steel frame;
- POLYETHYLENE tank with liquid level gauge;
- outlet system with external ecology valve;
- diaphragm pump 50 l/min 0-40 bar Annovi Reverberi;
- gearbox one speed and neutral;
- high speed centrifugal turbine Ø 460 mm;
- clean water tank for hand washing;
- rear bumper with rounded tube;
- fresh water tank for cleaning of chemical residues;
- cannon ø 55 mm with brass nozzle, tip calibration system, filter, anti-drip and cock valve;
- hands at 3 ways with stainless steel nozzles, calibration tip system filter, diaphragm anti-drip and cock valve;
- PUMP SAVER, light signal of diaphragms breakage and oil loss;
- pressure regulator adjustable from 0 to 40 BAR (576 PSI) with by pass for liquid agitator and with outlet for handgun;
- pressure regulator adjustable from 2 to 5 BAR (72 PSI) with by pass for varying the delivery of the mix;
- centrifugal clutch on turbine;
- strainer in the tank lid for the first screening;
- suction filter with safety valve and shut-off-valve for cleaning;
- 2 batch filters before the nozzles for a better maintenance;
- each nozzle is provided with anti-drip device;
- calibrated tips in stainless dia. 0,8 - 1,2 - 1,5 - 1,8 mm;
- 2 jet agitation at high pressure 0÷30 BAR mod. standard, supermix or mechanical as optional request;
- manual or electric remote control working from the tractor (ideal for tractor's cab).

Quick washing circuit for chemical residues

Suction filter with shut-off valve and 3 ways valve for fresh water tank for chemical residus

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Where it can be used

• ideal for professional use in vineyards.

What it is meant for

• application of plant and crop protection products.

Easy of use

• easy coupling to any tractor;
• easily accessible controls;
• chart for calibrating spraying rates.

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Why select a "LOW VOLUME" SPRAYER

• "LOW VOLUME" means a concentrated application of protection products, i.e. using a low volume of water;
• the mix contained in the tank is sprayed in a manner so that the produced droplets will have a micrometric size, the mist will uniformly cover the leaves of the plant with a very fine protective film;
• with the mix contained in one tank, it is possible to treat an area up to four times larger compared to a standard high volume air blast sprayer;
• as there is no dripping, all the chemical product is used for the treatment with no waste and no risk of ground pollution.

Why Carrarospray is the right choice

• modern and attractive design;
• compact profiles;
• smooth lines are gentle to plants in confined rows;
• easy to transport;
• rugged construction for severe conditions and rounded tank for easy cleaning;
• high quality materials;
• company with quality system certified in accordance with UNI EN ISO 9001:2000;
• competitive price.

Low maintenance cost

• state-of-the-art design and construction thanks to the long experience in worldwide markets;
• the mechanical parts in contacts with chemicals and atmosphere have been treated to avoid possible corrosion.

Safety

• complies with latest CE regulations;
• anti polluting tank filler;
• automatic mixer on tank basket for powdered products;
• clean water tank;
• safety valves;
• fresh water tank for chemical residues;
• safety shields for all the rotating parts;
• rear lights for road circulation;
• no suction, with the air, of dust, soil and leaves;
• less overspray, or duft with antidrip device system;
• lower chemical rates with calibrated stainless tips and low pressure distribution;
• jet agitation for uniform concentration of the mixture inside the tank.

Accessories

Automatic mixer for powdered products

Monitor speed Km/h, delivery ℓ/min - ℓ tot, time (h)

Spraying calibrated computer Spraycontrol DPA

Below, we provide a table that indicates the quantity of mixture required to cover a determined surface area.

EQUIVALENT WATER VOLUME: 1000 LITER TANK				
TYPE OF MACHINE	METHOD UTILIZED	CHEMICAL PRODUCT	AREA TREATED	CHEMICAL CONCENTRATION
ATOMIZER	HIGH VOLUME	4 KG	1 HECTARE	NORMAL = 400 g. x 1000 LITERS
MIST BLOWER	LOW VOLUME	8 KG	2 HECTARES	DOUBLE = 800 g. x 1000 LITERS
MIST BLOWER	LOW VOLUME	16 KG	4 HECTARES	QUADRUPLE = 1600 g x 1000 LITERS

EQUIVALENT AREAS TREATED: 1 HECTARE (10,000 sq m)				
TYPE OF MACHINE	METHOD UTILIZED	CHEMICAL PRODUCT	WATER VOLUME	CHEMICAL CONCENTRATION
ATOMIZER	HIGH VOLUME	4 KG	1000 LITERS	NORMAL = 400 g. x 1000 LITERS
MIST BLOWER	LOW VOLUME	4 KG	500 LITERS	DOUBLE = 800 g. x 1000 LITERS
MIST BLOWER	LOW VOLUME	4 KG	250 LITERS	QUADRUPLE = 1600 g x 1000 LITERS

Leaf Coverage

A microscopic comparison of the leaves of plants treated using both the conventional and low volume methods reveals the following:

Convetional System

The mixture distributed over the leaf is characterized by a series of droplets that do not cover the leaf surface entirely. The distribution of the mixture is not uniform and homogeneous, and therefore the risk of staining certain areas of the leaf and consequently the fruit increases. Dripping onto the ground also occurs.

Low volume system

The mixture distributed is characterized by a series of micrometric droplets that cover the surface completely, finely and uniformly. The droplets perform the action of the active ingredients evenly without staining the leaf and therefore the fruit.

Advantages of the mist blower

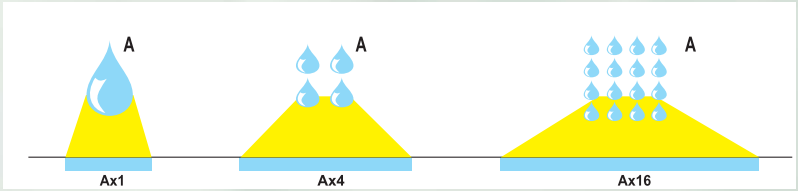
- Considerable savings in time thanks to the reduction in the quantity of water required;
- reduction in the quantity of water by up to 80-90%, which also permits a corresponding reduction in the number of times that the tanks must be filled;
- virtually no dripping of mixture onto the ground;elevated precision in the distribution of the chemicals on the plants thanks to the calibrated pump flow rate adjustment system;
- lower risk of staining the fruit during the final treatments;
- uniform and homogeneous coverage of the area treated: the plant is coated by a thin protective film;
- reduced maintenance costs;
- reduced dripping of mixture onto the ground, thanks to the attraction between positive and negative electric charge;
- less dispersion of the mixture into the environment, less consumption of chemical product, and consequently less pollution;
- treatment of the hidden parts of the plant that are traditionally harder to reach.

LOW VOLUME technology

The application of plant production products in agriculture has always been accompanied by the use of water in concentrated or diluted quantities. The most common spraying system utilizes high volume or diluted water flow. In this type of machine, the liquid is pressurized by a pump and forced through nozzles in a spray. These machines are traditionally known as atomizers.
In recent years however, the low-volume, or concentrated spraying system has become more and more popular. In this system, the liquid is conveyed without pressure to the nozzles and nebulized by the speed of the air in movement (Ventury System). These new machines are known as pneumatic nebulizers, atomizers or also mist blowers. LOW VOLUME means the application of the chemical product with a LOW VOLUME OF WATER. In order to obtain this result, the machine utilizes the energy of the movement of air driven by a turbine that creates a homogeneous mist.
Millions of tiny droplets of the mixture - with micrometric dimensions and rich in active ingredients - are sprayed in the direction of the plant to cover it with a uniformly fine protective film. The dimensions of these tiny droplets are measured in microns:
1 MICRON = 1 mm : 1000 = 0.001 mm, corresponding to 0.000039 INCHES.
Laboratory tests have revealed significant differences in the sizes of the droplets obtained with the two liquid atomization methods described above. In most measurements performed on droplets created using the high-volume or diluted method, the diameter of each droplet was approx. 250-300 microns. In tests conducted on droplets made using pneumatic nebulizers or atomizers, the droplets were observed to be much smaller, with diameters that reached 50-100 microns.
This difference in droplet size is fundamentally important in understanding the low volume principle.

The LOW VOLUME principle

The smaller the droplets in the mixture are, the smaller the volume of water required by the treatment will be, and the protective film that coats the plants will be all the more homogeneous as a result. This method also permits the most hidden parts of the plant to be reached while avoiding any dripping. In order to get a better idea of the low volume principle, imagine that each droplet of mixture offers up its portion of active ingredient within a certain area; therefore, the more droplets there are, the larger the total area treated will be. At equal volumes of water, a pneumatic nebulizer or atomizer will be capable of covering a surface area that is four times greater than the area treated by a conventional atomizer. This is why our system is referred to as LOW VOLUME. We provide a graphic illustration of the phenomenon below.



By considering a mixture droplet with an area 'A', we can observe how the area treated increases at equivalent volumes of mixture when we sub-divide it into many smaller parts.
Below, we provide a table that indicates the quantity of mixture required to cover a determined surface area.

Carrarospray features

- **Reinforced steel frame:** frame is protected from damage.
- **Hot galvanized steel frame:** total absence of rust.
- **Reinforced polyethylene tank on mod. NTA-P or glass fiber NTA-F:** better resistance to stress, vibrations and bumps.
- **Reinforced fibreglass tank:** better resistance to stress, vibrations and bumps.
- **Rounded tank design:** easy to clean, good maneuverability and easy to operate in narrow and low spaces without damaging crops.
- **Tank designed to facilitate complete emptying:** total suction of the spray material even on inclined terrain - saves money on chemicals.
- **Clean water tank for hands washing:** in accordance with CE rules, total absence of chemicals in water for hand washing.
- **Fresh water tank for cleaning the spraying system:** easy washing of residue from the reservoir, spraying tubing and nozzles at the end of every treatment.
- **Fan dynamically balanced:** smooth and vibration free operation.
- **Rear bumper:** prevents from the risk of possible damages when backing-up or tacking a turn.
- **Extra cock valve:** useful for lance or other optional attachments.
- **Jet agitation:** uniform mixture of the product.
- **Mechanical agitation:** uniform concentration of mixture in the tank without creating foam.
- **Bearings in according with UNI-ISO rules:** easily available in the market.
- **Gearbox 2 speeds and neutral:** possibility to change fan speed to adjust air volume and to stop the fan for hand gun use.
- **Suction filter with shut-off valve:** easy cleaning and maintenance of suction filter even with a full tank.
- **Modern design:** attractive lines and profile; easy to transport.
- **Tank drain valve:** easily accessible for quick draining of tank without contact with chemicals.
- **Highly visible safety stickers:** reduced risk of accidents for the operator.
- **Low volume capability:** provides the possibility of using concentrated mixtures, reducing the amount of water used and the time required for refilling the tank; saving time and money.
- **Antidrip nozzles:** pressure operated diaphragm check valve in each nozzle avoids leaking chemicals on the soil and saves money and the environment.
- **Electric remote control kit:** allows remote control of spray system even on tractors with a pressurized cab.
- **Electronic calibration system:** constant monitoring and control of the spray volume to keep the spray volume constant regardless of tractor travel speed.
- **Automatic mixer on chemical filling and filter basket:** reduces operator contact with the chemical products.

Versatility

- compact shape for maneuverability and operates in narrow and low vineyards;
- it will spray high or low and narrow orchards;
- various capacity tanks;
- nozzles in brass and stainless steel with adj. delivery and anti-drip device;
- nozzles provides of diaphragm anti-drip device; stainless steel tips calibrated for both high and low volume spraying;
- remote control by manual or electric pressure regulator valve, adjustable from the tractor seat (the electric system is ideal for tractors provided with cabs);
- variable turbine speed for more accurate spraying;
- pressure gauge directly visible from the tractor driver's cab;
- length-height adjustable or articulated drawbar to allow steering in very narrow spaces;
- wheels variable track and adjustable in height;
- constant velocity drive shaft to steering in very narrow spaces;
- possibility of use with handgun for localized treatments;
- possibility to vary the delivery of the mixture, which could be useful for example in the winter treatments at medium and high volume;
- possibility of use with different spray heads: BASE mod. NPB-B, REVOLUTION mod. NPB-R, FACE TO FACE mod. NPB-F;
- easy coupling to any tractor.

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4 in 1 SPRAYER

with SPRAYHEAD NPB-R (REVOLUTION) *Ø 510-530 mm*

SPRAYHEAD NPA *Ø 460 mm*

NPA - NPB

NPF *Ø 500 mm*

with SPRAYHEAD NPB-B (BASE) *Ø510-530 mm*

Technical Data

	gall. U.S.	mm (inch)	g/min - r.p.m.	mc/h	c.f.m.	ℓ/min	HP
NPA 400	100	460 (18,1)	4050	22000	13750	50	40 ÷ 45
NPA 500	125	460 (18,1)	4050	22000	13750	50	40 ÷ 45
NPA 600	150	460 (18,1)	4050	22000	13750	50	40 ÷ 45
NPA 300 S	75	460 (18,1)	4050	22000	13750	50	40 ÷ 45
NPA 400 S	100	460 (18,1)	4050	22000	13750	50	40 ÷ 45

NPA

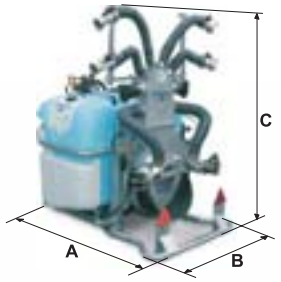
NPA-S

	gall. U.S.	mm (inch)	g/min - r.p.m.	mc/h	c.f.m.	ℓ/min	HP
NPB 400	100	460 (18,1)	3780 ÷ 4158	26000	16250	50	50 ÷ 60
NPB 500	125	560 (22,0)	3780 ÷ 4158	26000	16250	80	50 ÷ 60
NPB 600	150	560 (22,0)	3780 ÷ 4158	26000	16250	80	50 ÷ 60

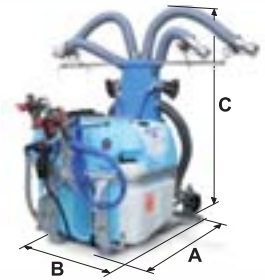
	gall. U.S.	mm (inch)	g/min - r.p.m.	mc/h	c.f.m.	ℓ/min	HP	
NPF 400	100	500 (19,7)	2160 ÷ 2700	32000	20000	50	60 ÷ 70	10
NPF 500	125	500 (19,7)	2160 ÷ 2700	32000	20000	50	60 ÷ 70	10
NPF 600	150	500 (19,7)	2160 ÷ 2700	32000	20000	50	60 ÷ 70	10

Sizes

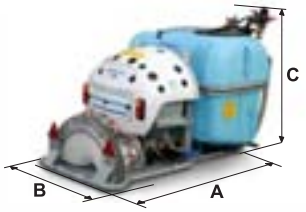
	A mm (inch)	B mm (inch)	C mm (inch)
NPA 400	1550 (61,0)	1220 (48,0)	1800 (70,9)
NPA 500	1550 (61,0)	1220 (48,0)	1800 (70,9)
NPA 600	1550 (61,0)	1220 (48,0)	1800 (70,9)



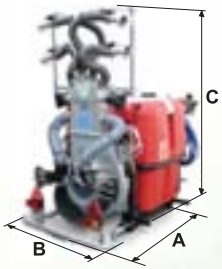
	A mm (inch)	B mm (inch)	C mm (inch)
NPB 400	1550 (61,0)	1220 (48,0)	1800 (70,9)
NPB 500	1550 (61,0)	1220 (48,0)	1800 (70,9)
NPB 600	1550 (61,0)	1220 (48,0)	1800 (70,9)



	A mm (inch)	B mm (inch)	C mm (inch)
NPF 400	1850 (72,8)	1200 (47,2)	1170 (46,0)
NPF 500	1850 (72,8)	1200 (47,2)	1240 (48,8)
NPF 600	1850 (72,8)	1200 (47,2)	1350 (53,1)



	A mm (inch)	B mm (inch)	C mm (inch)
NPA 300 S	1430 (56,3)	1000 (39,3)	1800 (70,9)
NPA 400 S	1430 (56,3)	1000 (39,3)	1800 (70,9)



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