



RAVO 5-SERIES

OPTION BOOK USA

RAVO 5-SERIES OPTION BOOK USA

INTRODUCTION

This option book is meant to be a guideline for choosing options on the Ravo 5-Series. Most of the available options are included in this overview, but should you require any other optional equipment you can always contact the Ravo Sales desk (Your Sales Manager or Sales Support Contact) with your requests.

With this option book comes a DVD with pictures and movies of the options in working situations so you can have a clear picture of the usage and versatility of the various options.

Most of the options mentioned in this book are factory options, which means that they are installed at the machine in the production line. However, some are Special Products (which are clearly marked with a bold S) which means that they will be installed after production at the machine and are only available on request.

Since most options require special attention when building the sweeper you are kindly requested to follow the following guidelines when ordering a sweeper with options:

12 weeks before production date:

- Engine
- Container
- Speed

8 weeks before production date:

- All other options

Should you have any other requirements or requests, don't hesitate to ask the Ravo Sales desk.

RAVO 5-SERIES OPTION BOOK

OPTION BOOK DETAILS

RAVO 5-Series

Version 1.1

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All technical details and pictures
in this list are subject to change
without prior notice

**For further information
please check:**

www.ravo-fayat.com

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01.

BASIC SWEEPER 5-SERIES

This is the base to start configuring your sweeper.

Option number(s):

1.1 Basic Sweeper 5-Series in 30 MPH including Stage IIIA engine

1.1 Basic Sweeper 5-Series in 30 MPH including Stage IIIA engine

- To start configuring your sweeper you always need to select this option. This is the standard 5-Series without any options. This means that the sweeper has:
- Stage IIIA engine
- No hopper selected yet
- Ravo's unique maintenance friendly brush system with 2 pulled 35.4 inch brooms
- Hydro pneumatic suspension in front
- Michelin wheels in front and double Michehlin wheels in rear
- Disc brakes in front, drum brakes in rear
- Water tank of 130 Gallons net capacity
- Radio CD player with MP3 player
- Two mechinacally suspended seats in the cabin
- Further details can be found in the Sales Manual

N.B.: Although this is the basic version, it is already a very complete sweeper



Picture: Ravo 5-Series STH in 30 MPH configuration with third brush and various other options

02.

ENGINES

Ravo uses IVECO engines due to their excellent performance under heavy working conditions. Another point is that for service you can always use the IVECO service points

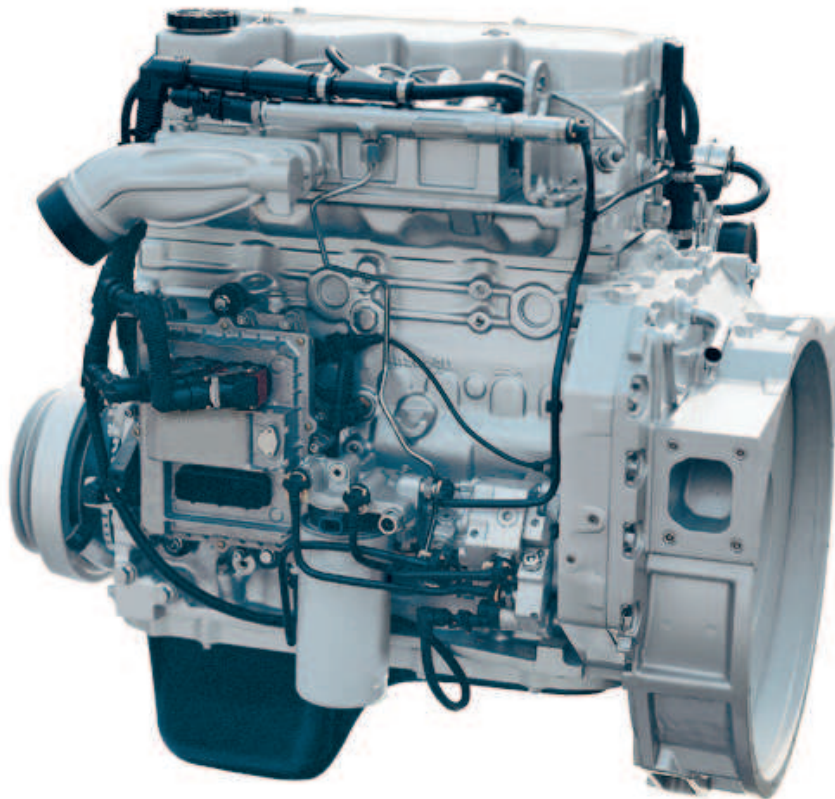
Option number(s):

2.1 IVECO Stage III engine N45 ENT

2.1 IVECO Stage III engine N45 ENT

This IVECO engine in Stage III standard is an industrial engine, used for road construction machines and a is very robust. It is more robust than the Euro 5 standard and does not need Ad Blue.

- 4 CYLINDERS IN LINE - DIESEL CYCLE
- Max power 104 kW (141 Hp) @ 2200 rpm
- Max torque 413 (lb ft.) @ 1600 rpm
- Minimum starting temperature without auxiliaries 5° F
- Dry weight (standard configuration) 904 lbs



Picture: IVECO Stage III engine N45 ENT

03.

CONTAINERS

Ravo has 2 different containers to make sure that for every job the right equipment is available. They have a robust interior and a modern exterior made out of a scratch resistant plastic.

Option number(s):

3.2 Standard Tipping High (STH) Container

3.3 Container Dump (CD) Container

3.2 Standard Tipping High (STH) Container

This is a Tipping Container and has a nett volume of 4.85 yds³. This container is designed for sweeping jobs which require a large capacity; long distance jobs, cleaning at festivities, road construction, etc.

Characteristics:

- Tipping angle of 58°
- Gross capacity of 6 yds³, nett capacity of 4.85 yds³
- Discharge height of 34 inch
- Container side plates and interior, bottom and roof are made of stainless steel
- Rear door and inner fan housing are made of Corten steel and are painted
- Outer fan housing is made of aluminium and painted in grey



Picture: Ravo 5-Series in 30 MPH configuration with STH container in orange color

03. CONTAINERS

3.3 Container Dump (CD) Container

This container has been developed to empty the hopper in a container at a height of 61 inch. The hopper lifts vertically as a whole and a push out plate empties the hopper.

Characteristics:

- Gross capacity of 4.6 yds³
- Nett capacity of 3.66 yds³ (due to push out plate)
- Container side plates and interior, bottom and roof are made of stainless steel
- Rear door and inner fan housing are made of Corten steel and are painted
- Outer fan housing is made of aluminium and painted in grey



05. PAINT

Customization of the colour scheme of the sweeper according to the wishes of the final customer is possible with these options.

Option number(s):

- 5.1 Paint Cabin
- 5.2 Paint Container Panels
- 5.3 Paint Chassis

5.1 Paint Cabin

If you would like to have your cabin in a different colour than Standard White Ravo 9900, please specify here the RAL colour.

5.2 Paint Container Panels

If you would like to have your container panels in a different colour than Standard White Ravo 9900, please specify here the RAL colour.

5.3 Paint Chassis

If you would like to have your chassis in a different colour than Standard Grey Ravo 147, please specify here the RAL colour.

N.B.: For the Cabin and Container Panels 2-tone colours are also possible on request



Picture: Various paint combinations are possible

06.

BRUSH SYSTEM

For normal sweeping jobs the standard brush system is already very good, but to make the sweeper more effective in gutters, on pavements, etc. some of below options are advisable.

Option number(s):

- 6.1 Brush lifting during reverse
- 6.3.1 Gutter brush angle adjustment left
- 6.3.2 Gutter brush angle adjustment right
- 6.3.3 Gutter brush angle adjustment left and right
- 6.5.1 Third brush / Weedcutter
- 6.5.2 Preparation third brush
- 6.5.3 Quick release system third brush

6.1 Brush lifting during reverse

When reversing the brush system automatically lifts the brushes. This avoids wear on the brushes.

6.3.1 Gutter brush angle adjustment left

When a machine without third brush is ordered, this option is excellent to clean the gutters along the left hand side of the road.

6.3.2 Gutter brush angle adjustment right

When a machine without third brush is ordered, this option is excellent to clean the gutters along the right hand side of the road.

**6.3.3 Gutter brush angle adjustment left and right**

When a machine without third brush is ordered, this option is excellent to clean the gutters along the left and right hand side of the road.

06.

BRUSH SYSTEM

6.5.1 Third brush / Weedcutter

The third brush is a powerful extra brush mounted in front of the machine which increases the sweeping with of the 5-Series up to 122 inch. The Maximum reach from the front bumper is up to 80 inch. This option is excellent to sweep pavements, shoulders, cut weeds in gutters, etc. Also since more and more municipalities have prohibited the use of chemicals against weeds this option makes the sweeper extra versatile.

N.B.: When ordering this option the option: Gutter brush angle adjustment should be reconsidered since the third brush replaces that option. When a machine without third brush is ordered, this option is excellent to clean the gutters along the left hand side of the road.



Picture: The third brush in action

6.5.2 Preparation third brush

When a third brush will be ordered at a later stage, or one from another machine will be used, this option makes sure all the necessary hydraulics are available to mount the third brush. Also this option can be used to mount other equipment like a snow plough or roller brush.



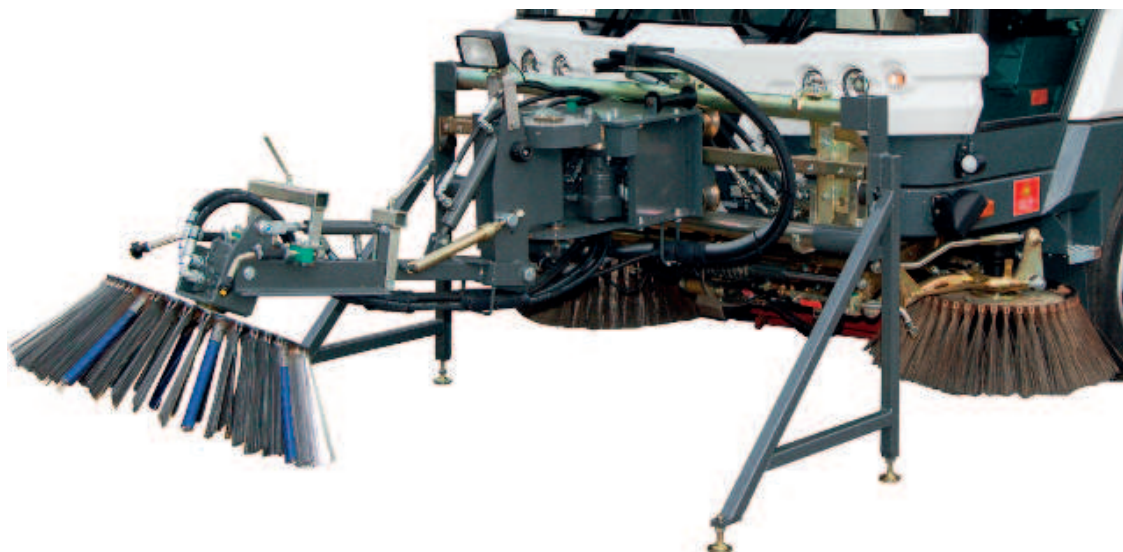
Picture: Third brush preparation

06.

BRUSH SYSTEM

6.5.3 Quick release system third brush

When sweeping with the third brush is not always necessary this is a good option. With this option includes a rack to store the third brush and the mounting (or de-mounting) on the machine only takes a couple of minutes. In this way one third brush can for example be used for more than one machine.



Picture: The mounting rack included in the “Quick release system third brush”

07.

HEAVY DUTY SUCTION LINE

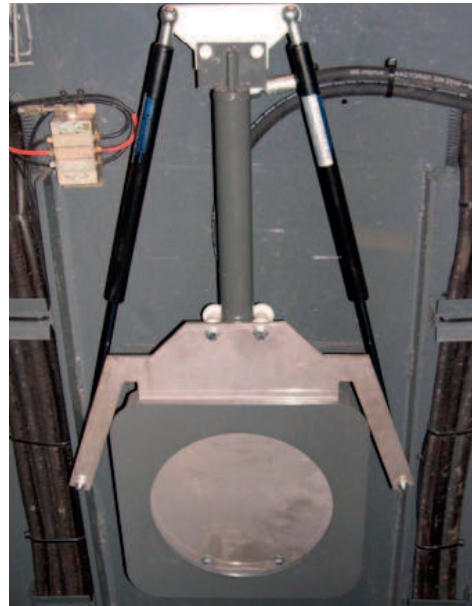
All below options are recommended when working in road construction, sandy and gravel conditions or when in Spring sweeping the materials that have been spread by salt/sand spreaders against ice on the road.

Option number(s):

- 7.2 Suspended swivel wheel
- 7.3 Hydraulic suction tube shutter
- 7.4.1 Coated suction nozzle
- 7.4.2 Coated suction pipe
- 7.4.3 Coated suction pipe bend
- 7.5 Heavy duty package

7.2 Suspended swivel wheel

Especially when sweeping on cobble stone roads this option is advisable since it makes the suction line more “shock proof”.



Picture: Suspended swivel wheel and the Hydraulic suction tube shutter

7.3 Hydraulic suction tube shutter

This is a plate that automatically shuts the suction tube during transport mode. This option is advised when having selected the water recycling option. It avoids dirt in the container from flowing back into the suction tube.

07.

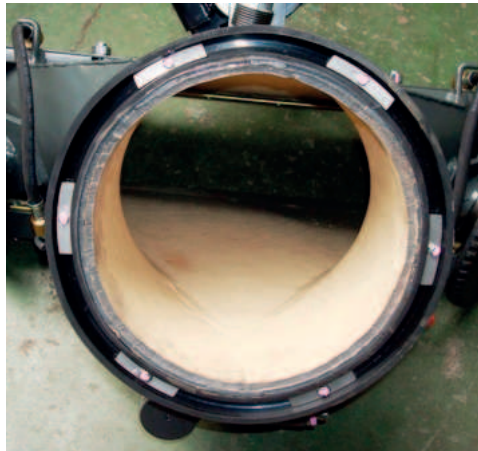
HEAVY DUTY SUCTION LINE

7.4.1 Coated suction nozzle

The suction nozzle has been coated/lined with Linatex against wear.

7.4.2 Coated suction pipe

The suction pipe has been coated/lined with Linatex against wear.



Picture: Coated suction nozzle and Coated suction pipe



Picture: Coated suction pipe bend in opened and closed position.

7.5 Heavy duty package

This package includes all necessary options to equip the Ravo for working in road construction or for heavy use.

- This package includes the following options:
- Reinforced grids in the container
- Coated suction nozzle
- Coated suction pipe
- Coated suction pipe bend
- Coated suction tube extension plate in the container
- Coated suction tube connection on the container
- Suspended swivel wheel

08.

SILENT

Ravo offers 3 silent packages. The Silent stage 2 packages are TÜV certified and certificates are available. The test reports are according to the noise test 2000/14/EC. Around the machine on a semi hemisphere, noise is recorded. This value is averaged and regressed to the power source (in the centre of the machine). This calculated value is called the Sound Power Level. For the Silent Stage 2 option it is 97 LwA at 10 feet distance. Further away, the sound is obviously less (logarithmic with the distance). What you hear is called the Sound Pressure Level. On 30 feet distance the noise is only 69 dB.

Benefits of the silent option are:

- Silent sweeping in urban areas (important when sweeping at night or early morning)
- Less wear on the suction pipe and fan
- Reduced fuel consumption

Option number(s):

8.1 Silent stage 1

8.2.2 Silent stage 2 with Tier 3 engine

8.1 Silent stage 1

This options reduces the Lwa to 106 dB at 10 feet distance by mounting the following items:

- Coulisse dampers in rear door
- Bottom plate under the engine compartment
- Absorbing material under the container



Picture: Coulisse dampers, bottom plate and absorbing material under the container

08.

SILENT

8.2.2 Silent stage 2 with Tier 3 engine

This option reduces the LwA considerably to only 97 dB. This has been done by mounting the following items:

- Coulisserie dampers in rear door
- Bottom plate under the engine compartment
- Absorbing material under the container, rear door, hopper panels and fan exhaust system
- Modified rear door shape (reflection)
- Isolated rear covers plate in the chassis
- Modified suction nozzle in combination with enlarged rubbers (for low RPM)
- Skirt in front of the brush system of the machine
- Silent brushes (steel with rubber) and lowered brush speed
- Automatic brush and suction nozzle lifting during reverse
- Silent mode indicator light in dashboard
- Eco-liner option: Intelligent engine power control software to sweep with an optimized RPM level.
Due to special sensors enough power is available for hill climbing.
- Special discom exhaust silencer

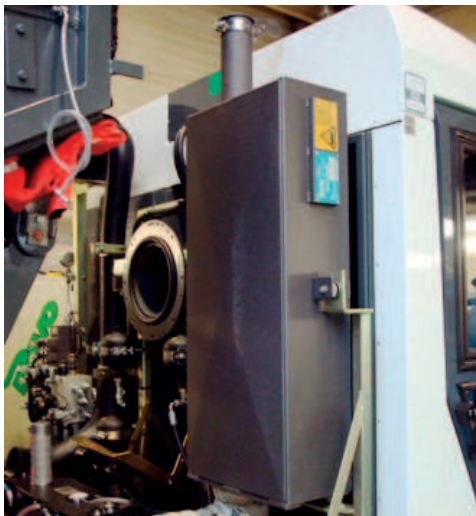
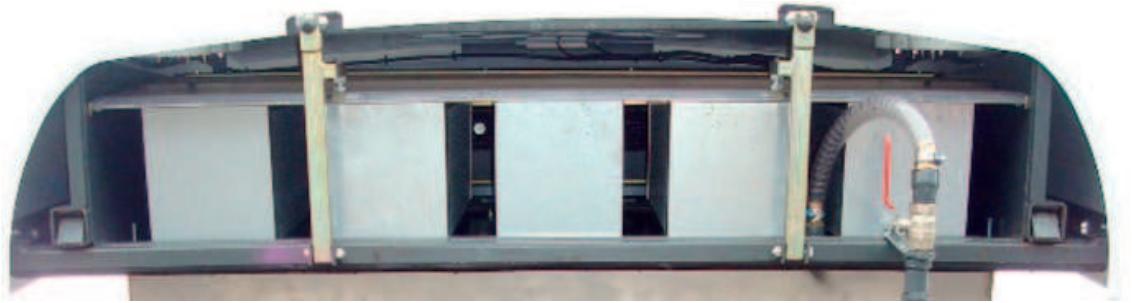
N.B.: With the intelligent engine power control software considerable fuel saving can be obtained.

Tests have proven that this can amount up to 4 Liter per Hour



Picture: Isolation inside and outside the container, the skirt including special brushes

08. SILENT



Pictures: Discom exhaust silencer, bottom-plate and sound absorbing damper in rear door + water recycling

09.

WATER OPTIONS

Option number(s):

- 9.1.1 High pressure water pump with spray gun mounted on the RIGHT hand side
- 9.2 High pressure spray bar in front
- 9.3 Water recycling system
- 9.4 Water blow-out coupling

9.1 High pressure water pump with spray gun mounted on the RIGHT hand side

This option consist out of a HP water pump 4 Gallon/Minute @ 2175 PSI mounted behind the cabin and a stainless steel reel with a rubber hose of 400 inch and spray gun. This option can be used to clean the sweeper (container) but also street furniture.



Picture: The high pressure water pump including spray gun and reel

09.

WATER OPTIONS

9.3 Water recycling system

This new option consists of filters mounted at the rear door which makes it possible to recycle water. The hopper can be filled with 300 Gallon of water and during sweeping this water will be circulated from the hopper to the suction nozzle and back. This will result in a more efficient usage of the water in the water storage tanks, since it is now only needed for the nozzles at the brushes.

Another good side effect of this option is the reduction of the amount of dust coming out of the hopper. This because all dirt that is being swept first passes the water in the container resulting in hardly any fine dust.



Picture: Water recycling mounted in rear door. Also visible is option 8.5 Sound absorbing damper in rear door

9.4 Water blow-out coupling

A simple but effective air coupling connected to the water system in the sweeper. Connect an air pressure hose to this coupling to clean the water out of the pipes. This option is especially useful in cold weather conditions since it prevents the water from freezing in the pipes.



Picture: Water blow-out coupling mounted behind the container door

10. WANDER HOSE

A wander hose makes the sweeper extra versatile, with this option difficult to reach places can be cleaned as well as dustbins.

Option number(s):

10.1.1 Wanderhose mounted on rear door

10.1.1 Wanderhose mounted on rear door

This option consists out of a Wanderhose mounted on the rear door with a diameter of 7.9 inch. This hose is suitable for vacuuming leaves and other light and small dirt. This option includes also a mounting rack on the rear door of the container.

*N.B.: This option is not available in combination with a Swasher arm and/or Watertank.
If required, please select below option 10.1.2 for these configurations.*



Picture: Wanderhose mounted on rear door and Wanderhose through and mounted on rear door incl. Swasher arm mounted on the Left Hand Side.

10.1.2 Wanderhose through and mounted on rear door

This option consists out of a Wanderhose mounted through the rear door with a diameter of 5.9 inch. This hose is suitable for vacuuming leaves and other small and light dirt. This option includes also a specialized mounting rack on the rear door of the container.

N.B.: This option is suitable for a 5-Series sweeper with a Swasher arm and/or Watertank.

11.

ERGONOMICAL AND SAFETY OPTIONS

Although the 5-Series has already been designed for maximum driver's comfort and safety, various options make the cabin even more comfortable and safe.

Option number(s):

- 11.1 Air conditioning
- 11.2 Air suspended driver's seat
- 11.3 Head rest for driver's seat
- 11.4 Comfort package
- 11.7 First aid kit
- 11.8 Heated mirrors

11.1 Air conditioning

A must in warm climates but also ideal in colder climates to avoid humidity and damp on the windscreen and to create a comfortable climate in the cabin with clean air.

11.2 Air suspended driver's seat

When sweeping on cobble stone roads or for long transport distances this is an option that will be appreciated by the drivers. The air suspended seat will absorb shocks from poor road conditions.

11.3 Head rest for driver's seat

For extra comfort this head rest is available

11.4 Comfort package

Options (11.1, 11.2, 11.3) can be ordered at once in this comfort package.

11.7 First aid kit

A basic first aid kit which includes all the essentials.

11.8 Heated mirrors

Especially for cold weather conditions this is an essential option. It ensures visibility at all times.



Picture: Air suspended driver's seat and heated mirrors

12. CAMERA SYSTEMS

The Ravo 5-Series offers excellent visibility on the road but the camera options can add extra safety in crowded areas.

Ravo mounts top of the range Orlaco colour camera systems. Various configurations are available; rearview, side view and suction mouth view camera's. All camera's come with a flatpanel display in the cabin. When selecting more than one camera, switching between the various views happens automatically depending on the operation of the sweeper or when preferred, manually. It is also possible to install two monitors in the cabin.

Option number(s):

- 12.1 Rearview camera
- 12.2 Suction mouth camera

12.1 Rearview camera

For safe reversing with the sweeper this is an essential option.

12.2 Suction mouth camera

For a more efficient sweep this camera is a good option, the driver can focus on the road and see at the same time what is happening below the cabin.



Picture: The monitor of the camera and the camera mounted on the rear door

13. WHEELS AND TIRES

Different jobs and different speeds require different tires. Select below the wheels and or tires you require. The Wide Wall and Solideal tires are almost massive tires whereas the Michelin tires will ensure more road comfort.

Option number(s):

13.4.2 Spare wheel front Michelin XTA 215/75 R17,5 (30 MPH)

13.4.6 Spare wheel set rear Michelin XTA 205/80 R15 (30 MPH)



13.4.2 Front tire Michelin



13.4.6/7 Double rear tire Michelin

14.

SPECIAL OPTIONS

Every Ravo 5-Series is build according to the customer's specific wishes and needs. In this chapter some of the most common requested options are listed. For other options, request your Sales Manager for the possibilities.

Option number(s):

- 14.3 License plate holder
- 14.4 Jack 5 Ton
- 14.5 Wheel nut wrench
- 14.6 Toolbox (Mounted in front of the passenger's seat)
- 14.7 Mounting rack on rear of the container
- 14.8 Easylift grid
- 14.9 Spray pipe to clean the fan

14.3 License plate holder

This is a license plate holder mounted on the rear of the machine. This option could be required according to local legislation.

14.4 Jack 5 Ton

To lift the machine on the spot to change a wheel, this Jack (capacity: 5 Ton) is an excellent tool.

14.5 Wheel nut wrench

To change wheels this tool is a must.

14.6 Toolbox (Mounted in front of the passenger's seat)

This toolbox provides the driver with the right tools too carry out small repairs on the spot.

14.2 SPECIAL OPTIONS

14.7 Mounting rack on the rear of the container

To mount various things on the rear door like signs, tools, etc. this is a good option. It consists out of two rails on which sign boards or hooks and holders can be mounted.

N.B.: When ordering the Wanderhose (14.1.1) or Swasher arm this option is automatically included.



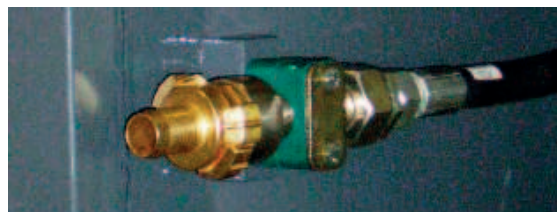
Picture: Mounting rack on the rear of the container and opened Easylift grid

14.8 Easylift grid

This option consists of a special grid in the container that is mounted on a steel cord connected to a reel on the side of the hopper. In this way the grid can be lowered for cleaning in such a way that it can stay inside the container and does not have to be lifted by hand.

14.9 Spray pipe to clean the fan

To clean the fan, just a waterhose needs to be connected to this inlet which then cleans the fan.



15. SWASHER OPTIONS

Ravo has developed the Swasher to make the 5-Series even more versatile. Sweeping and washing can be done in one go by one machine. Configure the Swasher as you require.

Option number(s):

- 15.1 Hydraulic components Swasher
- 15.2.1 High pressure water pump 4 Gallon/Minute @ 2175 PSI
- 15.3 High pressure spray bar in front
- 15.4.2 Boom on hopper including reel and 590 inch hose + spray gun – RIGHT hand side
- 15.5.1 Watertank 200 Gallon (CD Version)
- 15.5.3 Watertank 330 Gallon (STH Version)

15.1 Hydraulic components Swasher

When ordering the waterpumps necessary for the Swasher option this option always needs to be selected as well. It ensures all the hydraulic components are installed to power the waterpumps.

15.2.1 High pressure water pump 4 Gallon/Minute @ 2175 PSI

This option consist out of a HP water pump 4 Gallon/Minute @ 2175 PSI mounted below the container to provide sufficient water to ONE boom on top of the hopper and the spray bar mounted in front of the sweeper at the same time.

15.3 High pressure spray bar in front

This option consists out of a high pressure spray bar in front with 4 nozzles additionally to the normal nozzles mounted on the brush frame. The capacity per nozzle is 1 Gallon/Minute @ 2175 PSI



Picture: High pressure spray bar in front

15. SWASHER OPTIONS

15.4.2 Boom on hopper incl. reel and 590 inch hose + spray gun - RIGHT hand side

This boom is mounted on top of the hopper and has a 360° turning circle to spray around the sweeper. It is standard equipped with a reel and 590 inch hose + spray gun for optimum flexibility.



Picture: One boom on hopper Right hand side

15.5 Watertank

An extra watertank is mounted inside the container to provide extra water for the Swasher options for a longer working time. The water capacity of this option can be added on top of the standard watertank of the 5-series.

15.5.1 Watertank 200 Gallon (CD Version)

This watertank is suitable for mounting in the CD version. It is mounted behind the push plate.

15.5.2 Watertank 330 Gallon (STH Version)

This watertank is suitable for mounting in the STH version. This version of the Swasher is recommended by Ravo since it has the biggest capacity.

16.1

RAVO 5-SERIES SWASHER IN ACTION



Picture: Ravo 5-Series with Swasher options cleaning the streets of Amsterdam



Picture: Ravo 5-Series in 30 MPH version with Swasher options cleaning the streets of Rome

16.2

RAVO 5-SERIES IN ACTION



Picture: Ravo 5-Series loaded with asphalt (STH - road construction) and leaves (CD - Autumn sweeping)



Picture: Ravo 5-Series in 30MPH version with third brush