PHOENIX Tech

Description and technical features

The unit is a washing centre for vehicles with one mobile gantry . This means that the gantry roll over the vehicle several times to wash and dry it, whereas the vehicle remains stationary for the whole cycle time.

The process includes a first washing phase with rotating brushes, followed by the drying phase during which the water is blown away from the vehicle surface by means of high pressure air flows. The brushes action is supported by the distribution of water and wash chemicals. Before the drying phase some wax is distributed on the vehicle's in order to make the water flow and obtain a polish finishing of the surfaces.

In addition to the phases of washing and drying, the PHOENIX TECH unit can carry out other processes that can be generally summed up in:

- pre-washing phase
- polishing phase.

A complete washing process is carried out according to the following sequence of operations:

1. pre-washing
2. washing
3. polishing
4. drying

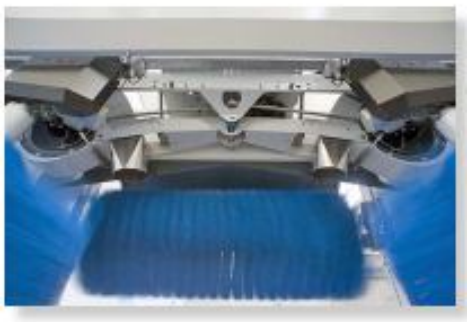
Each phase can be carried out in different ways.

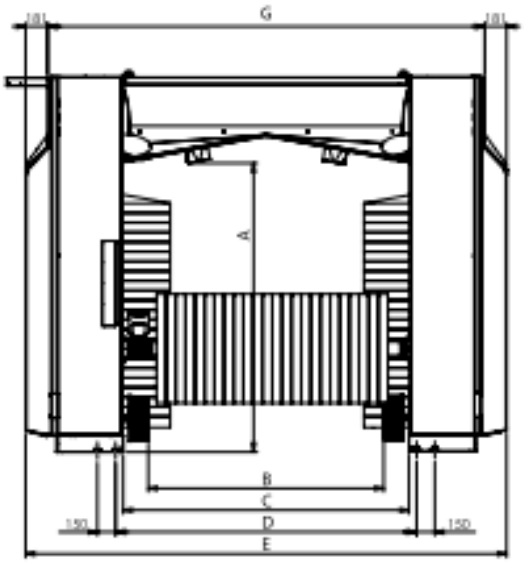
THE PHOENIX TECH RANGE

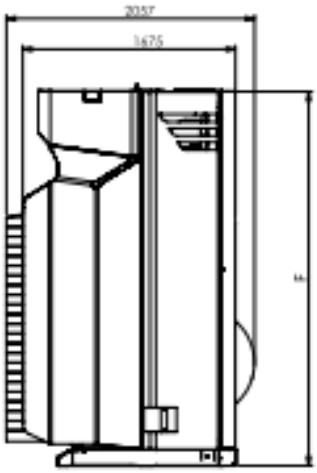
PHOENIX TECH is available in two versions.

One version features the well known contour following top drying system (Premium version); the other one is equipped with two oscillating drying blowers that are fitted on the gantry top cross beam.
The “AirPlus” range includes all machines that are equipped with the oscillating blowers.

In the following descriptions of the machine operation mode and of the technical equipment, we will make reference mainly to the version with the traditional contour following drying system.







			PHOENIX TECH		
			240	260	295
Total weight	kg	(lb)	1600 - 1700# (3528 - 3748#)		
Height (A)	mm	(in)	2370 (93"1/4)	2620 (103"1/4)	2970 (116"3/4)
Width (B)	mm	(in)	2000 / 2300# (78"3/4 / 90"1/2#)		
Width (C)	mm	(in)	2400 / 2700# (94"1/2 / 106"1/4#)		
Rails distance (D)	mm	(in)	2500 / 2800# (98"1/2 / 110"1/4#)		
Width (E)	mm	(in)	3990 - 4290# (157"3/4 / 168"1/4#)		
Height (F)	mm	(in)	3135 (123"1/2)	3335 (131"1/2)	3560 (140"1/4)
Width (G)	mm	(in)	3627 / 3927# (142"1/4 / 154"1/2#)		

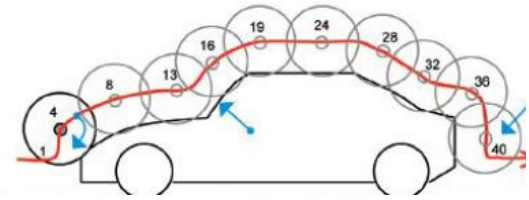
(#) PHOENIX TECH LARGE

SMART TOUCH

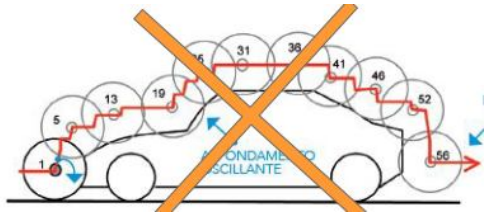
Innovative system that change the control systems of the Horizontal Brush, commonly used on car wash gantries, introducing the technique of Continuous Vector Control that allow the full integration between movements of the gantry and Horizontal Brush.

In the traditional system, the control system of the horizontal brush is a "step by step" control, with the following disadvantages:

1. The run the program takes a longer time;
2. The oscillations and the pressure change of the brush on the car surface diminishes the quality of washing and increases the chance of having uncontrolled "raised" of the top brush itself, with the result that they do not cover the entire surface to be cleaned;
3. The visual impact that these oscillations and continuous climb-down of the top brush gives the customer certainly does not give the impression that the system ensures a perfect clean-thorough washing.

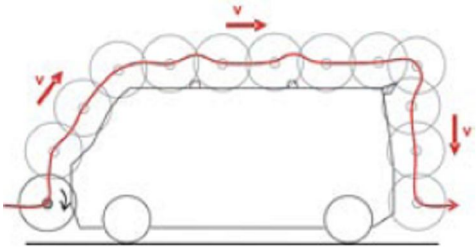


Smart Touch system



Step by step system

The SMART TOUCH system allows the car wash manager to set the desired value of the sinking of the Horizontal Brush on the vehicle surface. Depending on the type of brushes installed machine (Carlite , polyethylene , etc.), the system is able to "auto configure " itself in order to obtain a pass very similar to a "caress" . Furthermore, the Smart Touch system allows the unit to obviate the gradual wear of the brushes , while maintaining the sinking required by the operator , even in case of excessive wear of the bristles .
Maintaining a constant pressure and, consequently, a more precise and uniform wash, we obtain a higher washing performance.
Moreover, right for this reason, the unit is able to "contour follow" obstacles such as spoilers , ski carriers etc., guaranteeing a safe wash.



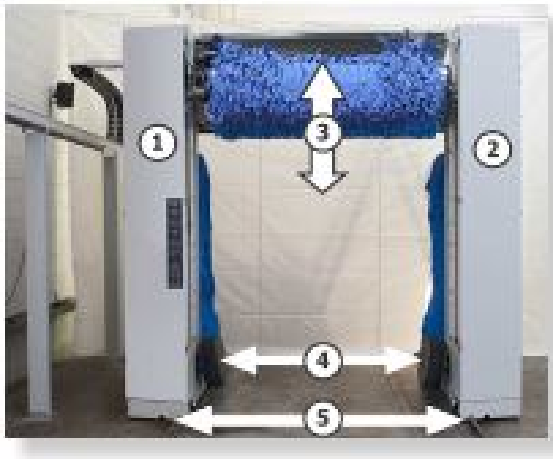
- **Faster wash !!!!**
- **Uniformity of cleaning on all surfaces (back in the recesses!)**
- **Greater smoothness of movements: it improves the visual effect giving a sense of delicacy (Brushstroke)**

The shape memorization of the car body is done in two ways:

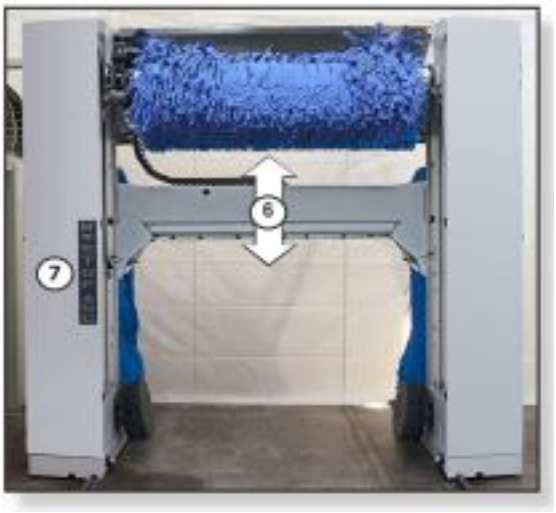
• By the run of the Horizontal Brush - in this case the software memorizes the trajectory followed by the Horizontal Brush in the race "Brushes" (using the VBC principle);
• By the run of the Horizontal bar - by detecting the shape of the car by means of three photocells mounted on the unit.

MAIN COMPONENTS OF THE MACHINE

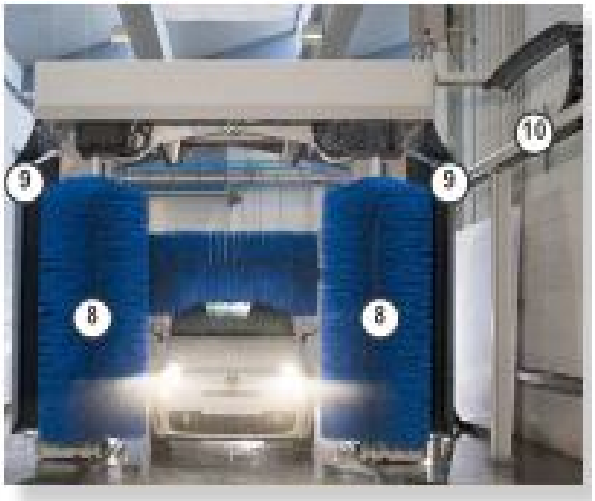
1. Gantry column containing the electrical cabinet
2. Column containing the hydraulic equipment
3. Top brush equipped with up and down movement (n. 1)
4. Wheel wash device, with rotating brushes (option)
5. Gantry rails (no. 2)



6. Contour following top dryer with integrated blowers.
7. Signalisation and positioning device.



8. Side brushes (no. 2) with cross movement
9. Splash guards (no. 2)
10. Support frame of the cable and pipes energy supply chain.



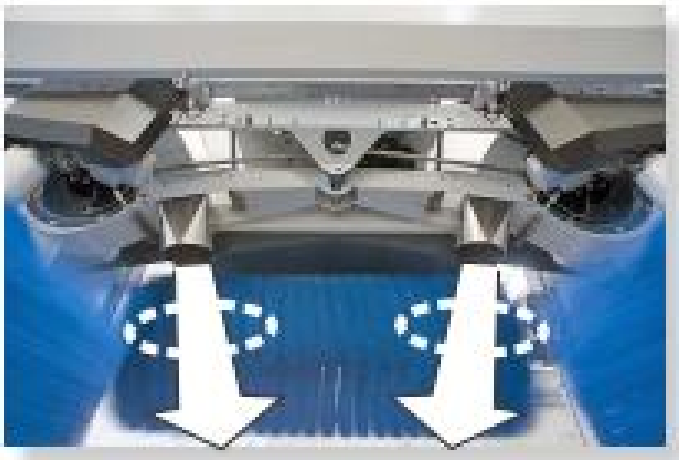
11. Side drying system, including two vertical nozzles.

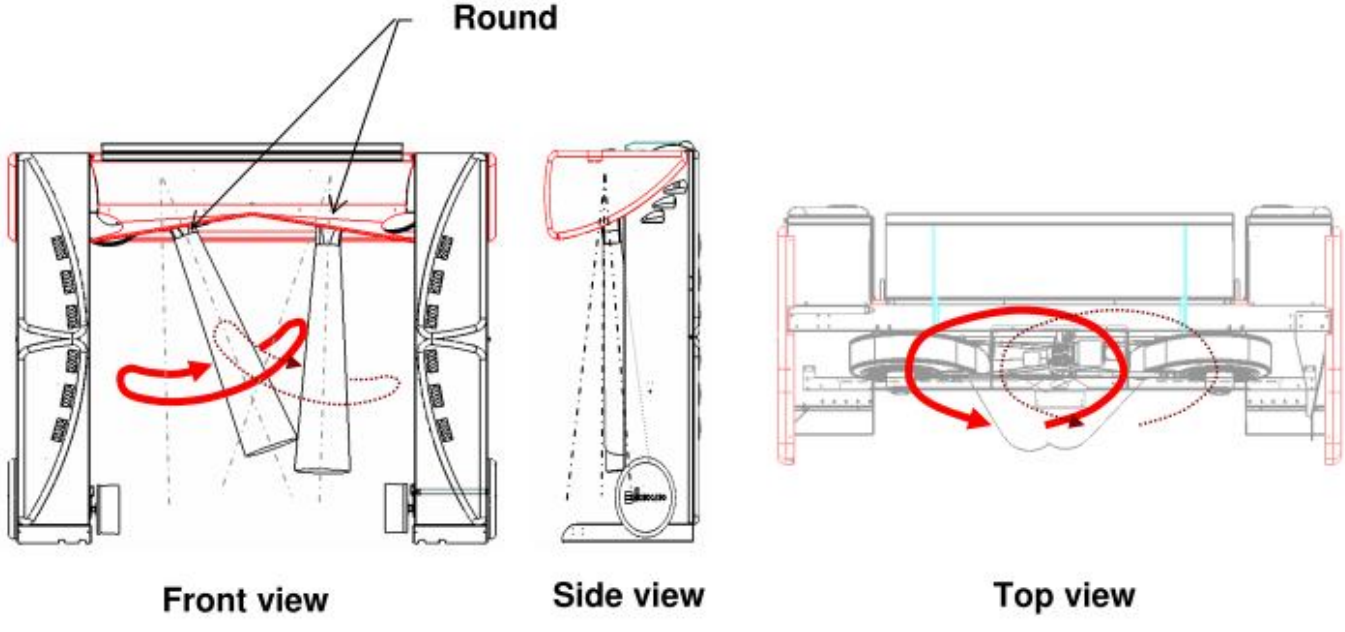
    The side nozzles are embedded into the gantry columns and the air blowers are mounted on the top of the same columns.

PHOENIX TECH AIRPLUS

The drying system includes:

1. Top section, including two oscillating drying nozzles, installed under the gantry top cross beam.
2. The vertical working group includes two side drying nozzles which are mounted on the opposite gantry columns. Each nozzle is equipped with one air blower, fitted on top of the relevant gantry column.





AIR PLUS BLOWERS MOVMENT

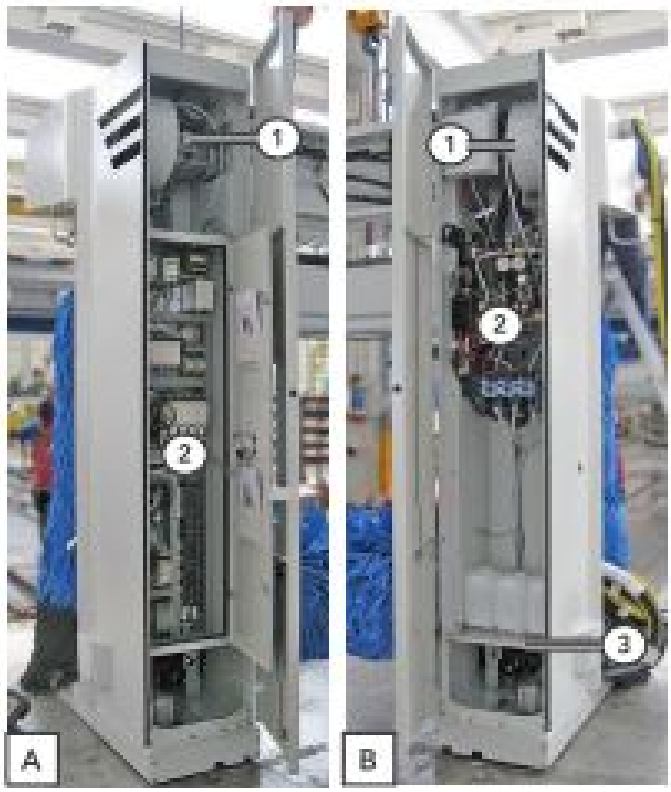
MAIN COMPONENTS INSIDE THE STRUCTURE

Left column (picture A)

1. Left side blower
2. Electric cabinet
    - Lock with key (no.1)
    - Circuit breaker with key lock.
    - Locks with key (no.2)
    - Electric cabinet data plate

Right column (picture B)

1. Right side blower.
2. Hydraulic and pneumatic switchboard
    - Compressed air connection
    - Water connections
    - Set of wash chemicals pneumatic dosing
    - pumps.
3. Shelfs of the wash chemical cans.



DESCRIPTION OF THE GROUP OF NOZZLES

Top water nozzles

Two nozzle sets are installed to distribute water on the top brush.

Vertical water delivery arches

These nozzles are used to distribute water on the vehicles' sides and on the side brushes

They can be used in the following ways:

- Distribution of shampoo during the brush wash.
- Distribution of water on the brushes
- Rinsing.

Rear nozzles

The nozzles can have following functions:

- Rinsing of the vehicles in forward run.
- Wetting of the surfaces before the side brushes in the backward runs.

Wax nozzles

Nozzles “waxes” equipped in two units, placed in the front part and out of the top brush.

They can be used in the following ways:

These nozzles are used for following functions:

- Distribution of wax beyond the top brush (during brush wash backward runs).
- Separate gantry wax run.
- Distribution of wax during the drying forward run.
- Separate gantry run with osmotic water.
- Distribution of osmotic water during the drying forward run.
- Rinsing.

VEHICLE'S POSITIONING DEVICES

Electroluminescent display

The warning system consists of an electroluminescent display located on the entrance side of one of the two columns that gives the following information.

- R (Yellow colour) = vehicle backward movement
- STOP (Red colour) = vehicle stop
- GO (Green colour) = vehicle forward movement

Activation of the display depends on that of the two photocells positioned at an angle which detect the presence of the vehicle in the bay.

Positioning start board (optional)

It is a vehicle's position device that can be installed as an alternative to the standard photocells system. The customer must drive the vehicle forward and place the left front wheel in the centre of the start board, following the indications of the traffic lights.

Control panel

The standard control board of the machine, shown in the picture on the side, is installed on top of a column anchored to the floor, outside the dangerous area.

At the side of this column it is possible to place another support post equipped with the payment system or with the additional pushbutton panel.

Operator's panel

Operator panel with soft-touch keyboard and back lighted LCD display.

Following functions and controls are possible from the operator's panel:

- Information about the state of the machine, the current wash cycle, the alarms.
- Selection of the wash cycle.
- Customization of the programs.
- Visualisation of stastistical data.

The access to the system parameters is limited by two-level passwords.

SUPERVISION AND CONTROL DEVICES

Telecontrol system (Optional)

The telecontrol system also allows remote data processing and can be connected either through a GPRS or ADSL network, providing real-time information on the status of the unit and allowing immediate action in case of malfunctions.

The system allows to:

- manage 6 USER LEVELS with independent settings
- send text messages (SMS) or emails containing alarm warnings, cycle counter data or unit data
- receive requests to send data by SMS
- manage the ALARM LOG.
- view WEB PAGES for unit control and management
- view CASH and REVENUE status
- view the wash bays via multiple webcams

Once recognized by the system through a password, any enabled user can send an encoded SMS requesting the sending of:

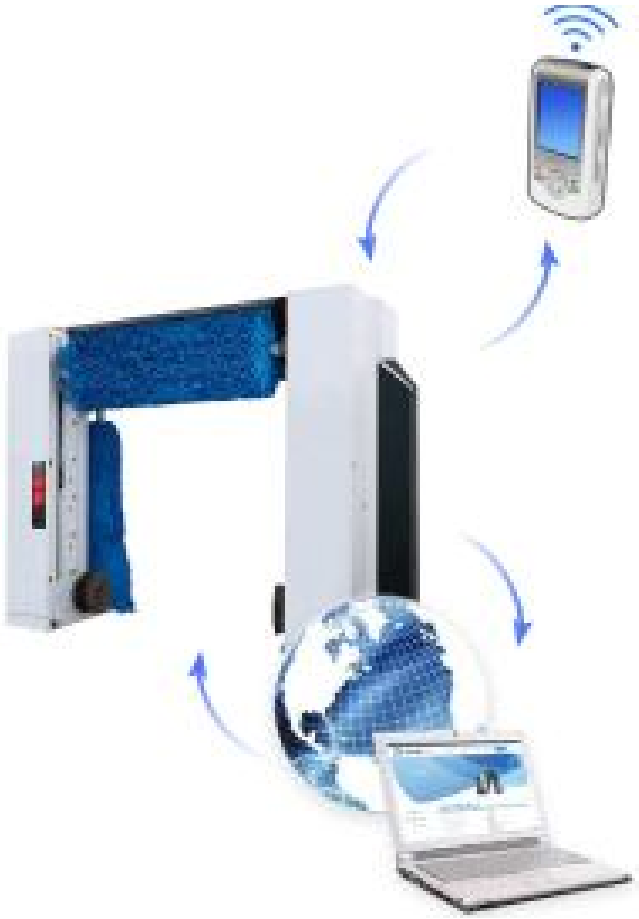
- total and daily cycle counter data
- unit status
- alarms and events report

Enabled users can also request the sending of a emails with the following information:

- total and daily cycle counter data
- alarm log ed events report

By connecting via Web, authorized users can:

- manage a multi-user connection
- view the list and status of the units
- view a synoptic diagram showing the status of the units
- send and reply via SMS or EMAIL to messages from other users (even for units not connected through GPRS)
- send SMS messages in any of the languages available
- Configure the alarm and control settings
- Look after the system's filters over time
- Export data
- Analyse statistics concerning alarms, events and revenue
- Compare and contrast analyses of different systems
- Create reports and graphs



SIMPLYSTART activator for arch

Automatic payment machine able to give change and change banknotes, or change and dispense coins for additional services.

It can be configured with 4 to 6 washing programs and has an emergency stop and system repositioning and reset buttons.

PITPOINT PLUS activator for arch

Automatic payment machine that can be configured with 6 separate washing programs.

PSD CODAX

The device includes a main unit (A) with printer, placed in the kiosk and a remote unit (B) usually placed close to the washing machine. After payment , a ticket with a random 6 figures number is issued by the main unit. The user goes then to the remote unit and digits the number on the keyboard to start the washing cycle.

OPTIONS

Supervision and control devices

- Remote control via SMS and WEB.

Self-service payment systems

- Banknotes, coins and key reader
- Standard cards reader
- Magnetic cards reader
- PSD Codax

Vehicle's positioning devices

- Start board
- Wheel driver

Pre washing

- Side high pressure (16 bars)

Washing groups

- Wheel wash brushes
- Underchassis wash

Special treatments

- Side pre wash chemicals
- Additional wax
- Rinsing with osmotic water

Brushes

(Standard brushes in polyethylene).

- Foam touch

Claddings and brushes colours

- White RAL 7035
- Grey RAL 7016.

Other options

- Side splash guards
- Only one water pump

Gantry forward movement

FORWARD movement means that the gantry is in front of the vehicle and moves forward to get close to it .

Gantry backward movement

BACKWARD movement means that the gantry is in front of the vehicle and moves backward to get away from it.

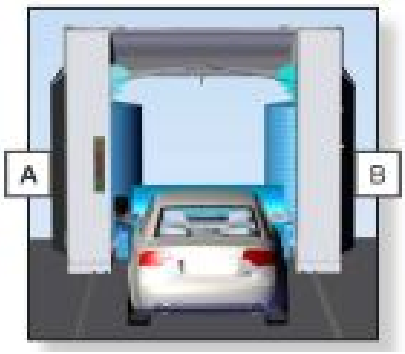
Left and right side

The definitions “right” and “left” refer to the front

view of the machine, the vehicles’ entry side

A. Left side.

B. Right side.



Brushes rotation

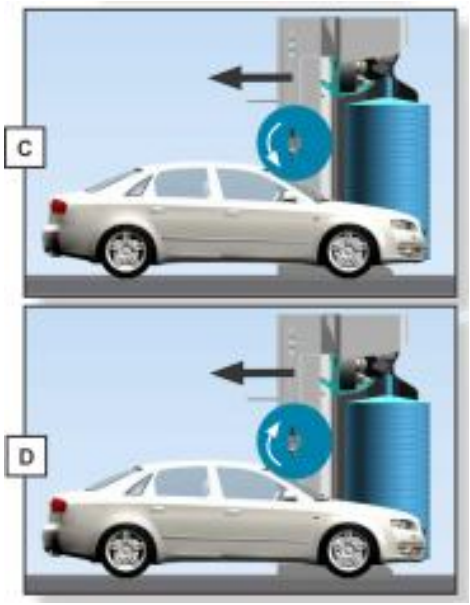
The direction of rotation of the brushes can be either “climbing” or “counter-rotating” in relation to the gantry movement.

“Climbing” rotation

See figure C

Counter-rotating”

See figure D



TECHNICAL FEATURES

CONNECTIONS

Recycled water ..... G 3/4”
Clean water ..... G 1/2”
Water pressure ..... 3-4 bar (45-60 PSI)
Compressed air ..... G 1/4”
Air pressure ..... 7-8 BAR (100-115 PSI)
Osmotic water ..... G 1/2”

Max power absorption (*)	kW (Hp)	12 (16)
Max power required (*)	kW (Hp)	18 (24)
Power supply	V	See plate
Frequency	Hz	See plate

(*)Power absorbed by the, pumps compressor and other is not included.

Please see following table to calculate the total installed power of a given configuration

Pumps power	**kW (Hp)**
Recycled water supply pump	1,5 / 3 / 4 (2 / 4 / 5,5)
Fresh water supply pump	1,5 / 3 / 4 (2 / 4 / 5,5)
High pressure feeding pump (16 bar)	5,5 / 7,5 (7,5 / 10)
Underchassis feeding pump	5,5 (7,5)

WASH WATER QUALITY

The correct operation of the washing equipment is granted only if the water used for the washing process is in compliance with the following characteristics:

FRESH WATER

Parameter		
pH		6-8
Hardness	°F	<30
Total suspended solid	mg/l	<10
TDS (total salinity)	mg/l	<3000
Turbidity max	NTU	1
Free chlorine	mg/l	-
Iron	mg/l	<2

RECYCLED WATER

Depending on the system, it is possible to guarantee 70-80% of water reuse.

Parameter		
pH		6-8
Hardness	°F	<30
Total suspended solids	mg/l	<15
COD	mg/l	<200
Total hydrocarbons	mg/l	<5
Total surfactants	mg/l	<2

If above parameters are not met, the Manufacturer is at your disposal to study and propose the most suitable water treatment solution to obtain the required water quality.

!

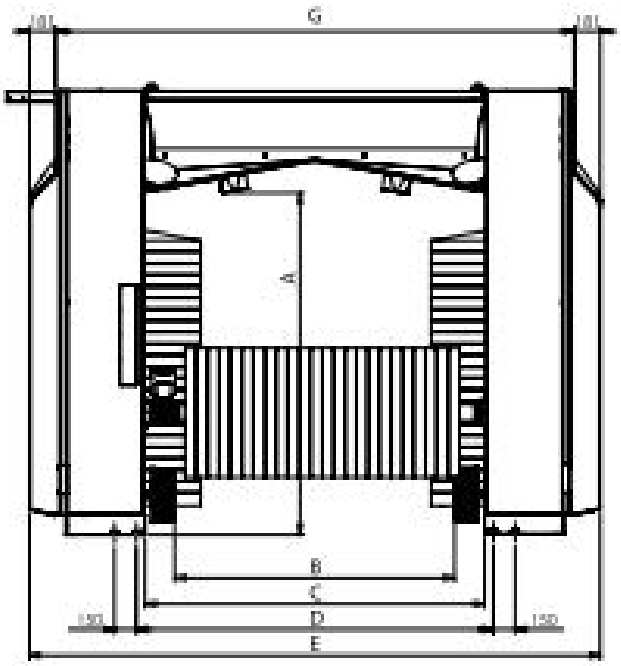
- It is not possible to use recycled water with the features reported in table to supply the softened and osmosis unit.
- No large material must be found in the infeed water (stones, bags, leaves) which could damage the system's feed and the high-pressure pumps.
- For the discharge of the waste water of the vehicle wash operation into the city sewer, follow the local regulations.

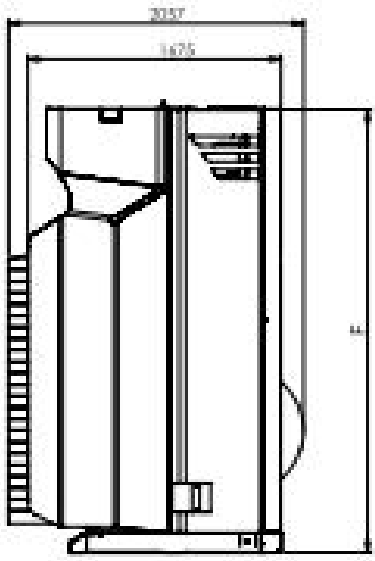
CHEMICALS CONSUMPTION

When using Ceccato wash chemicals, the dosing pumps shall be adjusted in order to obtain a consumption per cycle as shown in the table below. The consumption data are referred to the wash of vehicles with average length of 4,5 m and to an ambient temperature of 10-12 °C. The wash chemical delivery rate shall be reduced if the temperature is higher.

Chemicals	Consumption per cycle (ml)
Pre-Wash Cleaner	20-30
Brush Shampoo	5
Wax Plus	20-25

OVERALL DIMENSION AND MAXIMUM VEHICLE SIZE





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Width (G)	mm	(in)	3627 / 3927# (142"1/4 / 154"1/2#)		

(#) PHOENIX TECH LARGE

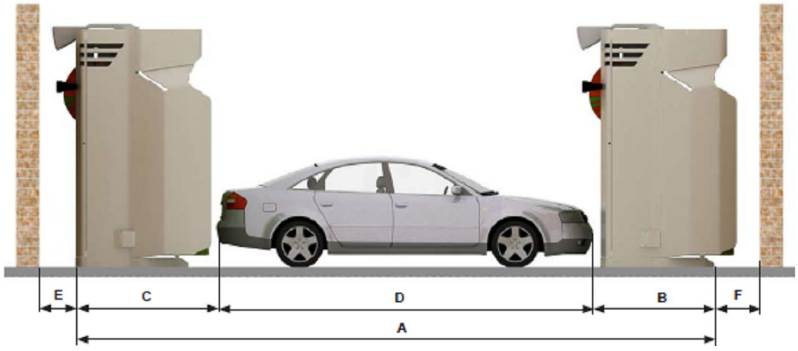
USEFUL WASHING LENGTH

Unit with standard rail length

With the standard length rails of 9 metres (29ft 1/2) it is possible to carry out a complete wash of a 5,3 m (17ft1/2) long vehicle, as shown in the following drawing.

Legend

A. Standard rail length: 9000 mm (29ft 1/2)



B. Space needed in front of the vehicle: 1690 mm (5ft1/2)

C. Space needed behind the vehicle: 2000 mm (6ft1/2)

D. Maximum vehicle length: 5300 mm (17ft)

> In case of indoor installation, check the minimum distances from the machine side frames to the walls and the space remaining between the machine and the entry and exit walls/doors when the unit is positioned on both rails limit switches.

Unit with special rail length

Increasing the rail length

By increasing the rails length, the washing length will be increased by the same length.

Rail length m - (ft)		Vehicle length m - (ft)
(standard)	9 - (29 1/2)	5,3 - (17)
	10 - (32 3/4)	6,3 - (20)
	11 - (36)	7,3 - (24)

Decreasing the rail length

By diminishing the rails length, the washing length will be decreased by the same length. Please take into account that the machine will in any case carry out the wash cycle. The wash will be completed on all those vehicles which length is compatible with the rails size, whereas some of the operations could be carried out only partially or not carried out at all on longer vehicles.

Rails length m - (ft)		Vehicle length m (ft)
(standard)	9 - (29)	5,3 (17)
	8 - (26)	4,3 (14)
	7 - (23)	3,3 (10)

Unit with “short bays” photocell

The installation of this device in short bays allows an increase of the washing length of at least 60 cm.(23”1/2)

Maximum vehicle’s wash length with standard rails will be 5,9 m (232”)

Units with short-track device

With the installation of the short-track device, the washing length can be increased by 1,3 m (51”) in relation to the standard.

Maximum vehicle’s wash length with standard rails will be 6,6 m (260”)

Units with start board (threadle) positioning

On machines equipped with standard rails, the washing length could be diminished up to 500 mm (19”), depending on the length of the vehicles’ fore carriage.

Longer rails should be installed to solve this problem, taking into account that the overall length required to install the machine will be increased.

Maximum vehicle’s wash length with standard rails will be 4,8 m (189”)

NOISE LEVEL

The sound level has been measured in compliance with the norm ISO 3746, using the control method of surface enveloping on a reflecting plane.

PHASE	**Sound pressure level db(A)**
Brush wash	92,4
High pressure wash	101,9
Drying	100,4

The table below shows the noise levels that are generated by the machine during the phases of brush washing, high pressure washing and drying.