



TAMMERMATIC
MOST PREFERRED PARTNER

ROBOJET **WASH-STREET FOR** **REWARDING BUSINESS**



MAXIMISE REVENUES of Rush Hours - Choose RoboJet

Wash-street for today's market needs

The RoboJet produces top quality wash results from a range of available wash menus, including brushless combinations and polishing washes with several of the wash options.

More customers with brushless programs

A significant number of vehicle owners are concerned about brush contact and therefore prefer the brushless wash.

The current share of brushless washes is less than the share of other methods, but their impact on profit is high.

The field experiences demonstrate that by also offering high quality brushless washes annual wash usage and profit can be increased by as much as 20-40%. Only Tammermatic can offer this.

Precision cleaning for quality-conscious customers

Today's customers want value for their money and are very demanding.

Not only the larger areas but also the vehicle's complex contours, i.e.... grille, roof racks, spoilers, trailer hitches, livestock guards, specialty rims, recesses of license plates, door handles and windscreen wipers must be cleaned thoroughly and dried as well as possible.

RoboJet fulfils these demands efficiently

First the meticulous chemical prewash and foam applications soften the dirt, followed by the high pressure modules with their special oscillating high-pressure water jets. This advanced technology allows our unique innovation - the triple solid stream 0-degree nozzles to ensure multiple wash coverage to all areas, and to further reach those recesses that are beyond the reach of brushes, creating an outstanding foundation for the following wash stages. The Tammermatic philosophy is to offer the HP wash in each of the wash programs first, especially in countries with harsh winter climates, in order to prevent the dirt and brushes from making any adverse impact on the vehicles painted surfaces.

Services/Advantages for All Customer Groups

RoboJet - washes all vehicle types, models, shapes and contours. Conveyor system - is well suited for modern low-profile alloy wheels. Chain - no plastic chain covers are needed due to the low chain design.

Variety of wash methods and a broad range of features and functions ensure that the Robojet is ideal to efficiently clean a very large and mixed vehicle base.

Lucrative prices paid for quality washes, and high throughput capacity equipment, together ensure profitable utilization of earning potential. This applies to any site including all rush hours and peak demand periods.





CUSTOMER ORIENTED Construction

The majority of motorists clean their vehicles regularly. More than half of these recognize the benefits of using automated car wash equipment - including time saving easiness and considered environmental aspects. However, for many the combination of confined space and moving brush contacts does make them feel uneasy.

RoboJet is developed to appeal to all customer groups. When the RoboJet wash street is placed into a well illuminated, airy and open construction wash bay, this ensures a very user friendly experience for all.

The availability of brushless programs encourages all drivers to begin their unique experience and then to frequently return as satisfied customers.

The front panels are according to the customer preference and machine configuration can also be designed to specific customers like for example the brushes are either rear corner side or advanced wrap around model.







ROBOJET WASH-STREET

Features and Highlights

Chemical Prewash

An effective chemical prewash and foam are key elements in a high-quality brushless wash, which in turn is the base for top quality combination and polishing washes. Prewash arch of RoboJet applies prewash solution from pivoting side nozzles and also from diagonally forwards and backwards directed floor nozzles.

Foam Application

A foam blanket can be applied onto the vehicle after prewash cycle. It intensifies the effect of prewash chemical and provides gentle visual effect.

For application of two different chemicals or for solutions of different strengths, the RoboJet can be equipped with an additional prewash arch or with a HP-water arch. These will cool down a hot vehicle and remove some snow or light frost covering in the winter months.

High-Pressure Brushless Washing

A unique Tammermatic given wash process opportunity

High-pressure washing now plays a major role in all modern car cleaning processes, due to the innovation of the high-pressure water jets:

- Triple solid stream 0-degree nozzles - Clean areas beyond reach of brushes with high pressure.
- Remove sand and other coarse particles, which could potentially scratch vehicles during the brush stage of the wash, when the combi wash is required.

The RoboJet utilizes both the conventional flat spray pattern and advanced solid stream pattern techniques.

A flat spray pattern has a wide coverage area and cleaning impact of those V-spray jets at short distances is good. In RoboJet high-impact flat spray-nozzles are used in cooling/snow removal arch, chassis washer and pressure-wax arch.

However, over medium or greater distances a high pressure solid stream spray pattern is by far more effective than any conventional V-spray system.

Wheel and sill wash unit, top and side HP arches of RoboJet feature high-pressure spray units each with three parallel solid stream nozzles. The water jets of these nozzles form a uniform impact area on the target surface.

Dual Coverage Sweeping Technique for Enhanced Cleaning

For enhanced cleaning, the high-pressure side water jets oscillate up and down so that they overlap each other when the vehicle is moving. Similarly, the high-pressure water jets on the rotary head of the top arch oscillate sideways. During one sweep a vehicle moves a distance, which is shorter than the length of the impact area of the 3 combined jets. Due to this feature all areas to be cleaned are swept even as many as two times!







ROBOJET WASH-STREET

Features and Highlights

Wheel Wash

Rims and wheels of modern vehicles have noteworthy impact on vehicle appearance. Therefore detailed wheel cleaning is important part of perfect wash result. In RoboJet basic wheel cleaning is carried out by the prewash and the vertical high-pressure water jets.

For intensified wheel and sill washing RoboJet can be equipped with extra wheel wash units. Oscillating high-pressure water jets penetrate efficiently and safely into recesses and cavities of modern alloy wheels providing outstanding wash result. The wheel wash unit washes also the full sill area thus helping the chassis wash unit too.

Chassis Wash

Chassis, sill and wheel washer consists of three spray pipes. Nozzles of spray pipes parallel to the conveyor clean the sills, wheels and wheel wells, already covered by the vertical side jets.

The nozzles of the middle spray pipe directed towards the entrance clean the lower part of the front of the vehicle, where after they are turned off.

After the engine compartment area is passed, these nozzles are turned on again until the rear bumper is reached and nozzles directed towards the exit are opened for cleaning of the lower part of the vehicle rear.

Brush Wash

Brush wash - which removes stubborn dirt and possible traffic film formed of tiny particles, which are tightly attached on paintwork – is sometimes required or recommended.

Top brush is mounted on sledges, which move on runners. The sledges are moved up and down by an electric motor. The brush contours the vehicle based to combined sledge and runner motions. The side brush unit consists of two oppositely placed swinging brush assemblies or standard high (and low) side brushes.

The brush material can be either soft strips of foamed polyethylene, or a polyethylene fibre filament, with an X-type cross-section and flagged ends.

Rinsing

The task of the high-pressure city water rinse arch is to remove residual detergent from vehicle surfaces prior to wax application processes, and is especially useful if reclaimed water is used. A high pressure wax arch can be placed in this location as well.

Polishing

Special buffing (polishing) wax arch is placed in front of the actual RoboJet polishing unit. The polishing brushes made of foamed polyethylene buff the slightly foamed special wax onto the painted surfaces of the vehicle.

The residues of buffing wax will be rinsed away with wax water, e.g. with a pressure wax or/and a rinse arch. Polishing treatment layer gives an extra gloss and protection for the paintwork and makes the dirt more easily removable next time.







ROBOJET WASH-STREET

Features and Highlights

Drying Aid and Waxing

Rinse-aid arch is to be connected to pressurized city-water supply. The rinse-aid agent is fed into the rinse-water by an electric metering pump.

For a pay-wax arch one can choose either a conventional Hot/Superwax arch or the mentioned High pressure wax arch. The high pressure wax dilution is fed through 2 or 4 nozzles by 1 or 2 piston pumps.

Full height high pressure waxing boosts rinsing of detergent residues and improves drying result via assisting waxing process.

All prewash, foam, rinse and wax arches are of stainless steel.

Drying

The Dryer Unit consists of horizontally profiling duplex blowers and two or four vertical side blowers. During contouring of a vehicle the duplex blowers are slightly rotated to optimize the impact airflow angle.

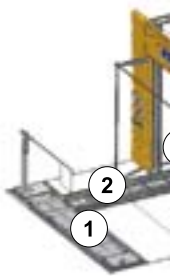
The top and side blower sections are furnished with patented turbine shaped air boosters for increased air speed and pressure even while using less electric power.

Washing, Waxing, Polishing and Drying Sequences

When a program card is inserted and accepted, the entrance bar is raised. When the vehicle is fully on the conveyor, the bar is lowered.

The bar also prevents vehicles to enter too close to each other on conveyor chain. The start-up system controls LED traffic lights placed on the first arch.

1. Sideways moving correlator plate directs the left-hand side wheels of vehicles onto the conveyor and aligns the vehicles with it.
2. The conveyor moves vehicles through the wash street.
3. Touch-sensitive safety bars prevent over-sized vehicles entering onto the conveyor. The HP-arch for pre-cooling / snow removal applications (or the prewash arch) is covered with the decorative face panel with company's colour and logo on it.
4. Prewash chemical mixture is applied from pivoting side arches and from floor nozzles.
5. Foam application intensifies effect of prewash chemical. Also the foam is sprayed from pivoting vertical arches.
6. Interim curtain prevents premature rinsing of prewash chemical by high-pressure water sprays.
7. Wheel wash & sill area cleaning units with oscillating solid-stream nozzles.
8. The pivoting and oscillating 3-nozzle solid-stream HP-water jets of vertical arches clean the sides, front and rear corners of vehicles.
9. The chassis washer cleans sills, wheels, bottoms of front and rear bumpers as well as the chassis excluding the engine compartment.
10. The horizontal HP-arch contours the vehicles and its water jets clean vehicles from bumper to bumper.
11. The brush unit with pivoting side brushes and contouring top brush removes stubborn dirt.
12. High-pressure arch rinses the vehicles with fresh water and removes detergent residues, which would impair waxing and drying operations.
13. Polishing - wax application arch.
14. Polishing unit with top and side with foamed polyethylene brushes.
15. Pressure waxing arch.
16. Rinse-aid application arch.
17. Interim curtain prevents the rinsing water from splashing to the drying area.
18. Dryer unit with 4 x 4 kW or 6 x 4 kW blowers.



Space Requirements (for reference only)

Washbay lengths

The recommended wash bay length is from 20 to 27 meters. The corresponding length for the equipment of a complete setup – including the polishing unit - requires about 27-35 meters.

Washbay width and height

Minimum requirements: height 3400 mm and width 3900-4960 mm (placement of HP-pumps into equipment room).

Maximum wash width and height

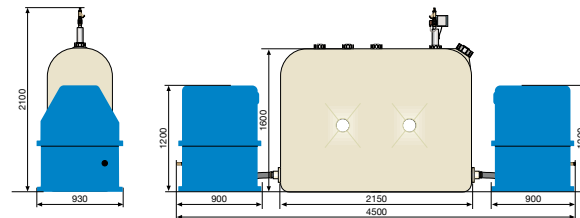
Width 2300 mm, height 2000-2200 mm (drive-through height 2400 mm).

Technical room for pumps and main motor control panel is to be placed into close vicinity of the wash bay. Space requirement is 12-20 m² plus the space for a possible water recycling unit and chemical barrels.

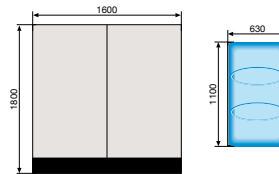
Service Connections

- Power supply: 3NPE, 400V, 50Hz, back-up fuses 3 x 80A, 3 x 250A
- Water supply: min. 3.5 bar, NS65, 200-600 l/min
- Hot water line: NS20, min. 3.5 bar, 35 l/min (only hot wax)
- Compressed air supply: NS20, 7-8 bar, 0.3 m³/min
- Peak water flow to drainage: 3.5 l/s with reclaim, 9 l/s without reclaim

Dimensions of Main Assemblies to be Placed into a Technical Room

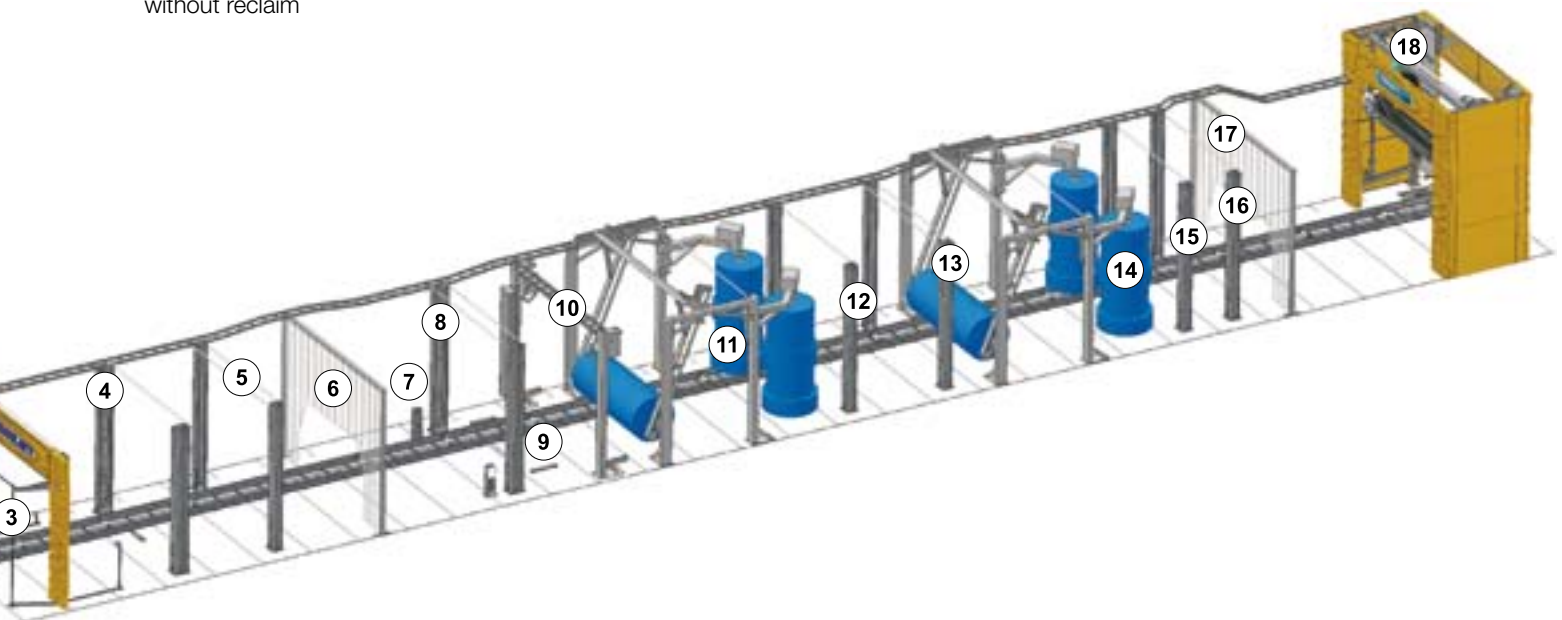


HP-stations 18.5 kW for Top and Side HP-arches, with a 2000 liter common interim tank.



Main motor control panel (depth 400 mm).

Prewash station for 2 pumps and dilution stations (depth 350 mm).





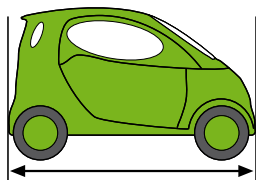
THE CONVEYOR

The conveyor consists of drive and idle ends, middle sections and the conveyor chains.

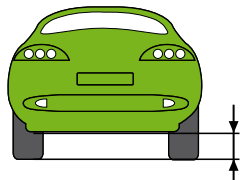
The conveyor is powered with AC inverter driven electric motor and gear reducer. The chain speed can be indefinitely (seasonally) adjusted. Recommended range is 5.7-8.1 m/min.

The drive end is equipped with the torque limiter safety device, which switches off the conveyor if overloaded.

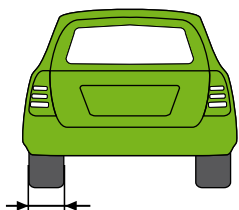
The tyre groove is furnished with removable covers for ease of cleaning and maintenance.



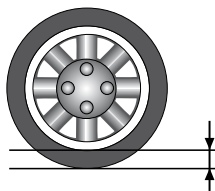
Minimum length of a vehicle = 2500 mm



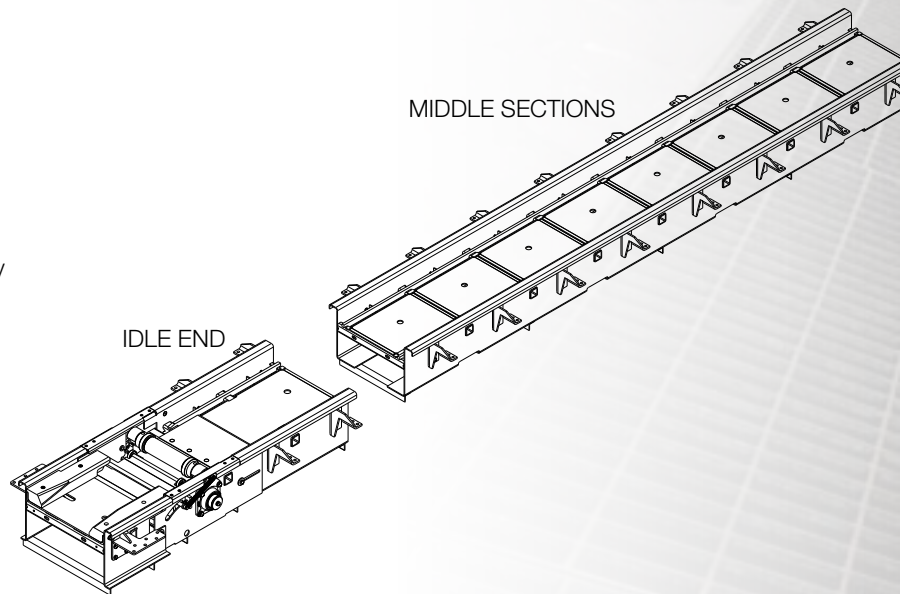
Minimum ground clearance = 90 mm



Maximum wheel width = 335 mm



Minimum tyre height = 45 mm



The transport rollers are attached to the parallel chains and supported from both ends with bearings.

The low position of the chain is safe also for low profile tyres and alloy wheels; therefore no additional plastic covers are needed.

The conveyor chain is equipped with an automatic lubrication system.





ROBOJET MANAGER Software

The RoboJet Manager software monitors and tests the RoboJet wash system. The software, together with a PC, is a convenient man-machine interface.

With RoboJet Manager it is possible to adjust the conveyor speed, initiate wash sequences, configure wash programs and read statistics.

During normal use, the software acts as a monitoring instrument of the wash process.

All wash process errors can be pinpointed by means of messages on the PC screen. In its interactive testing mode, the software allows you to configure the equipment, peripheral devices and wash programs.

The interactive mode is also a powerful tool in the testing and verifying of various functions of the modules and the actual control system including all rush hours and peak demand periods.

CUSTOMER SUPPORT and Services

- Gross profit estimates for business plans
- Layout drawings
- Customized designs
- Installation and commissioning services
- Preventative maintenance contracts
- Service calls and spare parts
- Operator training courses
- Carwash chemicals made by Tammermatic
- Water reclaim systems





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