

Rack conveyor dishwashers

niagara

411.1
411.2
412.1
412.2

ELETTROBAR

The Benefit Makers

ELETTROBAR
the benefit makers



niagara



Elettrobar proposes an innovative generation of tunnel dishwashers intended to represent the new reference standard of the sector in terms of advantages for the users and price performance ratio.
The **Niagara** rack conveyors are available in two set-up levels:
411 - entrance version with remarkable performance and consumption among the lowest in its category, to 1.3 lt/basket, offered with a highly favourable performance/price ratio
412 - version with most complete equipment, it allows 23% lower consumption with respect to the 411, to 1.2 lt/basket, it has greater versatility of use and higher production, thanks to the very advanced adaptive rinse system
A compact but perfectly articulated range such as **Niagara**, allows each type of user to find its own ideal dishwasher, foe maximum washing efficiency, as quickly as possible and with minimum installation and operating costs.

ANAB ACCREDITED ISO/IEC 17021 MANAGEMENT SYSTEMS CERTIFICATION BODY
Certified System SAI GLOBAL ISO 14001 Environmental
Certified System SAI GLOBAL ISO 9001 Quality

the benefits

The **Niagara** rack conveyor dishwashers by Elettrobar are developed from years of experience and know-how acquired by producing over 10,000 machines with automatic advancement, installed worldwide. These have been designed following the Company's "The Benefit Makers" policy, meaning pushing the technological innovation content to maximum in those aspects that imply real benefits to the activity of those using our products every day for years and years:

- PRODUCTION
- OPERATING COSTS
- USER-FRIENDLINESS
- VERSATILE USE
- EASY CLEANING
- SAFETY AND QUALITY



The standard features

- FULL DOUBLE WALL
- INSULATED DOORS
- MOULDED TANKS
- TANK DOUBLE FILTERS
- PROGRESSIVE TRIPLE DRAWER FILTERS
- HIGH EFFICIENCY WASHING
- DOUBLE ENTRY PUMPS
- INTENSIVE PRE-WASH
- CONSTANT RINSING
- ADDITIONAL RINSE
- TIMED WASH
- RINSE ECONOMIZER
- DRYING TUNNEL
- LED SMART INTERFACE
- 4 OR 2 WASHING PROGRAMS

Safety and quality

The dishwashers are manufactured in an establishment with ISO 9001 certification, with respect to the environment according to ISO 14001 certification. The system has CE marking and the water supply system is compliant with the WRC Standard.
There are many safety systems that intervene to protect the integrity of the operator and dishwasher if:

- One of the doors is opened
- The plates exiting are not removed
- A drawer filter is extracted
- If an over-voltage or over-heating of a main electrical component should occur.
- The belt or drive jams
- One or more heating elements operate in air

Re-armable emergency stop switches positioned in the proximity of the entrance and/or exit work positions (options with surcharge); very low voltage user interface (24 V); set-up for installation of the isolating switch on the machine (options with surcharge).

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lower operating cost

Elettrobar dishwashers have very high washing efficiency and use technologies, many of which are patented and which reduce minimum consumption to 1.2 lt of water per basket (1.3 for the 411 series), with respect to the average of dishwasher tunnels present on the market. This means a reduction in consumption of around 40%. Reducing water consumption means also reducing the consumption of electricity and chemical products. Other technologies and equipment act on all factors that generate operating costs.





An adaptive product

The water consumption adapts to the production and the type of objects to wash; the electric power absorbed with the production; the type of objects to wash and the supply conditions. The result is that the machine operating cost is, moment by moment, that strictly necessary to obtain the washing results and maintain hygiene.

ProRinse

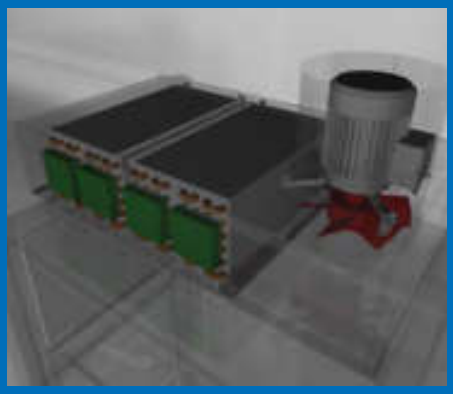
It integrates different technologies to increase the efficiency of the use of water and reduce consumption of the same, also adapting it to conditions of use. It is supplied through a system with break tank in compliance with the WRC Standards; rinse pump Heating takes place via a boiler with three Incoloy 800 alloy heating elements, which feeds a pair of final rinse arms through the ProPortional flow change device.

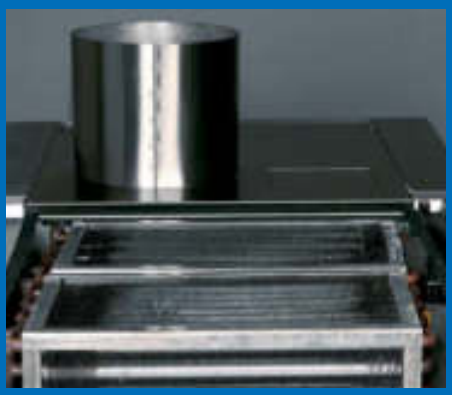
ProPortional Flow Change Device

Allows to change the water flow rate distributed through the rinse arm in a way to adapt and optimise consumption according to the advancement speed. This gives rise to a saving in water; depending on the program used it can reach 20% with consequent savings also in terms of energy, detergent and rinse-aid consumption.









HiTech Rinse Arms

Manufactured in ProComposit composite material (matrix in resin with an isotropic load of glass fibre and micro-granules of talc); they are injection moulded and welded with vibration technology. Complex ducting is obtained, which promotes the flow of fluid, thus reducing pressure drops. There are a different number and type of stainless steel spray nozzles, obtained from precision mechanical machining, depending on the type of rinse. The composite arms are lighter, safe to handle, easy to clean and with longer duration over time with respect to the traditional steel arms.

ProHeat Heat Recovery Device

The latent heat of the steam is used to heat the water before it enters the boiler, with an energy saving which can reach up to 8 kW. It uses a centrifugal extractor that forces the steam through two copper heat exchangers with aluminium fins, total exchange surface 50 m^2. As well as the energy saving advantage, the humidity introduced into the environment is greatly reduced, allowing the use of smaller external extractor systems. Whenever water filtered through a reverse osmosis device is used, which irreparably corrodes some metals, among which copper, the copper/aluminium heat exchangers must be replaced by others in stainless steel, available on request with a surcharge.

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high production

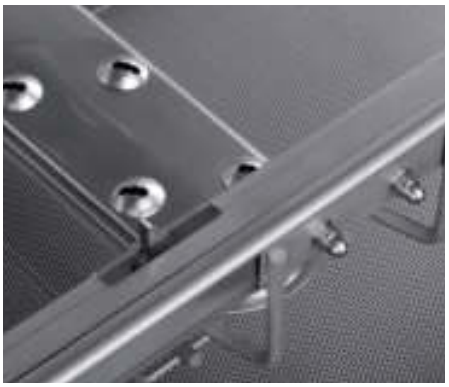
IdroWash$_2$

Based on the 1.5 kW DuoFlow double outlet pump, equivalent to a 2.0 kW traditional pump, which feeds 36 IdroWash$_2$ directional nozzles, positioned on 3 arms measuring only 40 cm. With this concentration of mechanical washing power, the tableware undergoes a sort of “hydraulic brushing”, which removes the dirt efficiently. The nozzles have positive impression which makes the jet very narrow and stable. The energy of the water is very concentrated when it strikes the dirt and the mechanical washing action is maximum. The many, closely positioned nozzles, ensure perfect coverage. Very hot water is used: 60 °C in the standard programs and 63 °C in the intensive programs; the constant temperature is ensured by an armoured heater in the tank.









Pre-wash XL

It is a heavy module with length of 820 mm, with a complete IdroWash$_2$ system with 3 arms. Most of the dirt is removed here and the most consistent fraction is collected by a drawer filter, which can then be emptied in just a few seconds without opening the door. A second separation takes place in the ProStrainer surface filter, which is shaped in a way to convey the dirt into a removable basket. A third filter is found on pump suction.

ProWind Drying

It uses air at 70 °C, withdrawn from the outside and heated by a 6 kW heat exchanger (optional 9 kW). A 550 W radial turbo fan sends a flow of 1,400 m^3/hour to two upper outlets. The air blades also have the effect of maintaining the steam inside the machine; drying is installed on a cantilever-mounted module with length of 60 mm. The use of dry air at a relatively low temperature allows to treat even the most delicate glasses or plastic materials safely, which would risk melting if dried in a conventional dryer.

Basket conveyor

500 W advancement motor, conversion of movement via eccentric or oscillating slide. Basket guide with double lateral track to leave the central area of the basket completely free for the passage of the water; very thick stainless steel oscillating fingers. The oscillating slide moves on anti-friction plastic rolling material. Useful dimensions of the basket passage mouth: 500 x 430 mm. Anti-slip safety with oscillating arm and without friction disks in order to prevent any damage to the conveyor system in the event of accidental blockage of the basket. Set-up for connection with end run stop microswitch. The electronically-controlled double winding motor makes four advancement speeds possible.

easy to clean



ProStrainer built-in filters

The filter is made up from a flat surface that tilts towards the outside, thus to facilitate the running of solid waste collected and from a basket into which the waste flows; positioned in a way that it can be easily accessed by the operator and emptied in just a few seconds.







Construction

Fully-moulded self-cleaning wash tank, wash chamber without internal piping, doors with insulated and counter-balanced double walls that are very light to lift. Easy to remove and replace wash and rinse arms, module separation curtains in plastic for use with foodstuffs which can be removed without the aid of tools. Construction with full double wall to reduce environment noise pollution to less than 70 db.

Accessibility

All modules have fully opening counter-balanced doors that allow easy access to any point of the washing chamber. The electric and hydraulic components are accessed for maintenance by removing the front panelling, thus obtaining a completely free surface also in this case.

Drawer filters

The pre-wash module and the washing module have a drawer pre-filter that collects the excess dirt eliminated by the “hydraulic brush”, before it reaches the wash tank. The filter can be extracted without opening the door and can be emptied in just a few seconds. Its construction prevents dirty water dripping onto the floor during extraction. The organic waste does not end up in the drain but can be collected and re-cycled. In the machines with pre-wash, the second pre-filter with dense mesh network progressively filters the dirt, ProGressive, system and keeps the water in the wash tank extremely clean, with obvious advantages when washing glasses and particular tableware.

user-friendliness








Large actual aperture

The new **Niagara** rack conveyor dishwashers have an actual aperture of 45 cm, which allows easy loading using specific baskets, oven trays, Gastronorm trays, heat-insulated trays for distribution of food, plates also with large diameter, tall and valuable glasses, pans and various utensils.

washing programs



ProSmart Interface

It uses a LED screen with 4 digits and two variable colour side bars. The interface allows to select a wash program from the many available. The tank and boiler temperatures and the number of operating hours are demonstrated on request; advanced self-diagnosis that includes an archive of alarms intervened. The information is provided via codes and brief messages. A series of menus with protected access allows the technicians to adjust each individual operating parameter, the advancement speed of the tableware to the washing and rinsing temperatures.

Programmi

The dishwashers are fitted with a series of specific programs for the different conditions of use. The programs differ regarding temperature and power of the wash, the contact time, the temperature, flow rate and rinse distribution. Therefore, differently from most competitor products, limits are not given to just going “quicker” or “slower” but the percentage breakdown of the elements that contribute to washing are really changed, optimising the process in a way to wash greater quantities of tableware more effectively in a shorter period of time.
They are divided into:

STANDARD PROGRAMS SP



Plates

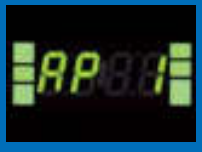
High capacity
for fresh, light dirt.



Plates

General purpose
program for general use.

ADVANCED PROGRAMS AP



Plates

Prolonged contact
assures a contact time of 120” in compliance with the DIN 10534 Standard.



Glasses

requires the use of relevant 50x50 cm baskets, rinse at 65 °C. When this program is selected, a system that lowers the boiler temperature to 65 °C is started automatically when the first basket of glasses transits under the rinse. There are no stand-by times.

adaptation options



Corner pre-wash

Replaces the in-line pre-wash in 411.2 and 412.2 models, allowing to save space in the L and C-shaped installations.



In-line drying

This optional module measuring 600 mm is developed to house the ProWind drying system; refer to the detailed description for information.



Corner drying

It replaces in-line drying, allowing to save space in the L or C-shaped installations.



Heat Recovery Device

It uses the high-efficiency ProHeat system; refer to the detailed description for information.



Detergent and rinse aid dosing devices

Peristaltic with electronic adjustment, mounted inside the machine.



Emergency switches

The manual reset type; they are positioned in inlet or outlet according to the layout of the washing area.



Pressure reducer with pressure gauge

For the 411 family only, it is essential when the feed pressure is not constant and deviated greatly from the optimal value of 2 bar.

technical detailed

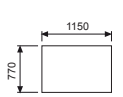
	Wash temperat. °C	Rinse temperat. °C	Capacity racks/hr	Rinse consumpt. lt/hr	Rinse consumpt. lt/rack	Total Power hot feed kW	Total Power H.F.+H.R.	Total Power cold feed kW
Niagara 411.1								
High capacity	60	82	120	160	1,3	22,0	24,7	28,5
Prolonged contact *	60	82	60	160	2,7	22,0	24,7	28,5
Niagara 411.2								
High capacity	60	82	200	270	1,4	29,5	34,2	41,0
Prolonged contact *	60	82	110	270	2,5	29,5	34,2	41,0
Niagara 412.1								
High capacity	63	82	160	200	1,2	22,2	24,9	31,7
General purpose	60	82	120	140	1,2	22,2	24,9	31,7
Prolonged contact *	63	82	60	140	2,3	22,2	24,9	31,7
Glasses	60	65	80	200	2,5	22,2	24,9	31,7
Niagara 412.2								
High capacity	63	82	270	320	1,2	29,7	34,4	41,2
General purpose	60	82	200	240	1,2	29,7	34,4	41,2
Prolonged contact *	63	82	110	240	2,2	29,7	34,4	41,2
Glasses (prewash off)	60	65	135	320	2,5	29,7	34,4	41,2

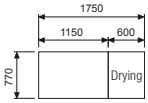
* 2' acc. DIN spec 10534

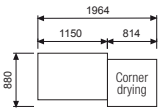
Cold feed= 15 - 40 °C
Hot feed= 40 - 60 °C
Non-binding technical data

Overall dimension drawings

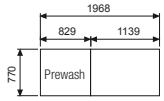
Niagara 411.1
412.1

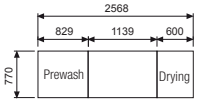


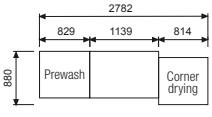




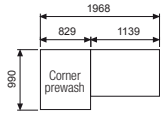
Niagara 411.2
412.2

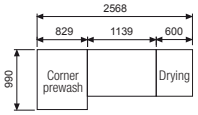


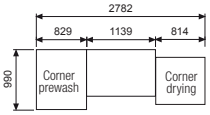




Niagara 411.2
412.2
corner prewash







Features	Niagara 411.1	Niagara 411.2	Niagara 412.1	Niagara 412.2
Modular Construction **ProMont**	•	•	•	•
Entry clearance 45 cm	•	•	•	•
Full double wall construction	•	•	•	•
Fully insulate double wall doors	•	•	•	•
Deep drawn tanks	•	•	•	•
Wasch chambers without internal piping	•	•	•	•
Integral tank strainers **ProStrainer**	•	•	•	•
Drawer-like additional strainer in each tank	-	-	•	•
Progressive water filtering **ProGressive**	-	-	•	•
Safety filters on pumps' intake	•	•	•	•
Heavy duty prewash **XL**	-	•	-	•
Corner prewash	-	o	-	o
Heavy duty wash module	•	•	•	•
Double flow pumps **DuoFlow**	•	•	•	•
Wash arms **IdroWash$_2$**	•	•	•	•
Hydraulic brush cleaning system	•	•	•	•
Side rack rails	•	•	•	•
Heavy duty dryer **ProWind**	o	o	o	o
Corner dryer	o	o	o	o
Integrated rinse **IsyRinse**	•	•	•	•
Integrated rinse **ProRinse**	-	-	•	•
Water feed via break tank according to WRAS regulation	-	-	•	•
Rinse pump	-	-	•	•
Adaptive rinse **ProPortional**	-	-	•	•
Rinse arms **HiTech**	•	•	•	•
Heat recovery **ProHeat**	o	o	o	o
Rinse economizer	•	•	•	•
Time controlled wash **AutoTimer**	•	•	•	•
LED interface **ProSmart**	•	•	•	•
Two wash programs	•	•	-	-
Four wash programs	-	-	•	•
Fully adjustable	•	•	•	•
Advanced self diagnostic	•	•	•	•
Built-in USB connection	•	•	•	•
Advanced connectivity via Wi-Fi or Bluetooth	o	o	o	o
Pressure reducer with manometer	o	o	•	•
Emergency switch	o	o	o	o
End limit switch	o	o	o	o
Detergent and rinse aid pumps	o	o	o	o

• Standard - o Optional

Warning: The consumption and performance data indicated refer to machines installed and operating in ideal conditions and may vary according to installation conditions.
The technical data furnished in this catalogue are for guidance purposes only and may be modified in accordance with the continuous technological development of our products.

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