TRAINING MATERIAL:
PROFESSIONAL DISHWASHERS

Level designation

At the top, on the right side, you will find the level marking. **To reach level 1, study the pages marked in blue *Level 1*. Level 2 you will study with the tutor in the second level, read the pages marked in orange at the latest before the level 2 training.**

Level 1
Self-study

Level 2
Presentation with a lecturer

Professional dishwasher

A professional dishwasher is very different from a home dishwasher:

- **Speed:** Professional equipment washes in minutes. A home dishwasher takes tens of minutes or even hours. Quantity washed dishes is many times higher with the profi model.
- **Water saving:** professional dishwashers can use water for multiple cycles without sacrificing cleaning quality. The clean water is then used for rinsing.
- **Energy saving:** energy costs are saved by maximising the use of water that has already been heated.




=> The main advantage of using professional washing equipment is the washing capacity. Washing hundreds of plates per hour can only be done by a professional car wash.

Main types of professional dishwashers

RM GASTRO offers a large range of professional dishwashers for different sized operations and different needs:

UNDERFLOOR DISHWASHER

- Ideal for smaller kitchens, restaurants and bars.
- Compact dimensions and height to allow placement under the worktop
- The operator must bend.

DISHWASHER FOR BLACK DISHES

- Similar to, but higher than subtable
- It has a larger chamber to accommodate large dishes.
- Designed for washing pots, plates, gastron dishes, etc.

INTERIM WASH

- The dishes are handled at the ideal height
- All in one plane - eliminating downtime during washing
- Can be completed with a pre-wash table with a basket and an exit table for washed dishes.

TUNNEL WASH

- The device is designed for maximum performance.
- It can be found in large hotels, school canteens, etc.
- It provides great variability and a multitude of accessories.

Underfloor dishwashers

Floor washers are the smallest washing equipment for professional gastro operations. They are ideal
where space is at a premium or for special applications such as bars and cafés.

In the RM GASTRO range:

- RM NT
- RM TT

Glassware and cutlery washers
Dishwashers and glassware washers

Dishwashers for washing black dishes

Equipment designed for washing black dishes are specialized dishwashers, which are predestined for washing pots, casseroles, plates, gastronorm dishes, etc. These are stand-alone models that have a durable stainless steel basket.

In the RM GASTRO range:

- S series dishwashers
- Selected models of the RM NT series

Continuous washers

Continuous washers are among the most versatile washing equipment. They find their greatest application in medium-sized operations where there is plenty of space and at the same time high demands on washing capacity.

In the RM range:

- RM NT
- RM TT

Tunnel washers

Large school canteens, restaurants or hotels cannot do without tunnel dishwashers. The maximum capacity can wash up to 300 baskets of plates per hour

Glassware and cutlery washers
Dishwashers and glassware washers

Product lines of RM dishwashers

NT and TT series

- Floor glass washers and utensils
- Dishwashers for black dishes
- Continuous washers

S series

- Black dishwashers

CT, A and XT series

- Tunnel washers

All RM dishwashers have double-skinned design

Product lines of REDFOX dishwashers

QQI Series

- Floor glass washers
- Undercounter dishwashers for glassware, plates and dishes
- Continuous washers

The QQI series washers have a single-shell design

Underfloor dishwashers

Undercounter washers are the smallest washing equipment for professional gastro operations. They are ideal for, where space is limited or for special applications such as bars and cafés.

In the REDFOX range:

- REDFOX QQI

Continuous washers

Continuous washers are among the most versatile washing equipment. They find their greatest application in medium-sized operations where there is plenty of space and at the same time high demands on washing capacity.

In the REDFOX range:

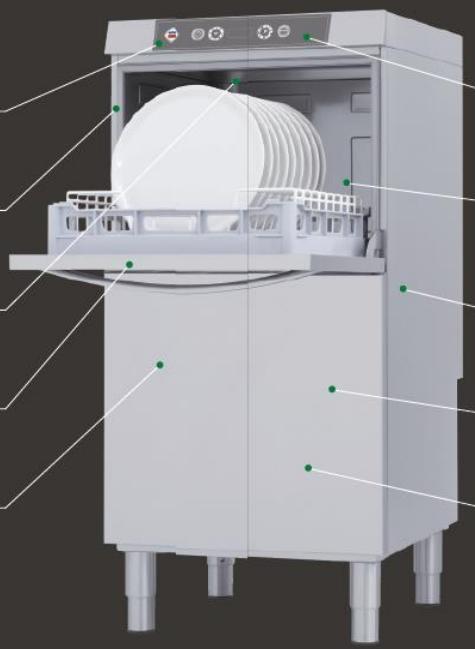
- REDFOX QQI

Content Level 2:

- Washing machines RM TT and NT
- RM S series black dishwashers
- Washing machines REDFOX QQI
- RM tunnel washers

NT dishwashers and glassware

Myčky nádobí a skla NT



ProScreen displej

Snadné ovládání se čtyřmi dotykovými tlačítky a čtyřmístným LED displejem se dvěma bočními indikačními lištami.

Dvouplášťová konstrukce

Lepší tepelná izolace a hlučnost pouhých 59 dB.

Nerezová komora se zaoblenými rohy

Kompletně lisovaná vnitřní konstrukce. Jednoduché čištění a hygienická údržba.

Výška otevírání dveří

I přes velice kompaktní rozměry disponuje zařízení nadstandardní výškou dveří pro vkládání vysokých sklenic a velkých talířů.

Dávkování chemie

Peristaltická čerpadla pro dávkování chemie je možné nastavovat přímo v servisním menu.

Programování

Čtyři standardní programy a pět speciálních včetně programů pro samočištění. Umožňuje vybrat program šitý na míru danému typu nádobí a jeho znečištění.

Soft Start

Systém pozvolného náběhu mycích programů, který chrání křehké nádobí před rázovým proudem vody.

Odpadové čerpadlo (volitelné)

Myčky s odpadovým čerpadlem mají řízené vypouštění odpadní vody před spouštěním oplachu, díky tomu dochází k maximálně efektivní obměně vody v mycí lázni.

Odpadový filtr Archimedes

Systém odpadového filtru, který zefektivňuje čištění vody.

Management výkonu

topná tělesa vany bojleru mohou běžet současně, nedochází k poklesu teploty mytí a při několik po sobě jdoucích cyklech

Washing machines RM NT

The construction of NT dishwashers is all stainless steel and double skinned with soundproof doors. All models have a moulded wash tub and moulded basket supports for the easiest possible maintenance and maintenance of hygienic cleanliness.

Washing is carried out with water at a temperature of 60°C, which is pumped from the bath through filters. The rinse water from the boiler is at 80 °C (65 °C for NT 42) and is forced out by the pressure of the incoming water.

The drying of the plates is ensured by the temperature difference between the rinse water and the ambient air, which evaporates the water from the dishes.
NT washers are controlled by a 4-digit LCD display and the washing process is is displayed on two LED bars.

Washing machine RM NT

- Under-table
- For black dishes
- Continuous

TT dishwashers and glassware

Washing machines RM TT

Professional TT series dishwashers are designed for washing glassware, cutlery and crockery for all operations requiring flawless cleaning, compliance with HACCP standards, high hygiene standards and user comfort. TT dishwashers have 11 washing programmes, one self-cleaning programme and a special programme for automatic draining.

Washing machines RM TT

- Under-table
- Continuous

The main advantages of TT and NT dishwashers - Part 1

Pump DuoFlow	The two-way wash pump reduces pressure losses compared to using a standard split pump.	
EnergySaving EnergySaving System	Reduces standby power consumption by reducing boiler temperature.	TT and NT
Heating system HotWash	Allows simultaneous operation of the heating elements of the bath and the boiler. Thanks to this, the washing temperature does not drop even during several consecutive washing cycles. Ensures constant pressure and rinse temperature thanks to the atmospheric boiler with pump. The device is independent of the water line pressure.	TT and
Rinsing system ProRinse		NT TT
Volume-controlled rinsing with ThermoStop function	Rinsing at the correct temperature is ensured by the ThermoStop function, which monitors the boiler temperature when the cycle starts. The rinsing time is variable depending on the pressure in the water line, the average water consumption is constant. The minimum water consumption is 1.5 litres per cycle.	and NT TT
Discharge system EvoLution3	A system that uses three-level water filtration and an electronically controlled waste pump.	NT
Discharge system ArchiMedes	A system that uses three-level water filtration and an electronically controlled waste pump.	TT NT
ProDose chemistry dosing system	Detergents are dispensed using an electronically controlled peristaltic pump.	selector.

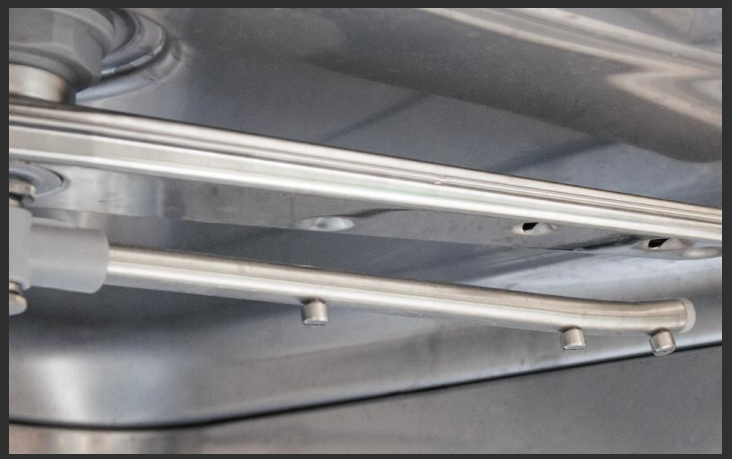
The main advantages of TT and NT dishwashers - Part 2

Rapid heating system QuickReady baths	It uses all available electricity to heat the water in the tank.	TT and NT
Three-stage fi ltering ProGressive system	Perfectly clean dishes thanks to a complete and efficient system that uses three-stage water filtration to achieve maximum water purity in the washing bath.	TT and NT
Door closing system ProSoft	Silent and gentle door opening system.	TT and NT
CareFree Automatic Water Softener System	Guarantees complete automatic regeneration during each wash cycle.	TT and NT
SmartScreen smart interface	The whole screen changes colour according to the operating mode, machine status and wash cycle.	TT and NT
Recuperation unit REC	It uses waste heat and condenses the steam present after rinsing.	TT and NT

Washing and rinsing arms TT and NT

TT - EquaLizer separated arms

The straight rotating wash arms tend to distribute more water into one part of the wash chamber and leave others untouched.
The special design of the EquaLizer2 arms prevents this phenomenon
precedes.
In addition, the bending of the arms allows them to be extended, which leads to a favourable more even dispersion of the water.



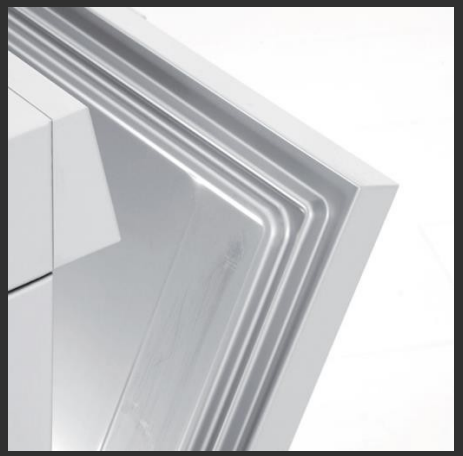
NT - HiTech Joint Arms

- better cleaning effect and higher efficiency due to geometry
  ramen
- easy removal for cleaning, thanks to click-clack fastening system
- energy savings and less wear and tear due to lower friction in graphite bearing

TT and NT door lifting or closing system

ProSoft - gentle door opening cover

The doors of the underfloor washers and the chamber covers of the continuous washers open with a smooth, precise movement,
to prevent damage to fragile dishes even if the door is closed abruptly. The operating effort is reduced to 3 kg, the standard is usually twice that. Basket retraction is facilitated by guides moulded into the inside of the door, reducing operator fatigue, increasing productivity and reducing the possibility of breakage.



ProGlide - comfortable lifting of the top

- comfortable and precise stroke guidance
- only 3 kg of force is required to lift
- easy operation

Other advantages of TT and NT washers

Energy saving, quiet operation and easy cleaning

Double skin construction

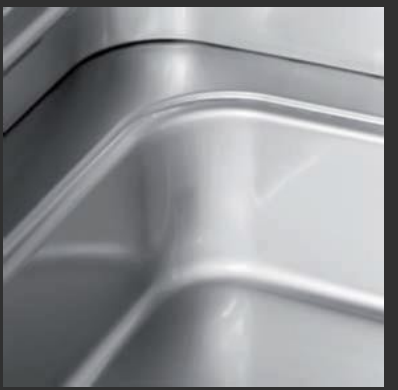
Reduces energy losses by up to 35%

SilentPlus

The special two-way pump design and double-walled construction helps keep the noise level of the under-table models to just 59 dB, which is noticeably lower than conventional washers. This noise level can be compared to normal office operation.

SmartClean

All RM dishwashers are designed without areas where dirt can accumulate. Tanks, inner doors, guides are shaped and directed to drain dirt, and all vertical edges are rounded.



Integrated water softener - optional TT and NT

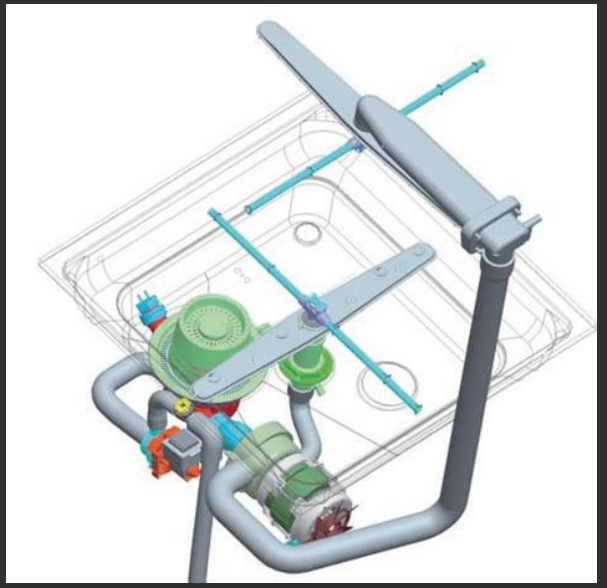
TT - CareFree - automatic system water softening

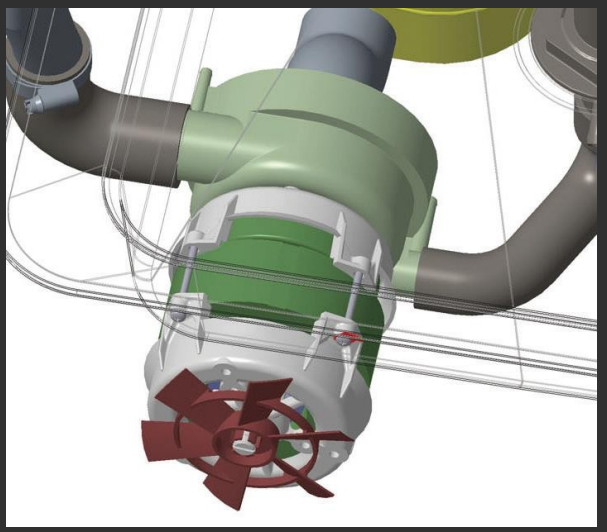
NT - Semi-automatic water softener

A built-in softener helps protect the dishwasher against limescale build-up. CareFree service guarantees fully automatic regeneration during each wash cycle. Another advantage is the constant water quality, unlike conventional softeners, which gradually deteriorate through resin saturation. The plant self-reports the need to add salt for regeneration.

DuoFlow two-way pump

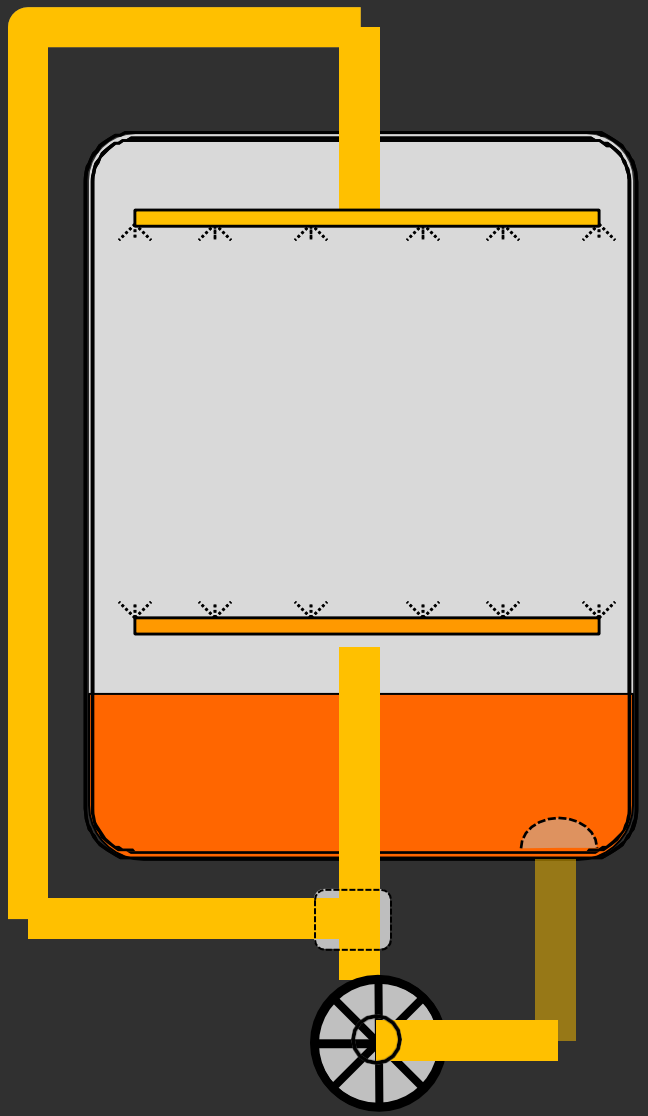
Lower power consumption with the same performance. Plus a simultaneous noise reduction of 50%. That's what the patented DuoFlow two-way wash pump technology delivers. A conventional pump has an inlet from the tank and an outlet towards the two spray arms: the water flow must be divided by a T- or Y-shaped connector into upper and lower arms. This arrangement results in a 25-30% energy loss. The TT washer pump has one inlet but two outlets without any splitter. The losses are not only reduced in this case but are completely eliminated. The 480W DuoFlo pump provides the same power as a conventional 650W pump.



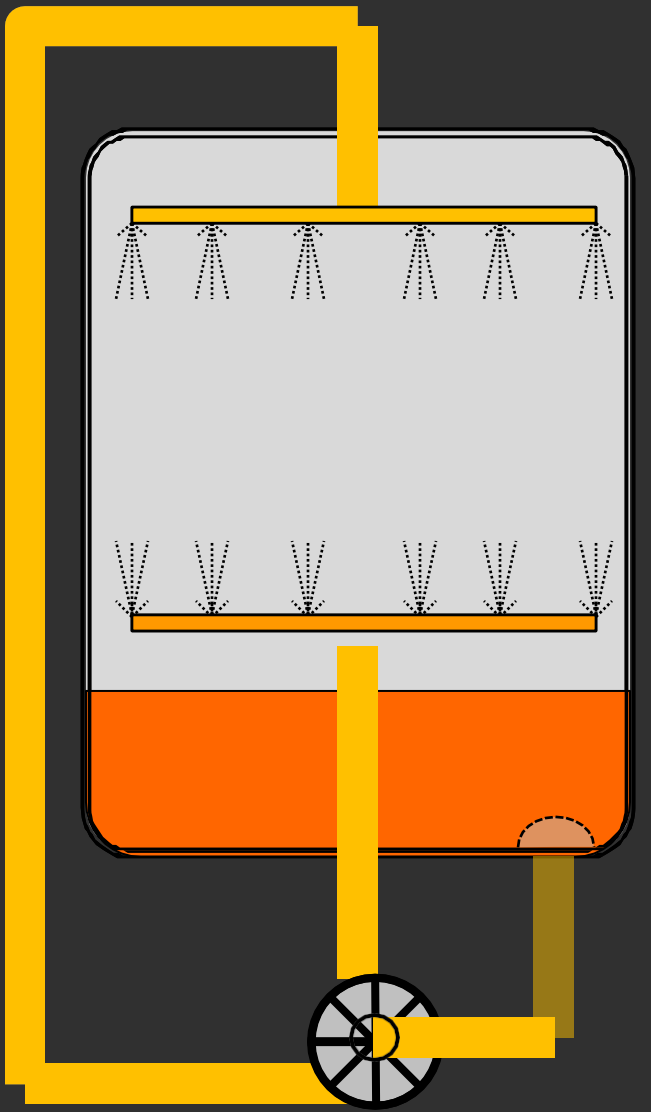


Conventional wash systems use wash pumps with one inlet and one outlet. A "manifold" is used to supply water to the upper and lower wash arms. As the water passes through the "divider", the water flow slows down. As a result, the water loses some of its power before it reaches the washing nozzles.
The two-stream system uses a pump with one inlet and two outlets.
The "splitter" is not used. The water is supplied to the washing nozzles with a full by flow (force).

Standard wash system



Double-flow wash system

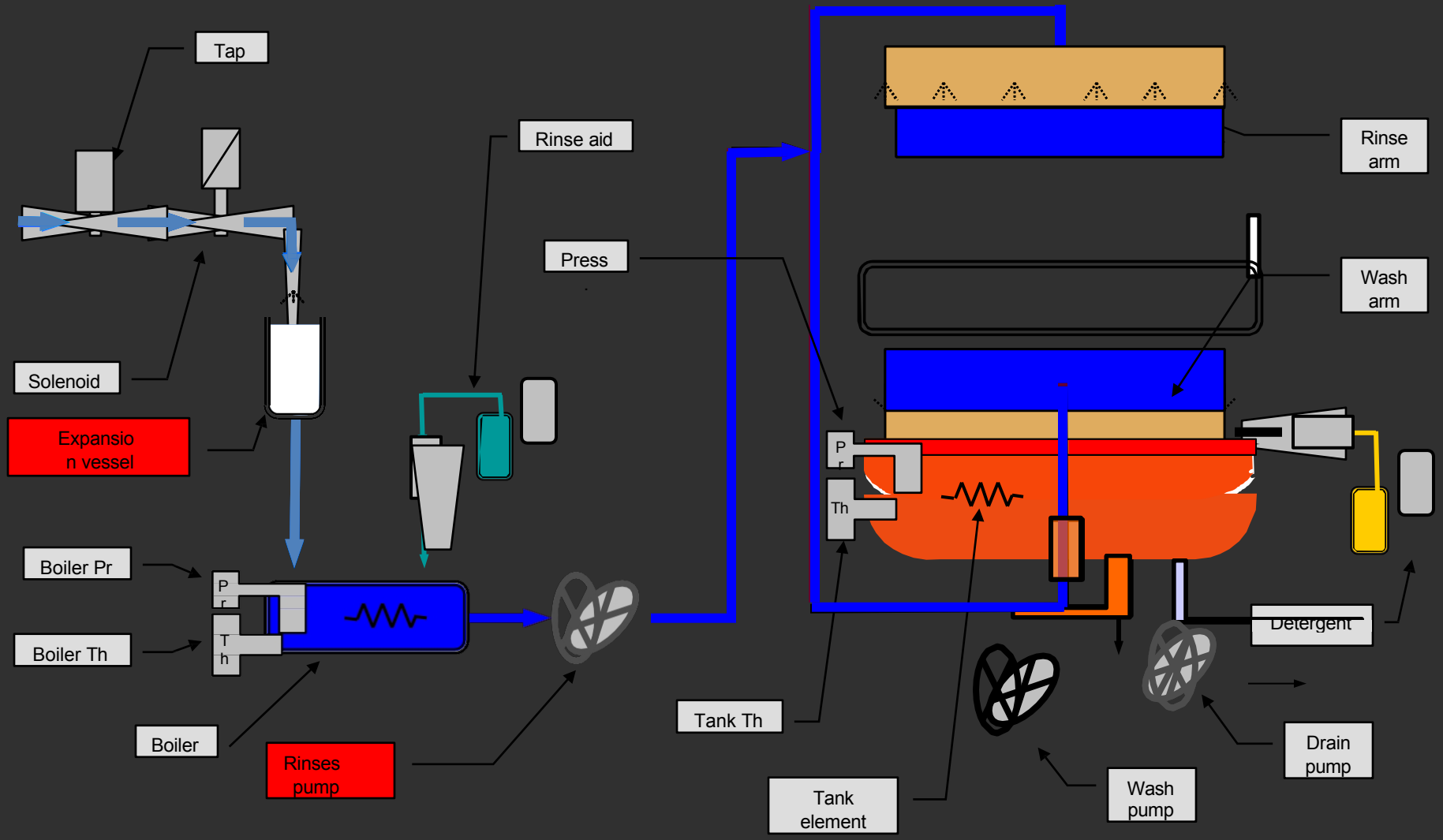


Air Break Tank - ABT

- TT models only
- The system has a rinse pump installed, which ensures that the washing force is independent of the pressure in the water supply system. The rinsing quality is always the same. The dishes are shiny and dry.
- The expansion tank also ensures that during rinsing and emptying the boiler, the water does not mix with cold water and the temperature of the rinsing water does not drop. Sanitation is guaranteed, the dishes are clean and hygienically safe.
- The boiler serves as an accumulation vessel and during the rinsing period no cold water flows into it.
- This enables ABT to deliver a constant pressure and temperature of rinse water that ensures the required efficiency and hygiene.

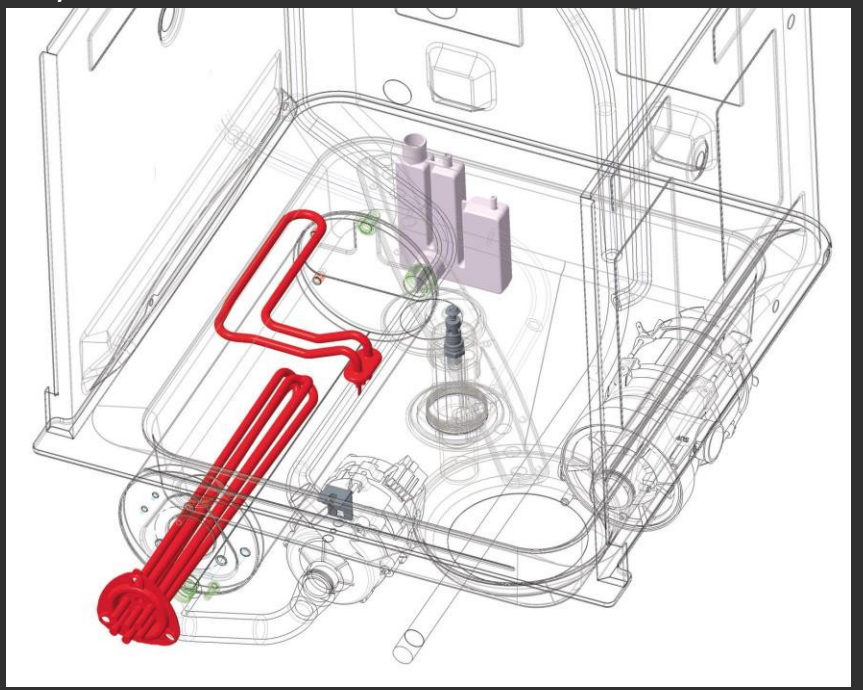
Hydraulic diagram

(ABT System)



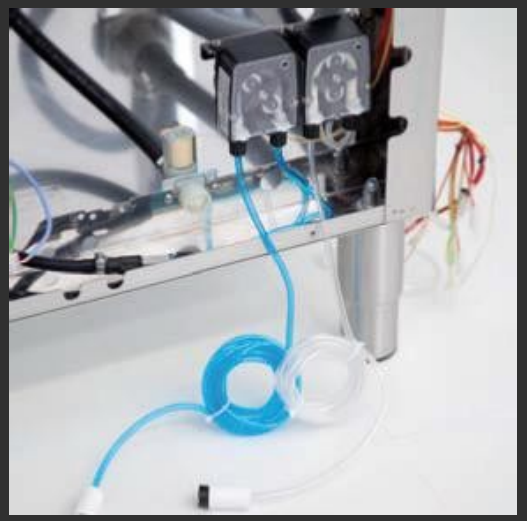
System of independent heating elements HotWash

System with independent heating elements. In general, the the heating elements of the bath and boiler alternate with priority boiler function for hygiene reasons. This means that in continuous cycles the bath body does not heat and wash the temperature drops rapidly, which adversely affects the washing effect. With the HotWash system, the electrical power is divided between the heating elements and allows them to work together even in the case of several continuous
cycles. This results in approximately 10 °C higher wash temperatures during repeated cycles compared to a unit with alternate bodies, which allows for shorter wash times.



ProDose chemistry dosing system

Electronically controlled peristaltic pumps for dosing detergent and rinse aid. Probes are available as an option to measure the remaining detergent level with an alert signal on the display. The control system allows direct adjustment of the dosing quantity on the display.



SoftStart soft start system

For washing even very fragile dishes, the TT and NT dishwashers are equipped with a Soft Start system that controls the power of the wash pump at start-up. A gradual start of the wash cycle up to full power prevents glasses from breaking due to impact
of the water beam at the start of the program.

ProScreen display - NT

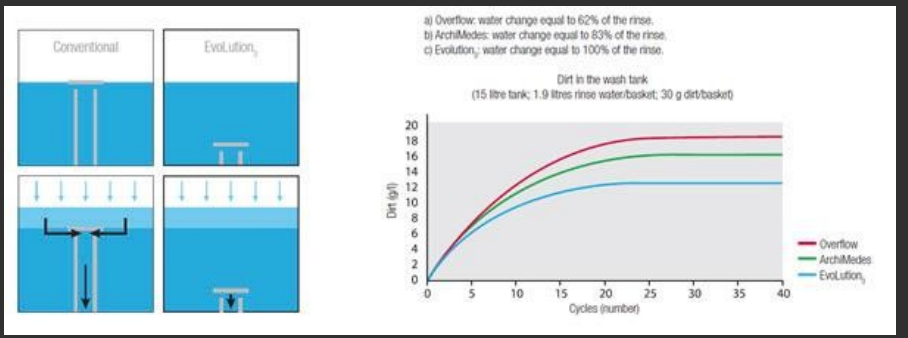
Easy operation with four touch buttons and a four-digit LED display with two side
indicator rails. Ingeniously selected combinations of colours and graphic symbols provide an overview of the current the condition of the equipment and the progress of the wash cycle. In addition to operating parameters such as the temperature of the water in the wash
bath and boiler or the number of wash cycles performed, it also allows you to display automatic
diagnostic system using codes, text or graphic indicators and colours. The user can
set the temperature in the washing bath and boiler and the amount of washing and rinsing chemicals, the specialist technician then
can also override all other operating parameters.

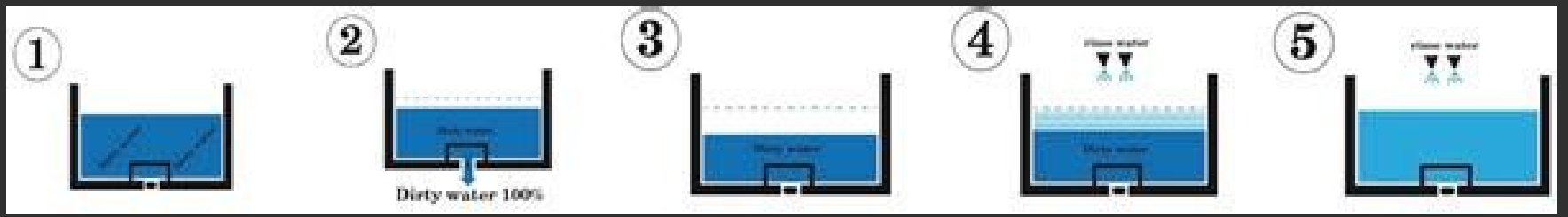
SmartScreen display - TT

Easy to use with four touch buttons and a large backlit polychromatic LCD display. Unlike other brands on the market, it is not just a button, the entire screen changes colour according to the current operating mode and phase of the wash cycle in progress. This makes it easy to see the information on the display even from a long distance. In addition to operating parameters such as the temperature of the water in the wash bath and boiler or the number of wash cycles performed, it also allows the automatic diagnostic system to display messages via text and icons. The user can set the temperature of the wash bath and boiler and the amount of washing and rinsing chemicals, and a dedicated technician can then reconfigure all other operating parameters.

EvoLution 3 Partial Controlled Discharge System

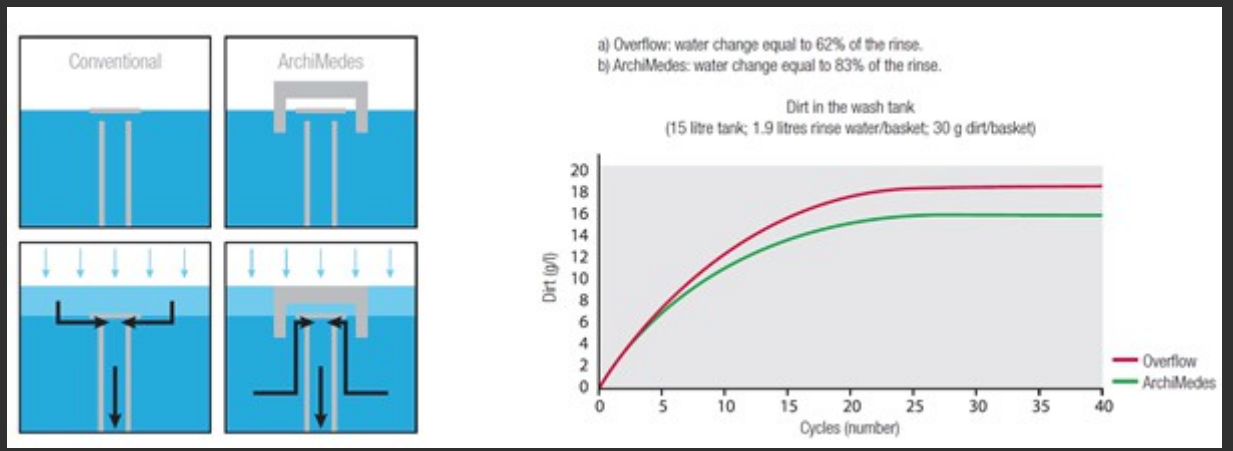
The Maximum Efficient Water Exchange System helps to slow down the process of water contamination in the wash bath, thus reducing the required detergent concentration.
At the same time, water consumption is kept constant. Both of these effects have a positive impact on reducing operating costs. A rest cycle follows the end of the washing cycle, allowing dirt particles to settle. The exact amount of the dirtiest water is then drained from the bottom (controlled by an electronic pressure switch). The same amount of water is then replenished during the rinse cycle. As a result, 100% of the dirty water is always discharged, as opposed to the normal overflow discharge where 66-83% of the dirty water is exchanged with the clean water.





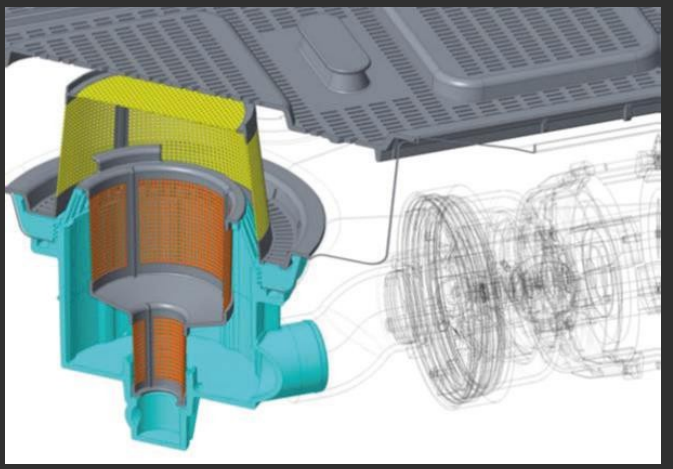
ArchiMedes waste filter system

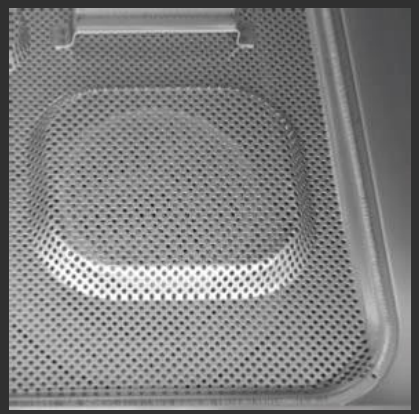
The water purification efficiency is increased from 62% for discharge through a conventional overflow to 83% thanks to the ArchiMedes waste filter system operating on the principle of connected vessels. This makes it possible to reduce the detergent concentration. With a normal gravity drain, clean water is kept above the heavier contaminated water, so that a third of the clean water ends up in the garbage. With the ArchiMedes filter, the water is pushed against the bottom of the tub, simultaneously discharging some of the dirt particles. The water becomes dirtier more slowly and the frequency of necessary changes is reduced. It can be combined with a waste pump.

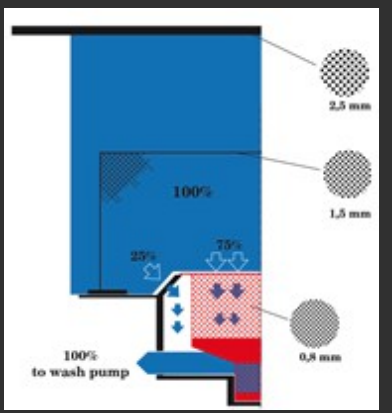


ProGressive triple filtering system

Complete effective three-phase water filtration system with gradual capture of particles up to 0.8 mm in size. Two lower bell filters retain the dirt particles, which are then discharged when the waste is working before rinsing. In this case, the water exchange efficiency is 100% and the filter efficiency is increased by 15%. System



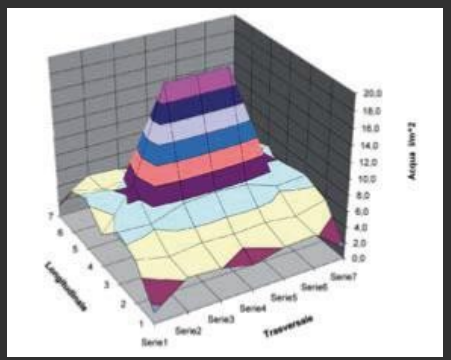


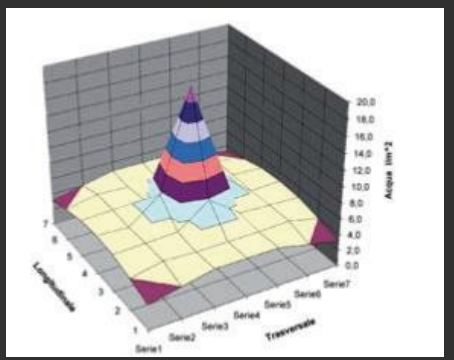


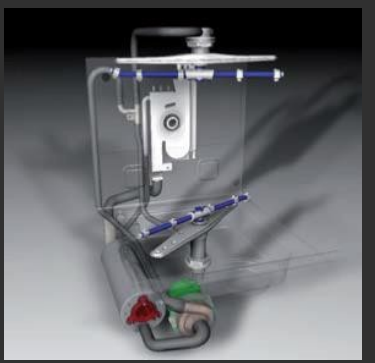
UltraRinse2 rinse system

The rinsing system is designed so that the water is jetted in jets directly against the dishes in the basket, rather than sprayed in cones, where a lot of water is inefficiently directed against the walls and bottom of the equipment and its pressure potential is not used. This reduces the water consumption of RM dishwashers by up to 60% per cycle compared to conventional dishwashers. In addition, the top of the range TT range is equipped with an ABT rinse pump system that ensures constant rinse water temperature and pressure.

A rinsing system with a number of international patents that ensures exceptional results independent of installation conditions with water savings of up to 60% per cycle. This is achieved by modifying the water flow, which does not form a normal cone but sharp beams that concentrate against the basket, not the bottom of the installation. Normally a large amount of rinse water is lost through leakage from the centre hub and inefficiently directed to the sides and bottom of the washer.
UltraRinse3 reduces leakage from the center hub and the different shoulder geometry creates a water cylinder directed at the basket. UltraRinse3 washers use only 2 litres of water per cycle with the same amount of water directed to the basket as a conventional washer using three litres. In addition, compared to conventional systems, water distribution is more even, allowing good washing results even in corners. Simply put, the rinse system uses less water, much more efficiently and with less wastage.



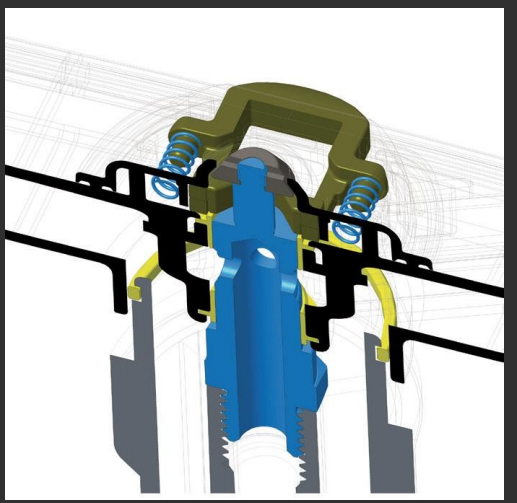




Normal rinse systemUltraRinse2 rinse system

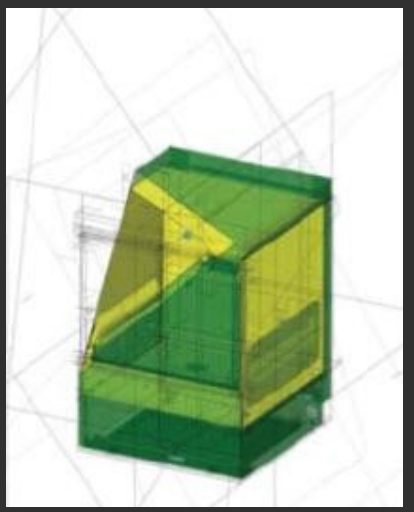
HiTech rinsing arms - NT

The washing nozzles on the HiTech arm are at the same height as the rinsing nozzles, so the water jet is not blocked at any point, as in the case of a conventional separate washing and rinsing arrangement Shoulders. The arm rotates on three graphite bearings that reduce friction to virtually zero. This means, that the full force of the water from the pump is used to wash the dishes rather than rotating the arm through the reaction holes.
During rinsing, the patented UltraRinse3 geometry ensures that water is used more efficiently and efficiently, which helps to reduce its consumption to a minimum. The HiTech arm is equipped with the EasyHanding attachment system, making it easy to remove with one hand and convenient to clean. The arm also excels in mechanical strength, flexibility and resistance to chemical damage. The HiTech arm is made of a composite material called ProComposit (30% laminate, 30% talc micro particles, 40% organic resin).



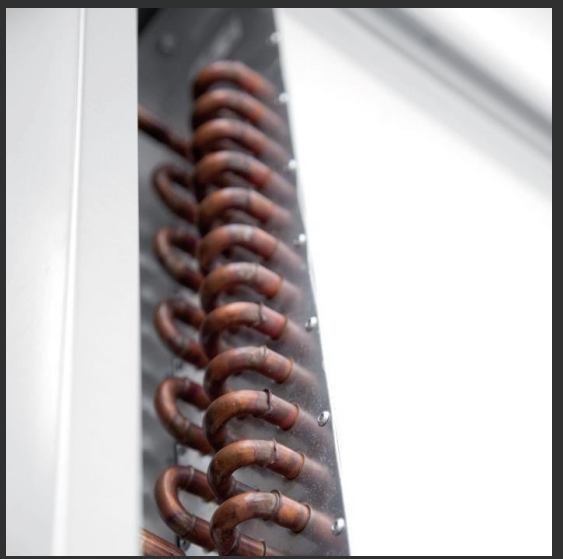
Thermal insulation of NT and TT dis

Our entire range uses design solutions to reduce thermal dispersion, control flow heat through structural elements and maintaining constant internal temperatures. This results in significant energy cost savings. All RM dishwashers have a dual design.



Recuperation - optional accessory for TT

The recuperation unit extracts and condenses the steam present after rinsing. The residual heat increases the inlet water temperature by 25 °C. The recovery unit also eliminates the need for an external extraction cover. The reduction in the temperature gradient that the boiler must supply for rinsing is up to 40%. The reduction in the amount of steam leaving the boiler when it is opened also increases user comfort.



Myčky podstolové TT

Index	Model	mm	kg	V / Hz	kW	Koš	Boiler Vana	Cyklus l / s	Kapacita košů / h
00011272	TT 42 ABT	466 x 556 x 695	42	230 / 50-60	3,5	400 x 400	2,6 kW / 2,6 l 0,6 kW / 8 l	1,2 l 90-120-150 s	40-30-24
00011290	TTA 42 ABT	466 x 556 x 695	42	230 / 50-60	3,5	400 x 400	2,6 kW / 2,6 l 0,6 kW / 8 l	1,2 l 90-120-150 s	40-30-24
00011291	TT 52 TS ABT	600 x 600 x 720	50	400 / 50-60	6,77	500 x 500	4,9 kW / 6 l 1,4 kW / 15 l	2,2 l 90-120-150 s	40-30-24
00011292	TTA 52 TS ABT	600 x 600 x 720	50	400 / 50-60	6,77	500 x 500	4,9 kW / 6 l 1,4 kW / 15 l	2,2 l 90-120-150 s	40-30-24
00011273	TT 52 T ABT	600 x 600 x 820	59	400 / 50-60	7,9	500 x 500	6 kW / 6 l 1,4 kW / 15 l	2,2 l 60-90-180 s	60-40-20
00011293	TTA 52 T ABT	600 x 600 x 820	59	400 / 50-60	7,9	500 x 500	6 kW / 6 l 1,4 kW / 15 l	2,2 l 60-90-180 s	60-40-20
00011294	TT 52 TB ABT	600 x 600 x 1250	74	400 / 50-60	7,9	500 x 500	6 kW / 6 l 1,4 kW / 15 l	2,2 l 60-90-180 s	60-40-20

Myčky průběžné TT

Index	Model	mm	kg	V / Hz	kW	Koš	Boiler Vana	Cyklus l / s	Kapacita
00011274	TT 112 ABT	721 x 836 x 1565	110	400 / 50-60	10,2	500 x 500	7 kW / 12 l 2,5 kW / 22 l	2,2 l 60-90-180 s	60-40-20
00011296	TTA 112 ABT	721 x 836 x 1565	110	400 / 50-60	10,2	500 x 500	7 kW / 12 l 2,5 kW / 22 l	2,2 l 60-90-180 s	60-40-20
00011295	TT 112 REC ABT	721 x 836 x 2265	128	400 / 50-60	10,2	500 x 500	7 kW / 12 l 2,5 kW / 22 l	2,2 l 60-90-180 s	60-40-20
00011297	TTA 112 REC ABT	721 x 836 x 2265	128	400 / 50-60	10,2	500 x 500	7 kW / 12 l 2,5 kW / 22 l	2,2 l 60-90-180 s	60-40-20
00011298	TT 162 ABT	788 x 835 x 1565	120	400 / 50-60	11	600 x 500	7 kW / 12 l 2,5 kW / 30 l	2,4 l 60-90-180 s	60-40-20
00011300	TTA 162 ABT	788 x 835 x 1565	120	400 / 50-60	11	600 x 500	7 kW / 12 l 2,5 kW / 30 l	2,4 l 60-90-180 s	60-40-20
00011299	TT 162 REC ABT	788 x 835 x 2265	143	400 / 50-60	11	600 x 500	7 kW / 12 l 2,5 kW / 30 l	2,4 l 60-90-180 s	60-40-20
00011301	TTA 162 REC ABT	788 x 835 x 2265	143	400 / 50-60	11	600 x 500	7 kW / 12 l 2,5 kW / 30 l	2,4 l 60-90-180 s	60-40-20

A - zabudovaný změkčovač vody
REC - s rekuperací

Myčky podstolové NT

Index	Model	mm	kg	V / Hz	kW	Koš	Boiler Vana	Cyklus l / s	Kapacita
00011269	NT 42	466 x 556 x 695	42	230 / 50-60	3,5	400 x 400	2,6 kW / 2,6 l 0,6 kW / 8 l	1,9 l 90-120-150 s	24-30-40 košů / h
00011284	NTA 42	466 x 556 x 695	42	230 / 50-60	3,5	400 x 400	2,6 kW / 2,6 l 0,6 kW / 8 l	1,9 l 90-120-150 s	24-30-40 košů / h
00011285	NT 42 P	466 x 556 x 695	42	230 / 50-60	3,5	400 x 400	2,6 kW / 2,6 l 0,6 kW / 8 l	1,9 l 90-120-150 s	24-30-40 košů / h
00011270	NT 52 T	600 x 600 x 820	59	400 / 50-60	7,9	500 x 500	6 kW / 6 l 1,4kW / 15 l	1,8 l 60-90-180 s	60-40-20 košů / h
00011287	NT 52 TP	600 x 600 x 820	59	400 / 50-60	7,9	500 x 500	6 kW / 6 l 1,4kW / 15 l	1,8 l 60-90-180 s	60-40-20 košů / h
00011288	NT 52 TB	600 x 600 x 1250	74	400 / 50-60	7,9	500 x 500	6 kW / 6 l 1,4kW / 15 l	1,8 l 60-90-180 s	60-40-20 košů / h
00014554	NT 93	600 x 700 x 850	62	400 / 50	9,8	500 x 600	7 kW / 6 l 2,1kW / 23 l	2,4 - 3,5 l / 120 - 720	30-5 košů / h
00014555	NT 93 P	600 x 700 x 850	62	400 / 50	9,8	500 x 600	7 kW / 6 l 2,1kW / 23 l	2,4 - 3,5 l / 120 - 720	30-5 košů / h
00014556	NT 97	600 x 700 x 1290	71	400 / 50	9,8	500 x 600	7 kW / 6 l 2,1kW / 23 l	2,4 - 3,5 l / 120 - 720	30-5 košů / h
00014557	NT 97 P	600 x 700 x 1290	71	400 / 50	9,8	500 x 600	7 kW / 6 l 2,1kW / 23 l	2,4 - 3,5 l / 120 - 720	30-5 košů / h

Myčky průběžné NT

Index	Model	mm	kg	V / Hz	kW	Koš	Boiler Vana	Cyklus l / s	Kapacita
00011271	NT 102	721 x 836 x 1565	110	400 / 50-60	10,2	500 x 500	7 kW / 6 l 2,5 kW / 22 l	2,7 l 60-90-180 s	60-40-20 košů / h
00011289	NT 102 P	721 x 836 x 1565	110	400 / 50-60	10,2	500 x 500	7 kW / 6 l 2,5 kW / 22 l	2,7 l 60-90-180 s	60-40-20 košů / h

P - odpadové čerpadlo
B - s podestavbou

Main benefits - NT and TT series washers

Heat recovery unit (TT only):

A heat recovery unit can be purchased as an optional accessory for the TT series.

The heat recovery unit returns heat back to the system
and water from the steam generated.

The heat recovery unit saves the cost of the energy consumed and at the same time saves the cost of installing an external hood, which would exceed the investment value of the heat recovery.

Double skin design (NT and TT):

All NT and TT series dishwashers have a double-walled construction.

The double-walled design of the dishwashers allows for higher thermal efficiency due to less heat loss, while reducing machine noise.

Double bowl dishwashers save energy costs for heating water while providing greater comfort in the kitchen thanks to lower noise levels.

Main benefits - NT and TT series washers

ABT system:

Selected TT dishwasher models have an integrated ABT (Air Brake Tank) system.

Thanks to the separation of the boiler from the water supply system and the use of a rinse pump, a constant temperature and pressure of the rinse water is ensured. The rinsing and draining of the boiler occur at different times. The water does not mix

Thanks to ABT, maximum rinsing efficiency is always guaranteed at all points and the washer can be installed anywhere. At the same time, the dishes are washed at a hygienic temperature and dry easily.

EvoLution 3 partial controlled discharge system:

TT series dishwashers have the Evolution 3 partial drain system (NT optional)

The Evolution 3 increases water efficiency by discharging only the exact amount of the dirtiest water.

Efficient water exchange control brings considerable savings in water and thus in the energy required for water. The water for washing is as clean and hygienic as possible.

Black dishwashers RM S

The advantage of RM's complete range of "black dishwashers" is the adaptability in use, as well as saving time and money. The design of the dishwashers has been specifically conceived to meet the black ware washing needs of food processing plants such as bakeries, confectioneries, butcher shops, large restaurants, school and factory canteens and other catering operations. The main features of the dishwasher design are double skin design, molded tanks, smooth walls, stainless steel main tank filters, stainless steel pump filters, easily removable dirt traps, solid double doors and hinges, protected electrical installation.
Controlled detergent and rinse aid dispenser electronically

- Electronic control
- Swivel upper and lower washing arms
- Run and heat indicator lights
- All stainless steel design with moulded bath
- Adjustable boiler thermostat

Black dishwashers RM S series

Overview of black dishwasher models S

Dishwasher for black dishes 90

S97 ABT
S97 P ABT with waste pump

Usable door height 405 mm
Dual-flow wash pump
Stainless steel basket 500 x 600 mm

Dishwasher for black dishes 100

S 107 ABT
S 107 P ABT with waste pump S 107 REC ABT with waste pump and heat recovery

Usable door height 650 mm
Two-stream washing pump
Stainless steel basket 550 x 610 mm

Dishwasher for black dishes 150

S 157 ABT
S 157 P ABT with waste pump S 157 REC ABT with waste pump and heat recovery

Usable door height 850 mm
Dual-flow wash pump
Stainless steel basket 550 x 610 mm

Dishwasher for black dishes 200

S 202 ABT
S 202 P ABT with waste pump S 202 REC ABT with waste pump and heat recovery

Usable door height 850 mm
Dual-flow wash pump
Stainless steel basket 700 x 700 mm

Dishwasher for black dishes 300

S 302 ABT
S 302 P ABT with waste pump
S 302 REC ABT with waste pump and recuperation

Usable door height 850 mm
Dual-flow wash pump
Stainless steel basket 1320 x 700 mm

Key Benefits - S Series Black Dishwashers

Door height:

RM black dishwashers have one of the highest door clearances on the market.
S 97 - 405 mm
S 107 - 650 mm
S 157 - 850 mm
S 202 - 850 mm
S 302 - 850 m

This allows the operator to conveniently insert and unloading the dishes.

The high clearance at the door makes it much easier to wash large dishes, saving time and effort for the operator.

HotWash system:

The HotWash system allows the power to be divided between the heating elements of the bath and the boiler.

The result is a wash temperature that is approximately 10 °C higher during repeated cycles, which reduces the need for cleaning chemicals and maintains high cleaning performance even when the machine is running continuously.

The S-series black dishwashers with HotWash save significantly on detergents, even in continuous operation, and at the same time have a constant cleaning capacity. The dishes are consistently clean.

Key Benefits - S Series Black Dishwashers

Double skin design (NT and TT):

All black dishwashers have a double-walled design.

The double-walled design of the dishwashers allows for higher thermal efficiency due to less heat loss, while reducing machine noise.

Double-walled dishwashers save energy costs for heating water while providing greater comfort in the kitchen thanks to lower noise levels.

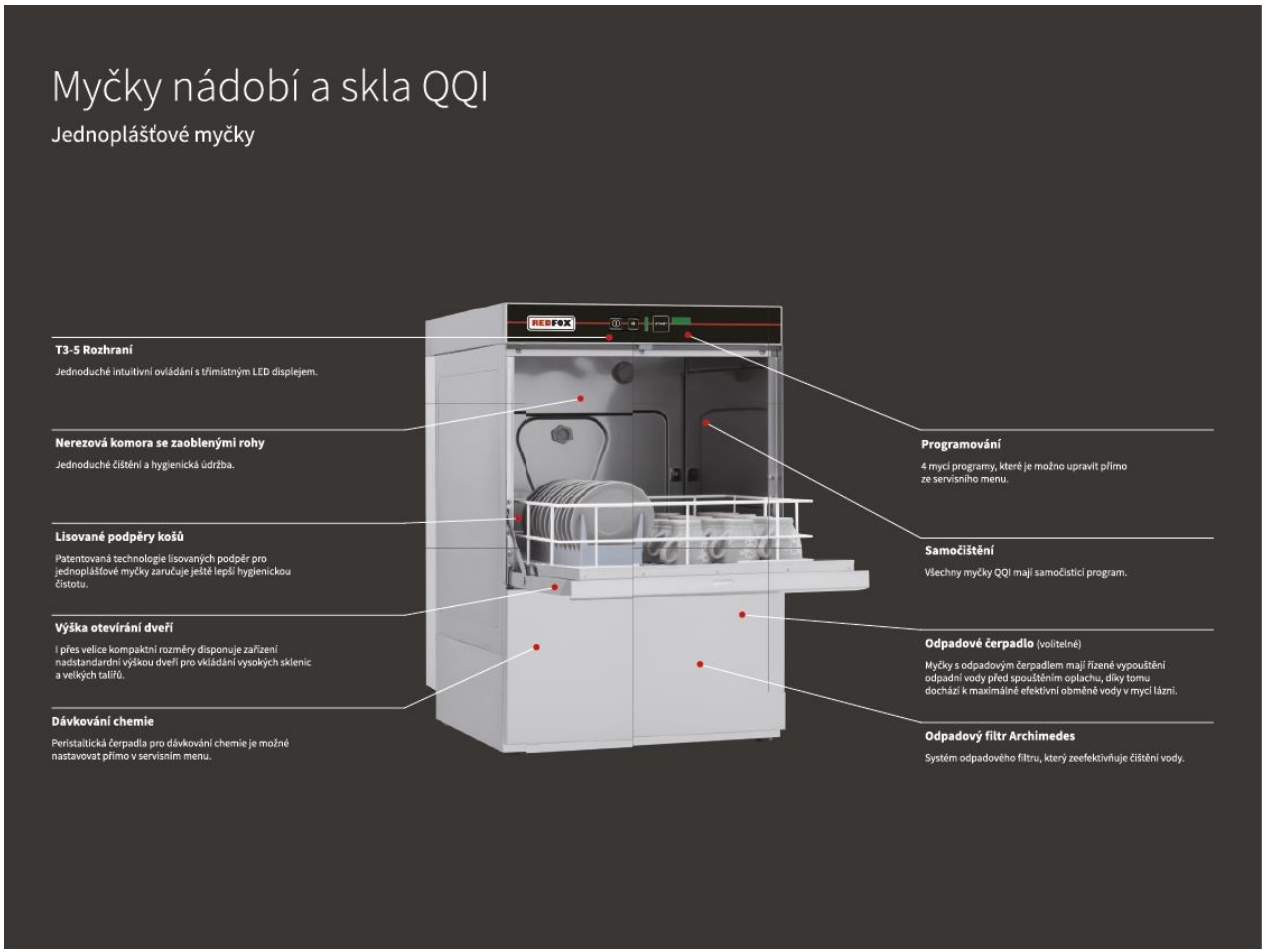
EvoLution 3 partial controlled discharge system:

TT series dishwashers have the Evolution 3 partial drain system (NT optional)

The Evolution 3 increases water efficiency by discharging only the exact amount of the dirtiest water.

Efficient water exchange control results in significant water savings and thus energy requirements for water. The water for washing is as clean and hygienic as possible.

REDFOX QQI underfloor dishwashers



QQI dishwashers

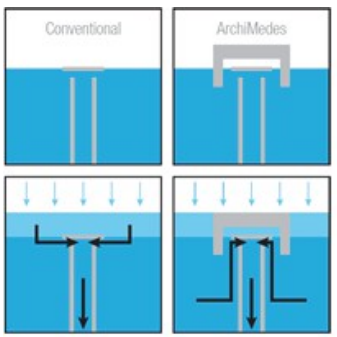
The construction of the washers is all stainless steel and single-walled. All models have a moulded wash tub and moulded basket supports for the easiest possible maintenance and maintenance of hygienic cleanliness.
Washing is carried out with water at a temperature of 60°C, which is pumped through filters from the bath into the baths, closed circuit. Boiler rinse water at 80 °C (QQI 37 and QQI 42 - 65
°C) is displaced by the pressure of the incoming water from the system.
The drying of the plates is ensured by the temperature difference between the rinse water and the ambient air, thus water evaporates from the dishes.
The dishwashers are controlled by a three-digit LED display and the washing progress is shown on the 5-diode LED bar.

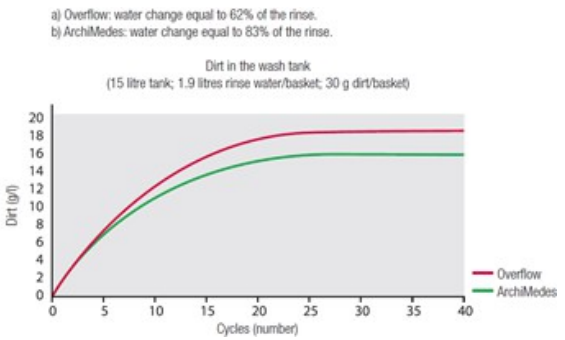
Main advantages of QQI dishwashers

Pump DuoFlow	High cleaning effect with lower energy requirements. The two-way wash pump reduces pressure losses compared to using a standard pump with a split.
Energy saving system EnergySaving	Reduces standby power consumption by lowering the boiler temperature.
Time-controlled rinsing system with ThermoStop function	Rinsing at the correct temperature is ensured by the ThermoStop function, which monitors the boiler temperature when the cycle starts. The rinse time is fixed, the system adjusts the water consumption depending on the pressure in the water line. The minimum water consumption is 1.5 litres per cycle.
Discharge system ArchiMedes	Increases water treatment efficiency from 66% for discharge through a conventional overflow to 83%.
Discharge system EvoLution3	A system that uses three-level water filtration and an electronically controlled waste pump. Evolution3 is included on all QQI washers with a resistance pump.
ProDose chemistry dosing system	Maximum efficiency thanks to precise dosing of the washing and rinsing detergent by means of a peristaltic pump.
Lifting	systemReduces the required lifting force of the top cover of continuous washers. In addition, the maximum lift height of 450 mm also allows washing of GN 1/1 gastronorm tanks.

ArchiMedes waste filter system

- The water treatment efficiency is increased from 62% for the discharge through the normal overflow to 83% thanks to waste management system
- of the ArchiMedes filter operating on the principle of connected vessels. This makes it possible to reduce the detergent concentration. In a normal gravity waste, clean water is held above heavier contaminated water, so that one third of the clean water ends up directly in the waste. With the ArchiMedes filter, the water is pushed against the bottom of the tub, simultaneously discharging some of the dirt particles. The water becomes dirtier more slowly and the frequency of necessary changes is reduced. It can be combined with a waste pump.



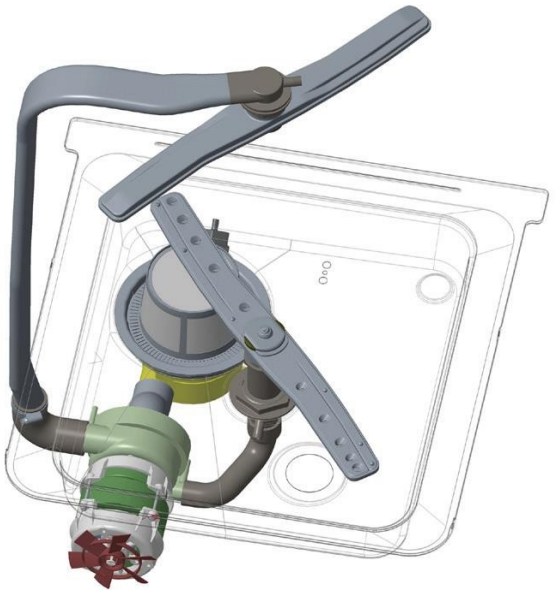


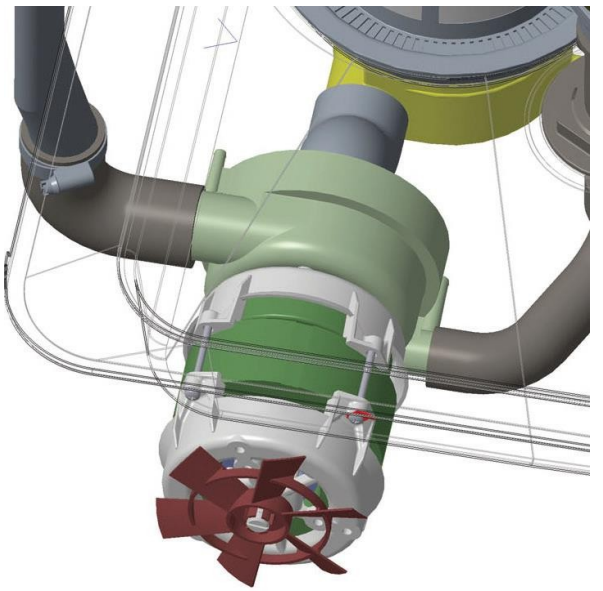
EvoLution3 partial controlled discharge system

The Maximum Efficient Water Exchange System helps to slow down the process of water contamination in the wash bath, thus reducing the required detergent concentration. At the same time, water consumption is kept constant. Both of these effects have a positive impact on reducing operating costs. A rest cycle follows the end of the washing cycle, allowing dirt particles to settle. The exact amount of the dirtiest water is then drained from the bottom (controlled by an electronic pressure switch). The same amount of water is then replenished during the rinse cycle. As a result, 100% of the dirty water is always discharged, as opposed to a conventional overflow discharge where 66-83% of the dirty water is exchanged with the clean water. **All QQI washers with a built-in waste pump are equipped with this system.**

DuoFlow two-way pump

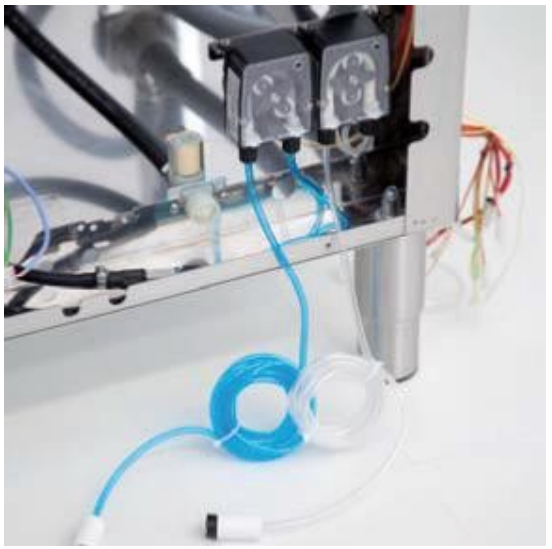
Lower power consumption with the same performance. In addition, a simultaneous 50% reduction in noise. This is thanks to the patented
DuoFlo two-way wash pump technology. A conventional pump has a tank inlet and an outlet towards the two spraying arms: the water flow must be divided by a T- or Y-shaped connector into upper and lower arms. This arrangement results in a 25-30% energy loss. The QQI washer pump has one inlet but two outlets without any splitter. The losses are not only reduced in this case but are completely eliminated. The 480W DuoFlo pump provides the same power as a conventional 650W pump.

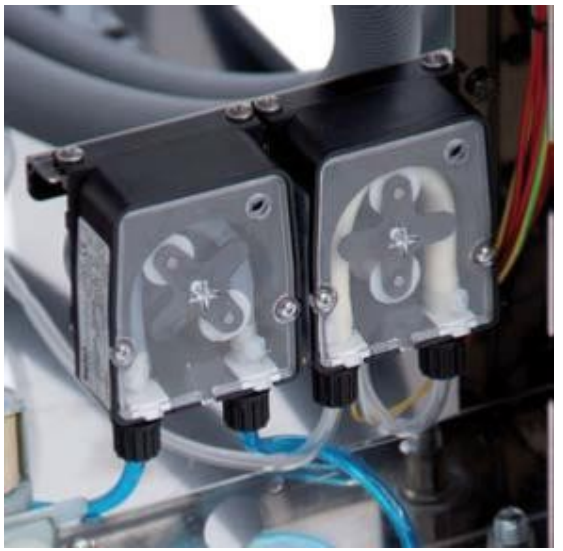




ProDose chemistry dosing system

- Electronically controlled peristaltic pumps for precise dosing of detergent and rinse aid. Probes are available as an option to measure the remaining detergent level with an alert signal on the display. The control system allows direct adjustment of the dosing quantity on the display.





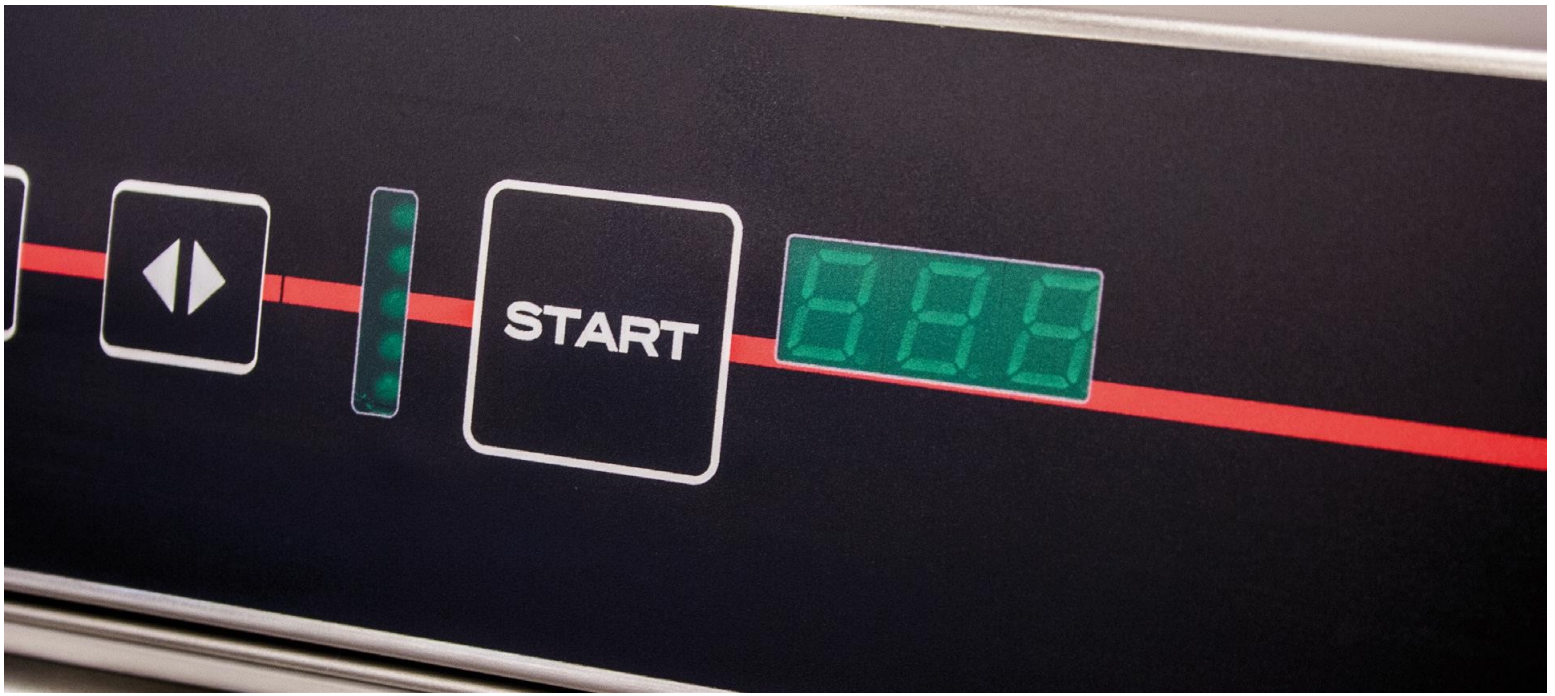
QQI Dishwashers - Technical Information

Index	Model	mm	kg	V / Hz	kW	Koš	Boiler Vana	Cyklus l / s	Kapacita
00011263	QQI 37	401 x 490 x 595	27	230 / 50-60	3,5	350 x 350	2,6 kW / 2,6 l 0,6 kW / 7 l	1,6 l 60-120-150 s	60-30-24 košů / h
00011264	QQI 37 P	401 x 490 x 595	27	230 / 50-60	3,5	350 x 350	2,6 kW / 2,6 l 0,6 kW / 7 l	1,6 l 60-120-150 s	60-30-24 košů / h
00011265	QQI 42	436 x 535 x 670	31	230 / 50-60	3,5	390 x 390	2,6 kW / 2,6 l 0,6 kW / 8 l	1,6 l 60-120-150 s	60-30-24 košů / h
00011280	QQI 42 P	436 x 535 x 670	31	230 / 50-60	3,5	390 x 390	2,6 kW / 2,6 l 0,6 kW / 8 l	1,6 l 60-120-150 s	60-30-24 košů / h
00011266	QQI 52	575 x 605 x 820	56	230 / 50-60	3,5	500 x 500	3 kW / 6 l 2,1 kW / 20 l	2,1 l 60-120-150 s	60-30-24 košů / h
00011281	QQI 52 P	575 x 605 x 820	56	230 / 50-60	3,5	500 x 500	3 kW / 6 l 2,1 kW / 20 l	2,1 l 60-120-150 s	60-30-24 košů / h
00011267	QQI 52 T	575 x 605 x 820	56	400 / 50-60	5,4	500 x 500	4,9 kW / 6 l 2,1 kW / 20 l	2,1 l 60-120-150 s	60-30-24 košů / h
00011282	QQI 52 TP	575 x 605 x 820	56	400 / 50-60	5,4	500 x 500	4,9 kW / 6 l 2,1 kW / 20 l	2,1 l 60-120-150 s	60-30-24 košů / h
00011268	QQI 102	724 x 818 x 1599	115	400 / 50-60	8,5	500 x 500	8 kW / 6 l 2,1 kW / 15 l	2,1 l 60-120-150 s	60-30-24 košů / h
00011283	QQI 102 P	724 x 818 x 1599	115	400 / 50-60	8,5	500 x 500	8 kW / 6 l 2,1 kW / 15 l	2,1 l 60-120-150 s	60-30-24 košů / h
00011315	QQI 102/TOP	724 x 818 x 1599	115	400 / 50-60	8,5	500 x 500	8 kW / 6 l 2,1 kW / 15 l	2,1 l 60-120-150 s	60-30-24 košů / h
00011316	QQI 102 P/TOP	724 x 818 x 1599	115	400 / 50-60	8,5	500 x 500	8 kW / 6 l 2,1 kW / 15 l	2,1 l 60-120-150 s	60-30-24 košů / h

P - dpadové čerpadlo
TOP - ovládání na krytu

Intuitive T3-5 interface

New interface with a 3-digit LED display complemented by a 5-diode LED bar. The display allows selection of programs, display of boiler and wash tub temperatures. In the event of a fault, it displays an error code, making it easy to identify and correct the fault. The holistic design prevents the ingress of any dirt to maintain perfect hygienic conditions.



Benefits of QQI dishwashers

Common washing and rinsing

- no interruption of the beam by the second arm
- partially uses the kinetic energy from the washing cycle
- more efficient fit with less friction
- fixed with one screw with safety lock against dropping out

The new type of composite wash and rinse arm is made of durable, resilient and elastic material. The arms have been unified into one common part. This allows the kinetic energy from the wash cycle to be used for the rinse cycle as well. Due to the efficient fit, there is less friction during rotation, thus saving energy. The arms are held in place by a centre bolt with an anti-fall-off lock. This makes them easily removable for cleaning.

armLight stroke height 450 mm

- makes it easier to load dishes into the machine
- also allows insertion of GN 1/1 for more efficient storage with lower friction
- fixed with one screw with safety lock against dropping out

Overview of QQI underfloor car wash models

Glass washer 35

QQI 37
QQI 37 P with waste pump

Door height 260 mm
Common washing and rinsing arm at the bottom
Only the rinsing arm above
2 x glassware basket, 1 x cutlery basket

Glass washer 40

QQI 42
QQI 42 P with waste pump

Door height 320 mm
Shared washing and rinsing arm at the bottom and top 1 x glassware basket, 1 x plate basket, 1 x cutlery basket

Dishwasher 50

QQI 52
QQI 52 P with waste pump
QQI 52 T three-phase
QQI 52 TP three-phase with waste pump

Door height 365 mm
Shared washing and rinsing arm at the bottom and top 1 x glassware basket, 1 x plate basket, 1 x cutlery basket

Overview of QQI continuous washer models

Continuous washer 100

QQI 102
QQI 102 P with waste pump QQI
102/TOP with top control
QQI 102 p/TOP with waste pump and
by control on top

Lift height 450 mm - even larger dishes (e.g. GN 1/1) can be washed
Common washing and rinsing arm at the bottom and top
1 x glassware basket, 1 x plate basket, 1 x cutlery basket

Key Benefits - QQI Dishwashers

Moulded basket supports:

Featuring patented design technology for single bowl washers, all QQI washer models are equipped with molded basket supports.

No contaminants cling to hard-to-maintain folds, prefabricated or welded joints.

The moulded basket supports guarantee perfect ease of cleaning and hygiene. The dishwasher always remains hygienically clean and you save time when cleaning.

Common washing and rinsing arm:

The new arm design now combines the washing and rinsing arms into one, which partially uses the kinetic energy from the washing cycle during rinsing. In addition, the arm is attached by a single bolt, which is secured by an anti-fall-off lock.

This prevents interruptions
water jet during the wash cycle, washing is more efficient and the arm can be removed very quickly and easily.

The common washing and rinsing arm saves a part in dismantling and cleaning the baskets, and at the same time the washing is very efficient in washing.

Key Benefits - QQI Dishwashers

Three-digit LED display + LED bar:

The display allows you to see the wash and rinse temperature, select programmes or change settings completely, and shows any error codes for easy servicing. The LED bar provides information on the current wash cycle. Everything is recessed in a hygienically protected design.

The dishwasher is pleasant and intuitive to use. Everything you need is immediately visible.

Thanks to its simple and clear controls, the dishwasher is easy to operate and can be immediately mastered even by untrained workers.

Clear lift height 450 mm:

QQI continuous washers have a unique cover lift clearance of 450 mm in their class. The new cover lifting system is more precise and convenient. Less than 3 kg of force is required to lift.

The new lifting system is significantly easier and less stressful to operate, while the clear height of 450 makes it easy to wash even larger dishes such as 1/1 GN containers.

The QQI continuous dishwashers are very versatile thanks to their clear height and can even replace specialised dishwashers for large dishes. Less effort in repeatedly lifting the cover makes the operator more satisfied and saves energy.

PRODUCT TRAINING - TUNNEL WASHERS

Tunnel washers - general

- Designed for the busiest operations (capacity 120 - 300 baskets/hour - theoretically 2200-5300 plates/hour)
- Double shell design (smaller noise level)
- Modular design (easier installation, variability): washing module + pre-wash and/or drying module (increased capacity, processing of dirty plates on both sides / faster output of washed and dry dishes)
- Heat recovery units (consumption reduction)
- Boiler for 85°C with pump and ABT
- Chemical dispensers with probes (electronic control, less consumption)
- Water softeners and osmotic filters
- Inlet height 450 mm, basket dimensions 500 x 500 mm (also for trays, large thermoses, etc.)

Tunnel Washing Machines - Suitable for different types of plants

- Restaurant
- Hotels
- Spa
- School canteens
- Public canteens
- Company canteens
- Cattering Companies
- Public sector

Tunnel Washers - Overview and comparison of CT, A and XT models

Tunnel Washers - A and XT - Comparison

Type	Models (The marking corresponds to the capacity of bins/hr)	Maximum number of modules	Type of rinse	Technology rinsing	Management system rinsing	Washing programmes	Interface	Washing pump W
CT	120	1- Integrated wash and rinse	Simple rinse	Pressure from the boiler	-	2	ProSmart 	1 500
CT	160 270	1 -model 160- Integrated washing a n d rinse	Simple rinse	Rinse pump - ProRinse	Flow control- ProPortional	4	ProSmart 	1 500
A	200 270	3 - Pre-washing, washing and drying	Triple rinse	Rinse pump - ProRinse	Flow control - ProPortional	4 programs: high capacity, standard operation, extended contact, glass	ProSmart 	2 700
XT	270 300	3 - for model 270: Pre-wash, Integrated Washing, Rinsing with drying 4 - for model 300: Pre-wash, 2x Integrated Washing, Rinsing with drying	Triple adjustable rinse		ProPortional Plus	5 programmes: high capacity, standard operation, extended contact, glass and intensive wash	Touch: Cl4 Interface 	2 700

XT washers : ProPortionalplus technology, which uses two completely independent water distribution circuits from the boilers, separately to the upper and lower rinse arms.

Each circuit includes heat recovery, separate powerful boiler and its own rinsing arms.
Each circuit is capable of delivering different amounts of water and pressure to its rinse arms, depending on the programme. This allows more precise water dosing, always according to the type of dishes being washed, without unnecessary losses.

XT dishwashersWashing pump: 1050 L/min (2.7 kW) and rinse pump: 110 L/min (0.2 kW) DuoFLow technology: the ability to wash more dishes in less time, save energy costs and maintain a high quality wash

XT dishwashers: the Intensive Wash programme is ideal for washing pots, packaging, heavily soiled unwrapped crockery.

Water consumption:

- CT - under 1.3l/basket
- A - under 1l/basket
- XT - under 1l/basket

Tunnel Washers - CT, A and XT - Comparison

All three product lines:

- TOP products
- Double-skinned design
- High capacity - using the water temperature from the boiler
- Boiler water temperature for rinsing up to 65-85°C (high efficiency of the washer due to the water temperature)
- Water temperature in the wash tub 60-63°C (preheated)
  dishes from the pre-wash phase)
- Separate rinse tub
- Extended pre-wash module

A

- Capacity 200-270 baskets/hour
- Multiple rinses from the rinse tub and boiler (pre-rinse and 1 rinse pump)
- Possibility to connect 1 drying module

- Digital control
- 4 washing programmes
- Water consumption under 1l/basket
- Modular construction: 3 modules + tables
- Models for cold and hot water. For dishwashers connected to the cold water is in increased power.

CT

- Capacity 120-270 baskets/hour
- Boiler rinse (pressure in the order of CT120 or pump at 160 and 270)
- 2 or 4 washing programmes
- Water consumption under 1.3L/basket

- CT 120 without ABT tank

XT

- Capacity 270-300 baskets/hour
- Multiple rinses from the rinse tub and from the boiler.
  Possibility to connect 1 drying module
  Touch control
- 5 washing programmes
- Water consumption under 1l/basket
- Modular construction: 3-4 modules + tables
- It is not possible to have 2 drying modules in a row
- It is not possible to connect the device to wifi.

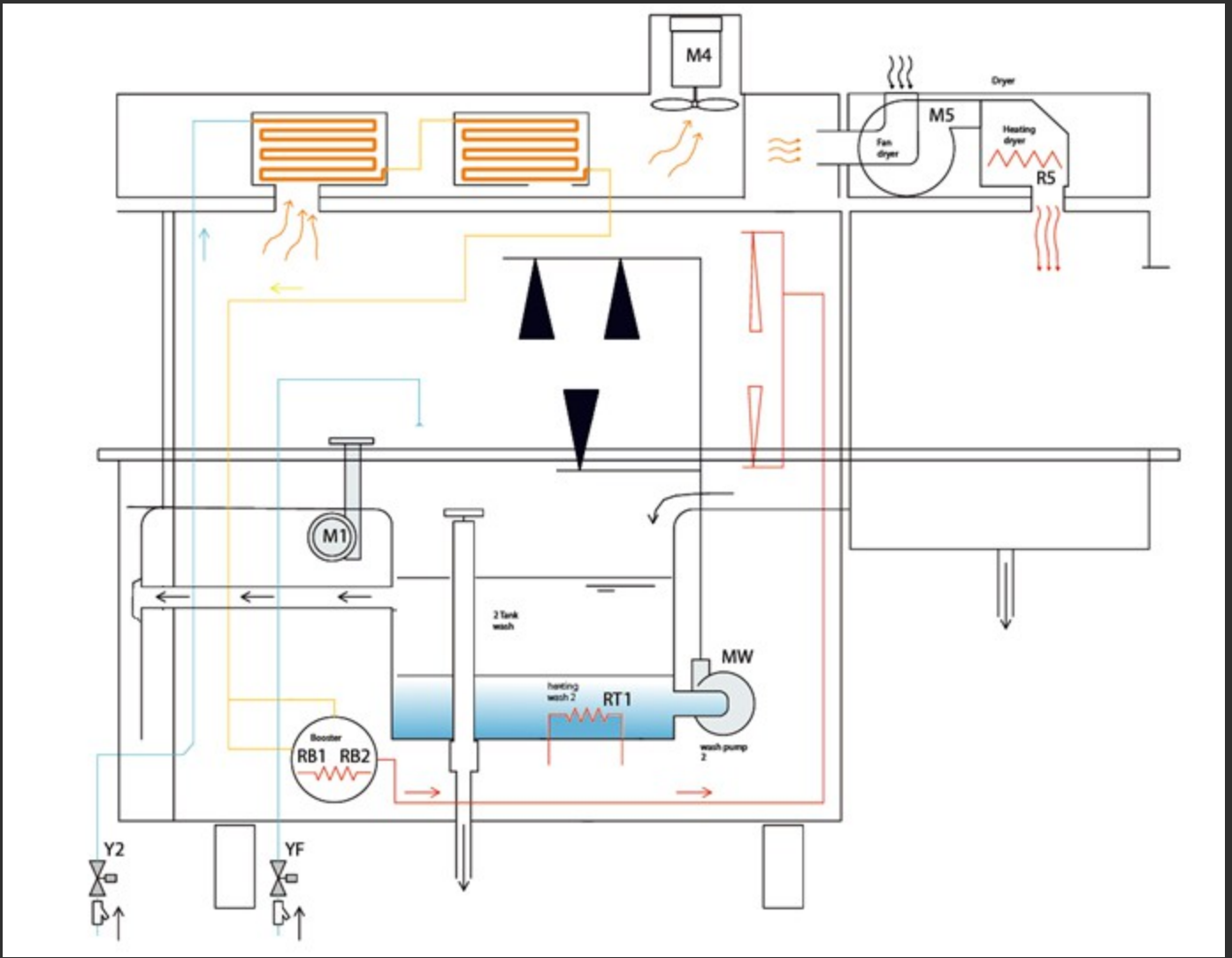
Tunnel washers - CT and A

Tunnel Washers - CT and A - Comparison

Type	Model	Type of rinse	Rinsing technology	Management system rinsing	Washing programmes	Capacity baskets / h	Interface	Washing pump W
CT	120	Simple rinse	Pressure from the boiler	-	2	120	ProSmart 	1.500
CT	160 & 270	Easy rinse	ABT rinse pump - ProRinse	Flow control - ProPortional	4	160 & 270	ProSmart 	1.500
A	200 & 270	Triple rinse	ABT rinse pump - ProRinse	Flow Control - ProPortional	4	200 & 270	ProSmart 	2.700

Tunnel washers - CT 120

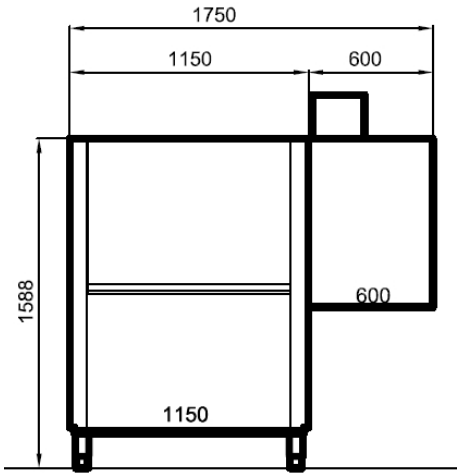
Tunnel washers - CT 120



Tunnel washers - CT 120

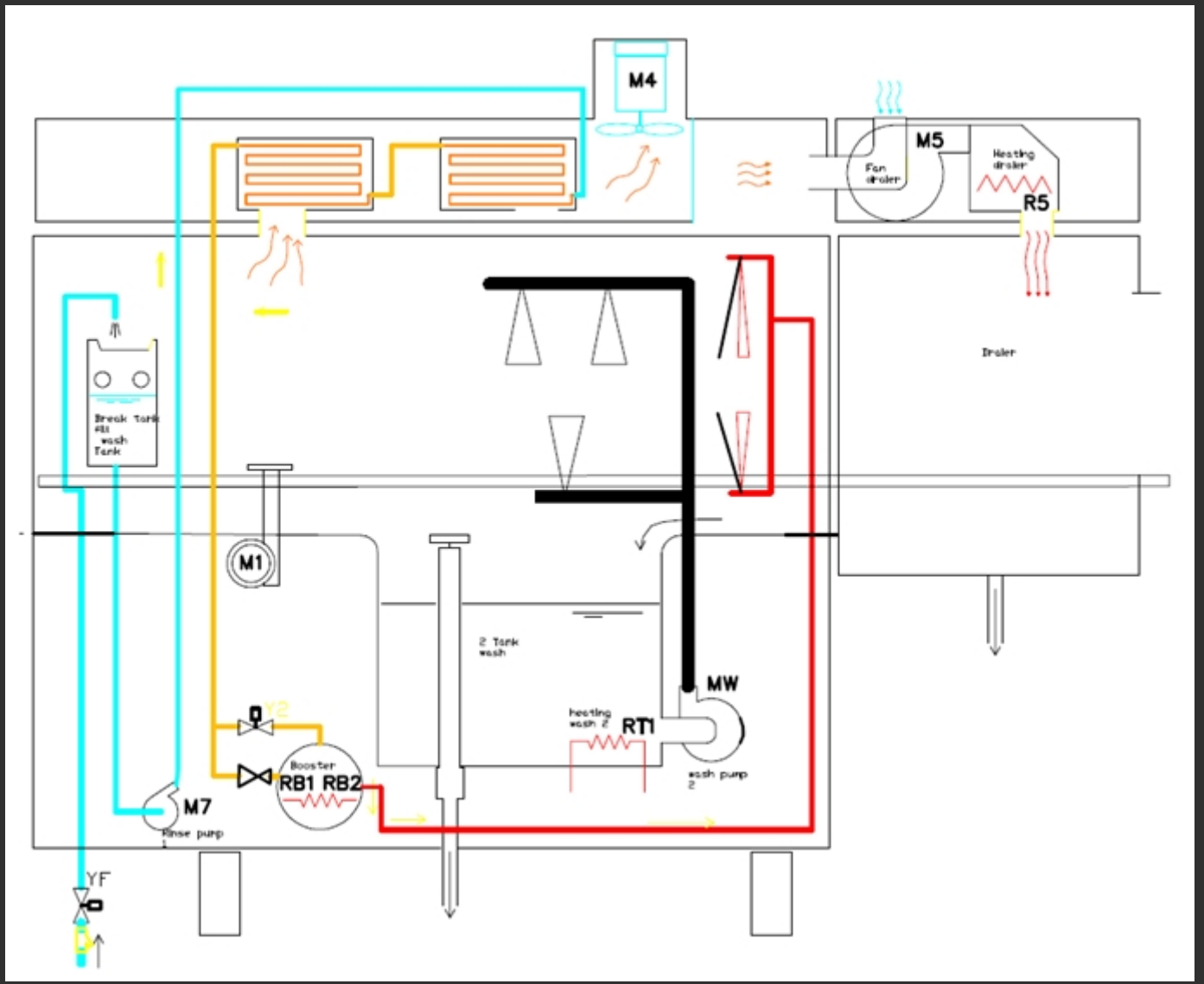
CT 120
Integrated washing and rinsing 120 baskets/h max
- **65 baskets/hour with program according to DIN 10534**

1.150 mm length



Tunnel washers - CT 160 ABT

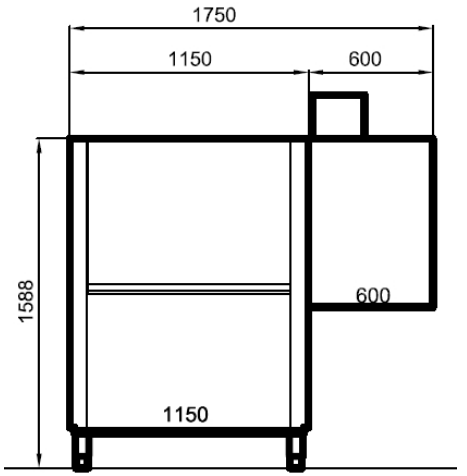
Tunnel washers - CT 160 ABT



Tunnel washers - CT 160 ABT

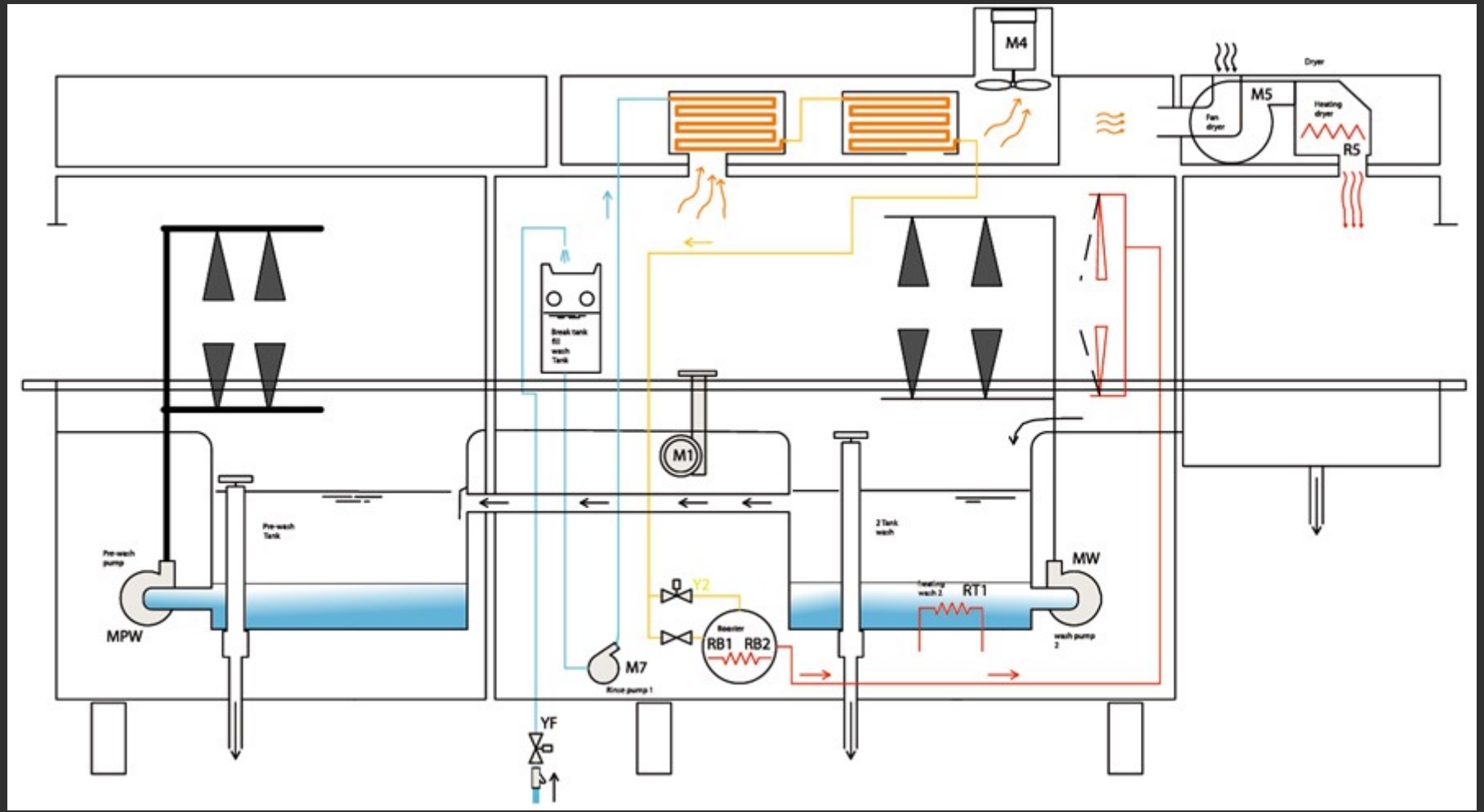
CT 160
Integrated washing and rinsing 160 baskets/h max
- **65 baskets/hour with program according to DIN 10534**

1.150 mm length



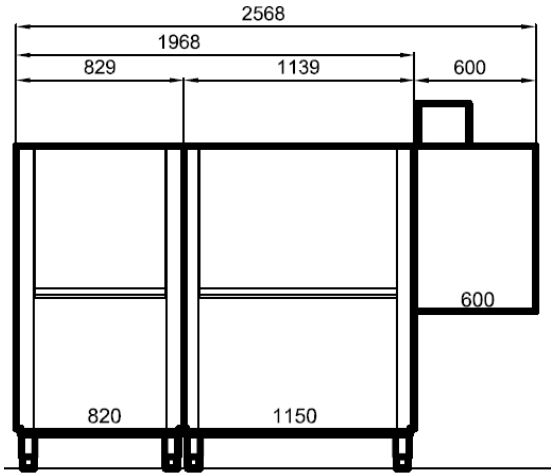
Tunnel washers - CT 270 ABT

Tunnel washers - CT 270 ABT



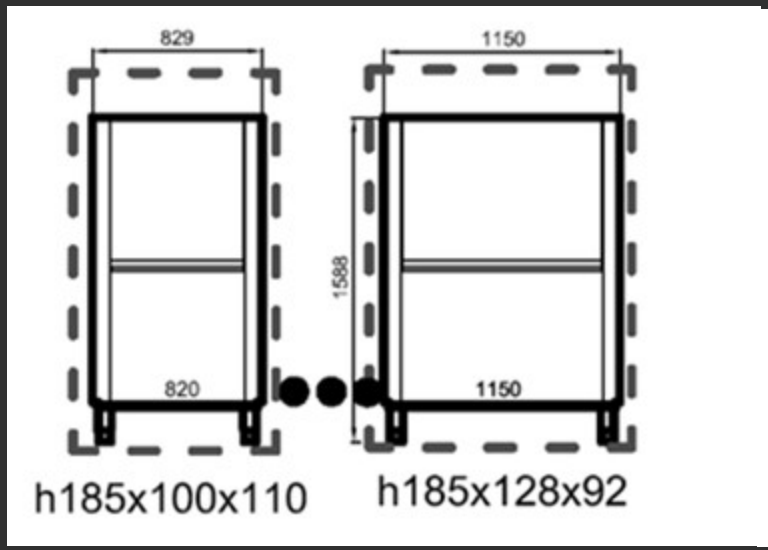
Tunnel washers - CT 270 ABT

CT 270
XL pre-wash + Integrated wash and rinse
200 baskets/h max
110 baskets/hour at program according to DIN 10534 1.968 mm long

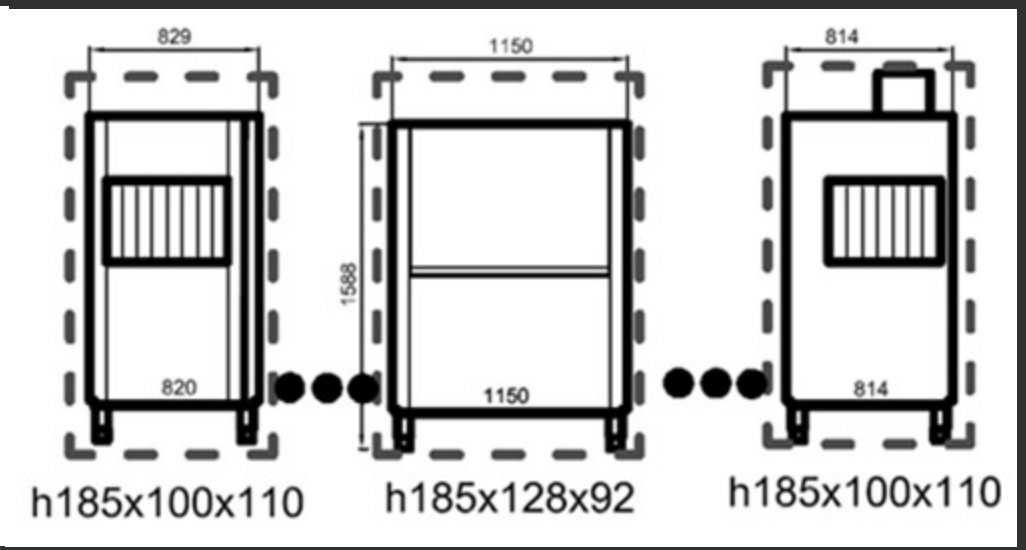


Mechanical breakdown:

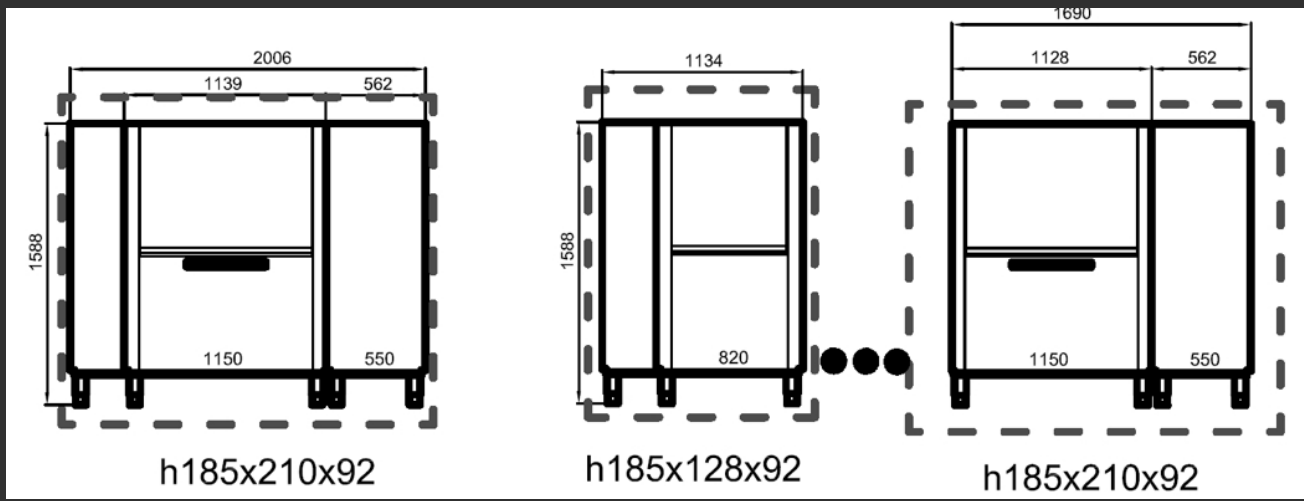
CT120: divisible



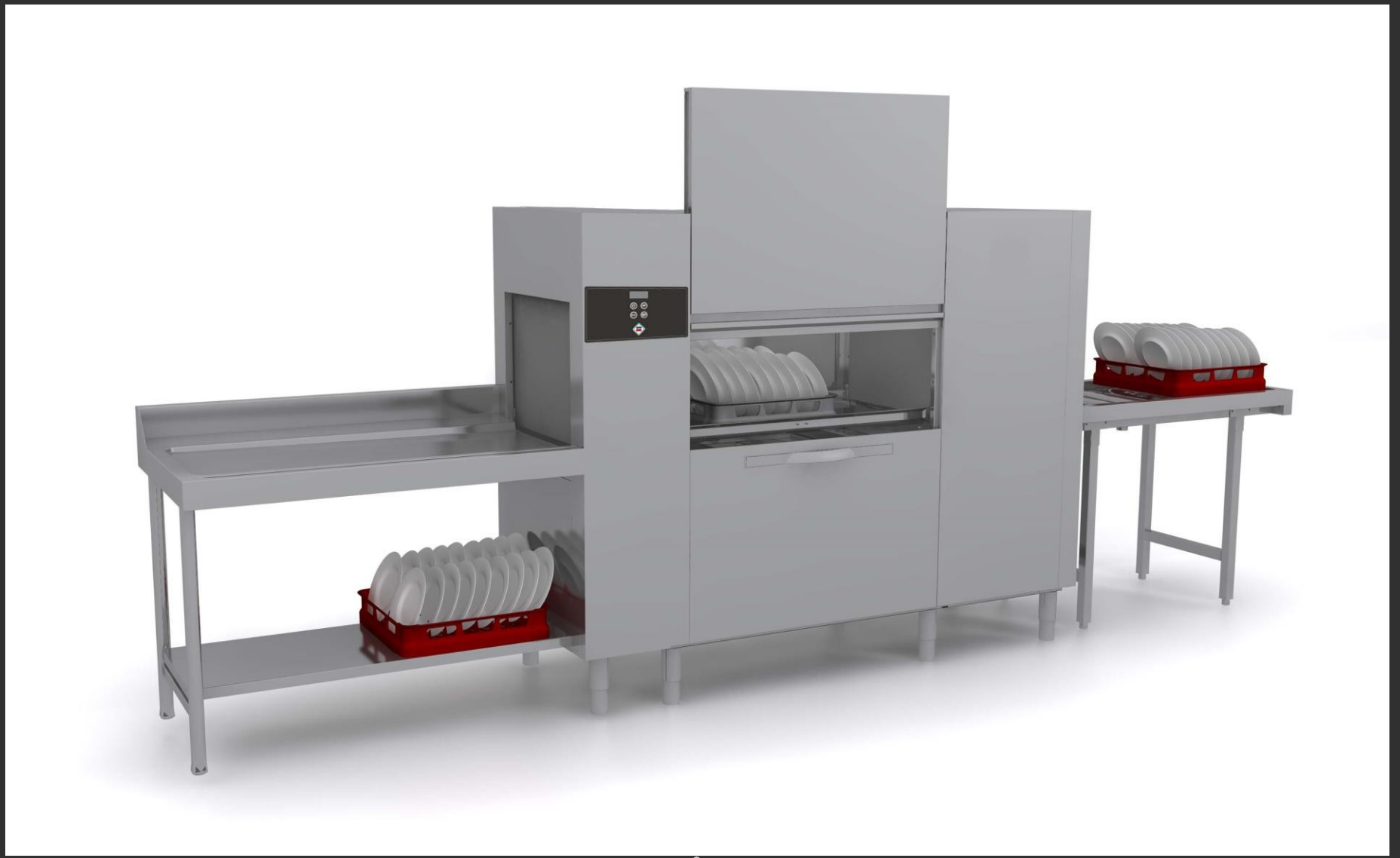
CT160: divisible



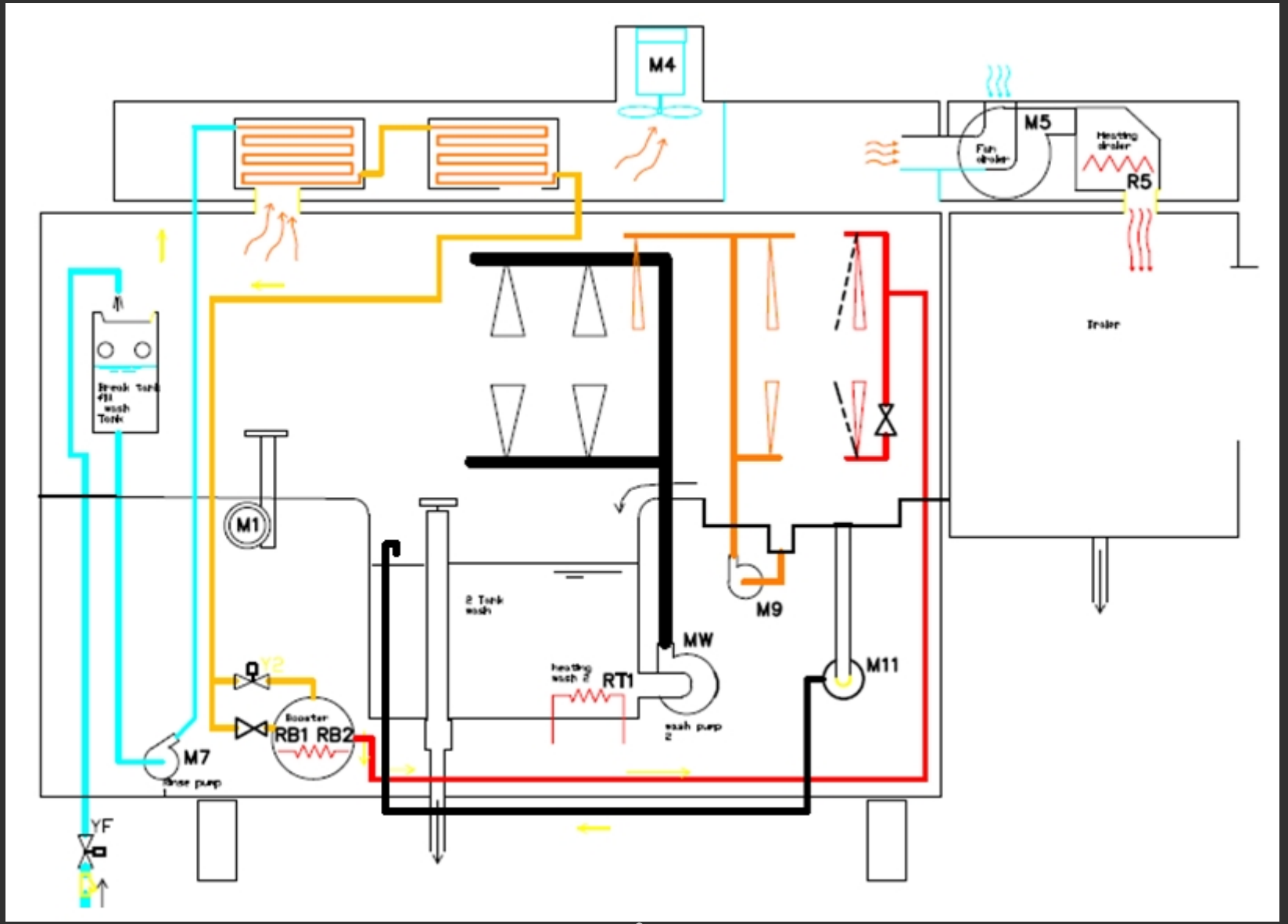
CT270 ABT: indivisible (all in one piece, except for the combination with the pre-wash module)



Tunnel washers - A 200 ABT

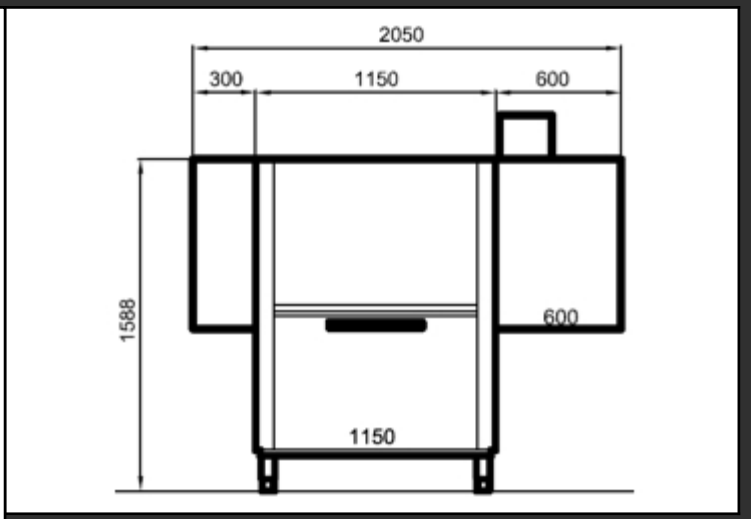


Tunnel washers - A 200 ABT

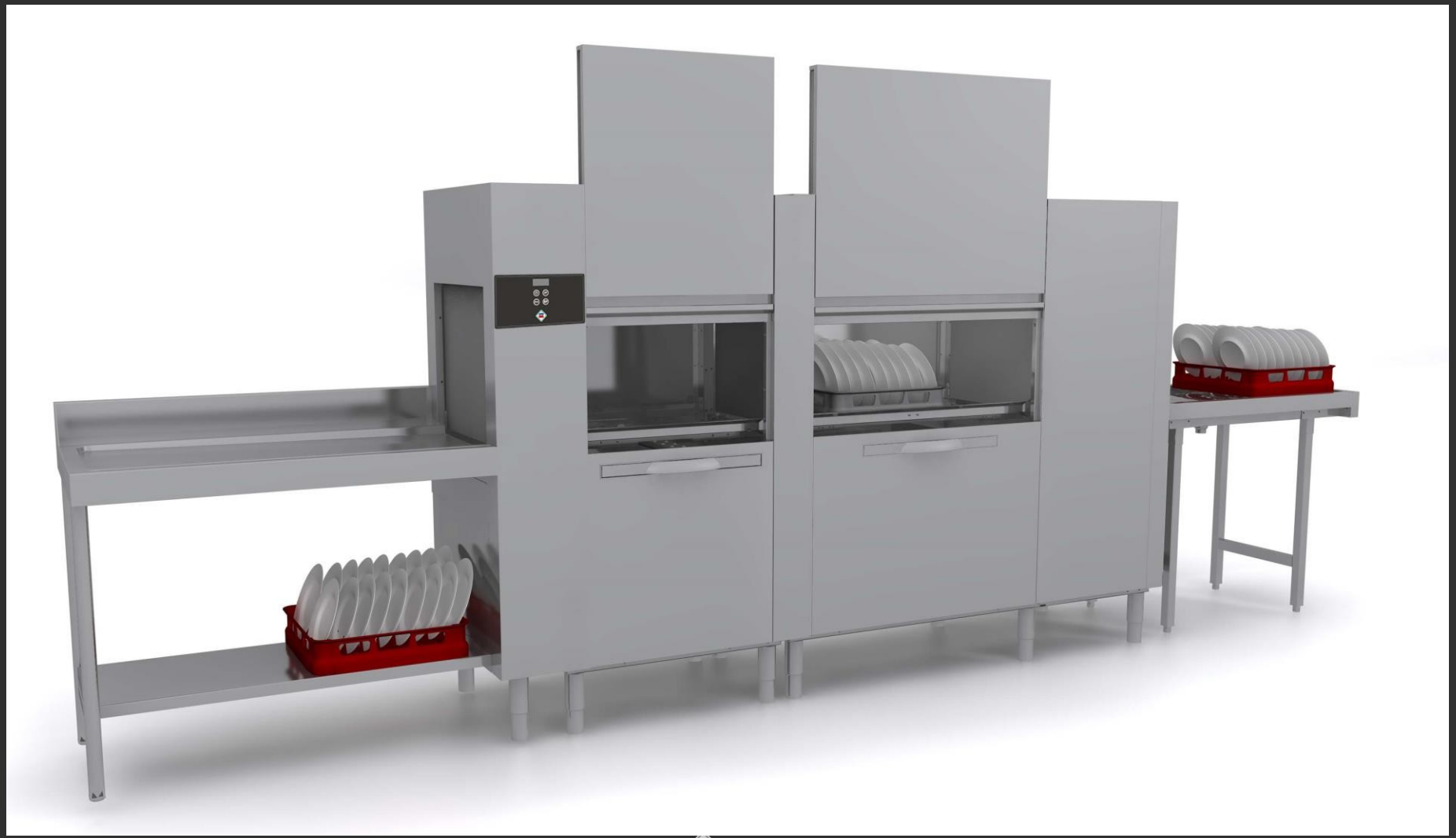


Tunnel washers - A 200 ABT

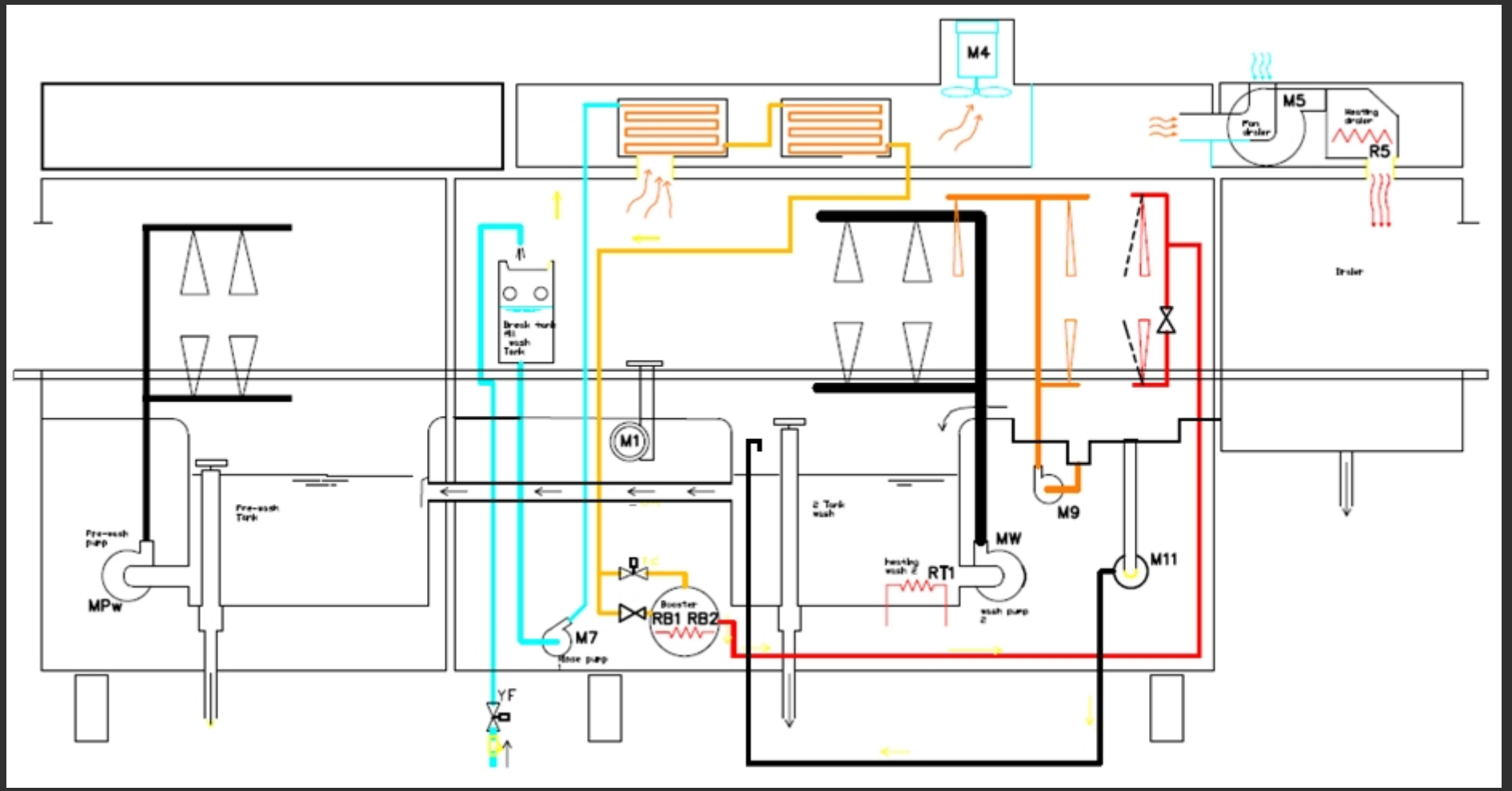
A 200
Integrated washing and
rinsing 200 baskets/h max
80 baskets/hour with program according to DIN 10534
1.450 mm long
Rinsing according to ProRinse and ProPortional technology
Design according to DIN 10534 requirements



Tunnel washers - A 270 ABT

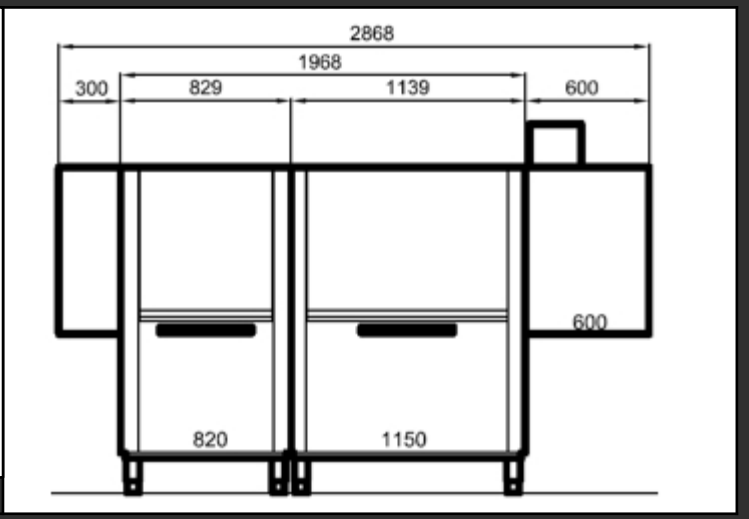


Tunnel washers - A 270 ABT



Tunnel washers - A 270 ABT

A 270
Integrated washing and
rinsing 270 baskets/h max
130 baskets/hour with program according
to DIN 10534 1.968 mm long
Rinsing according to ProRinse and ProPortional technology
Design according to DIN 10534 requirements



CT and A tunnel washers - Modules and accessories

Tunnel dishwashers - internal equipment - rear side

Accessories

1	Built-in main switch
2	Emergency switch
3	Bluetooth and WiFi module
4	Pressure reducer
5	Straight drying unit
6	Corner drying unit
7	Exhaust fan
8	Corner pre-wash unit

1

2

3

4

5

6

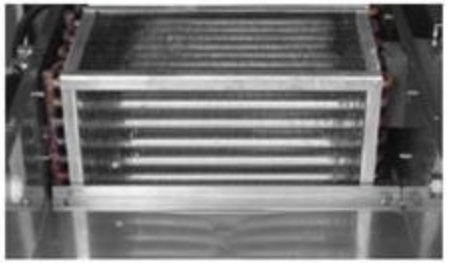
7

8

Accessories

9	Heat recovery
10	Heat recovery for osmotic water
11	Internal cleaning pumps and rinse aid
12	External cleaning pumps and rinse aid
13	limit switch

13



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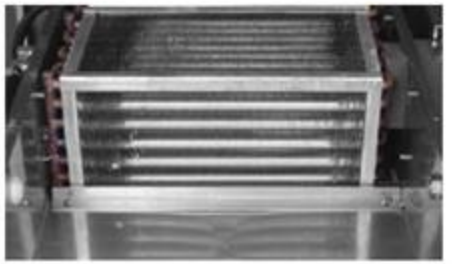

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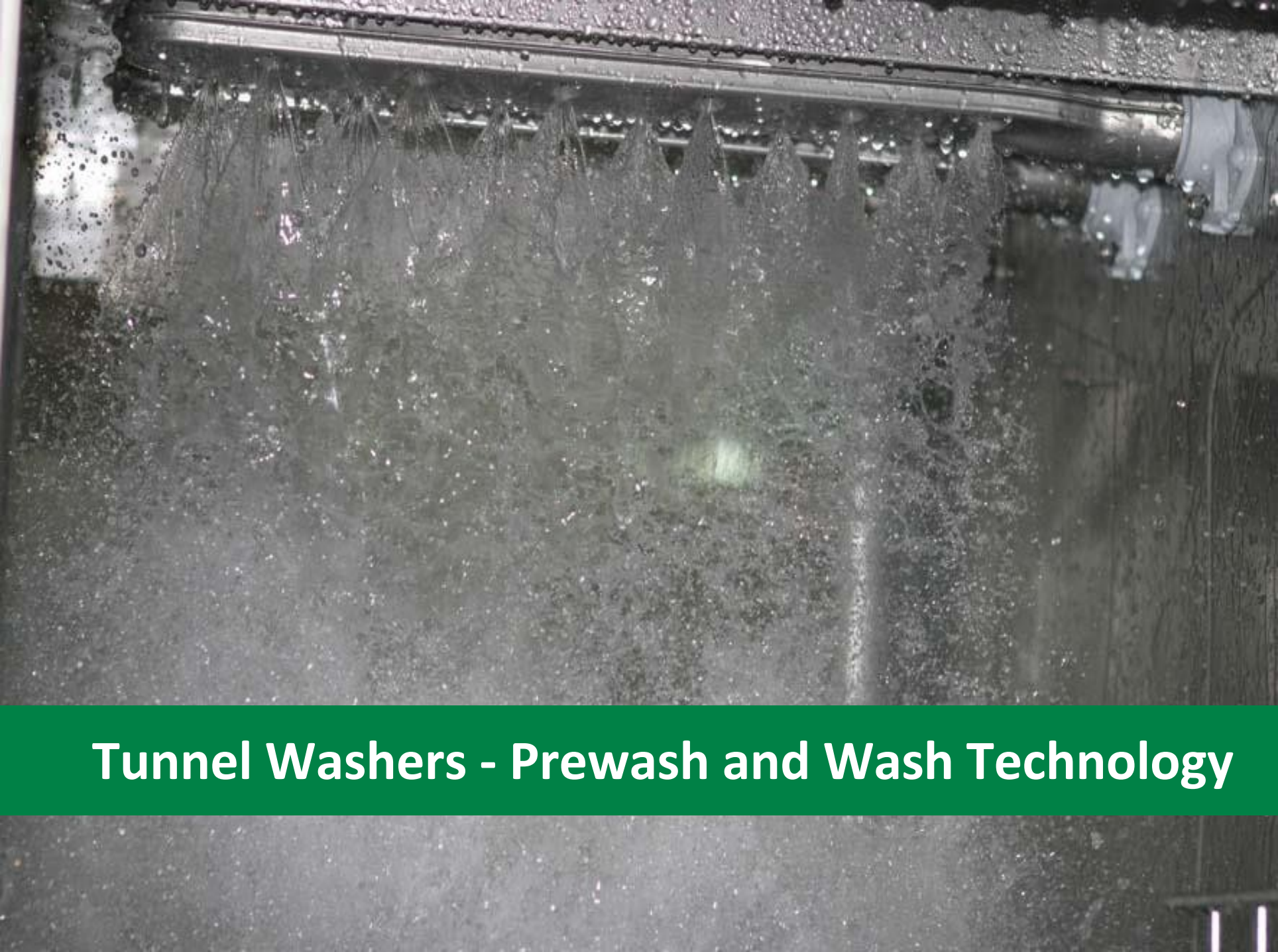
12

CT and A tunnel washers - Technologies used



Tunnel Washers - Prewash and Wash Technology

Pre-wash zone

IdroWash washing arms

- Water distribution from well-positioned washing arms is important for washing efficiency

- We have developed a new version of the washing arms in our existing **IdroWash** equipped facilities

DuoFlow Wash Pump

- Two-way pump technology increases the mechanical efficiency of the wash water while reducing power requirements and mechanical loads on the pump

- **This means you can wash more dishes in less time, save on energy costs and maintain a high quality wash**

- The efficiency of the **DuoFlow** washing pump is one third higher than that of a conventional pump. It therefore uses one third less energy for the same output.

- Wash pump: 1050 L/min (2.7 kW)
  (Rinse pump: 110 L/min (0.2 kW))

DuoFlow Wash Pump

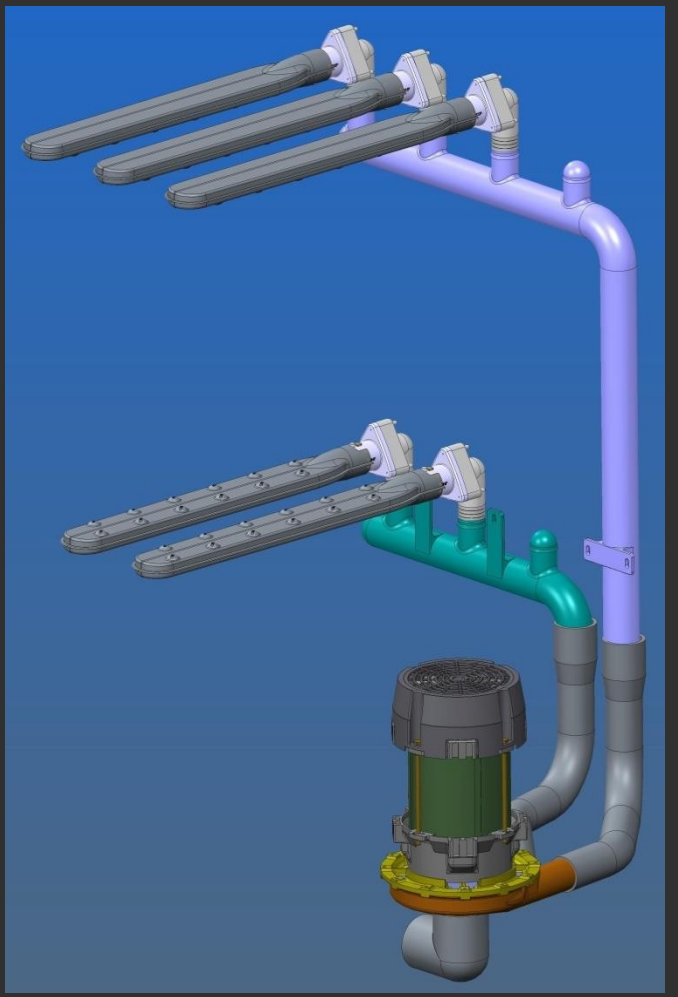
- Traditional pumps have one inlet and one outlet and only further on in the T or Y circuit a split to connect the upper and lower arms
- These forks in the pipe are exactly the places where pressure is lost and noise increases the most
- A patented improvement is a pump that has one inlet from the tank and 2 outlets, supplying directly to the upper and lower washing arms

Traditional pump

DuoFlow

DuoFlow Wash Pump

- With this system, there is no need for split arms in the rinse water circuit
- All the power of the water pump is used for rinsing water pressure and dishwashing, without significant losses in the pipeline
- Since the pump's power comes from the electrical supply, which is among the customer's operating cost items, **DuoFlow saves money with its cost-saving operation.**



Higher wash water temperature

- It is known that one of the most important factors affecting the efficiency of a dishwasher is the water temperature
- The temperature of the water in the washing tank is mainly determined by the temperature of the boiler water. Therefore, the emphasis is mainly on the boiler performance
- Particularly dishwashers with a cold water connection have high preheating requirements in the boiler, while the temperature in the washing tank already drops significantly
- Our dishwashers have independent water heating in the boiler and in the wash tank in all models of the CT and A series.
- As a result, the temperature of the wash water in the tank is 10°C higher than in models without separate heating.
- Higher temperature means:

Less contact time(> capacity)
Less need for chemistry (< consumption)
More heated dishes (faster drying)

ProDose

- Integrated pump system for washing and rinsing chemicals
- Reliable peristaltic pumps
- Electronic control
- Adjustable directly from the main control Panel
- The washers are also equipped with optional sensors for the level of washing and rinsing chemicals in the canisters (when the level approaches zero, a message with a warning appears on the screen)
- Standard on all CT and A models
- More accurate external chemical dispensers are recommended for very busy plants, which take into account not only the time dosage but also the concentration of the

ProChem

- **Reduces detergent consumption by up to 60% (depending on the dishwasher model and washing program)**

- It is a system of water pH adjustment and dosing of washing and rinsing chemicals, taking into account the principle that alkaline washing water is replenished from hot clean acidic rinsing water

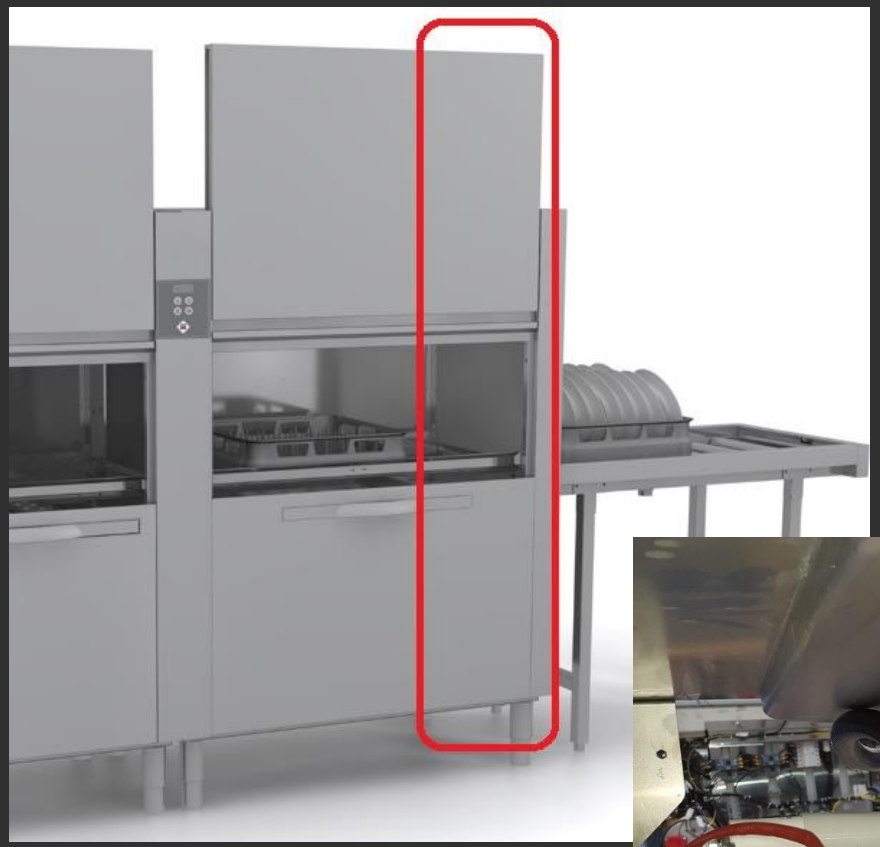
- The system automatically replenishes the detergent for the appropriate amount of fresh water from the rinse tank to the wash tank

- Up to 100 L/h are constantly replenished and used for washing.

- This circuit has its own pump

Tunnel Washer - Rinsing Technology

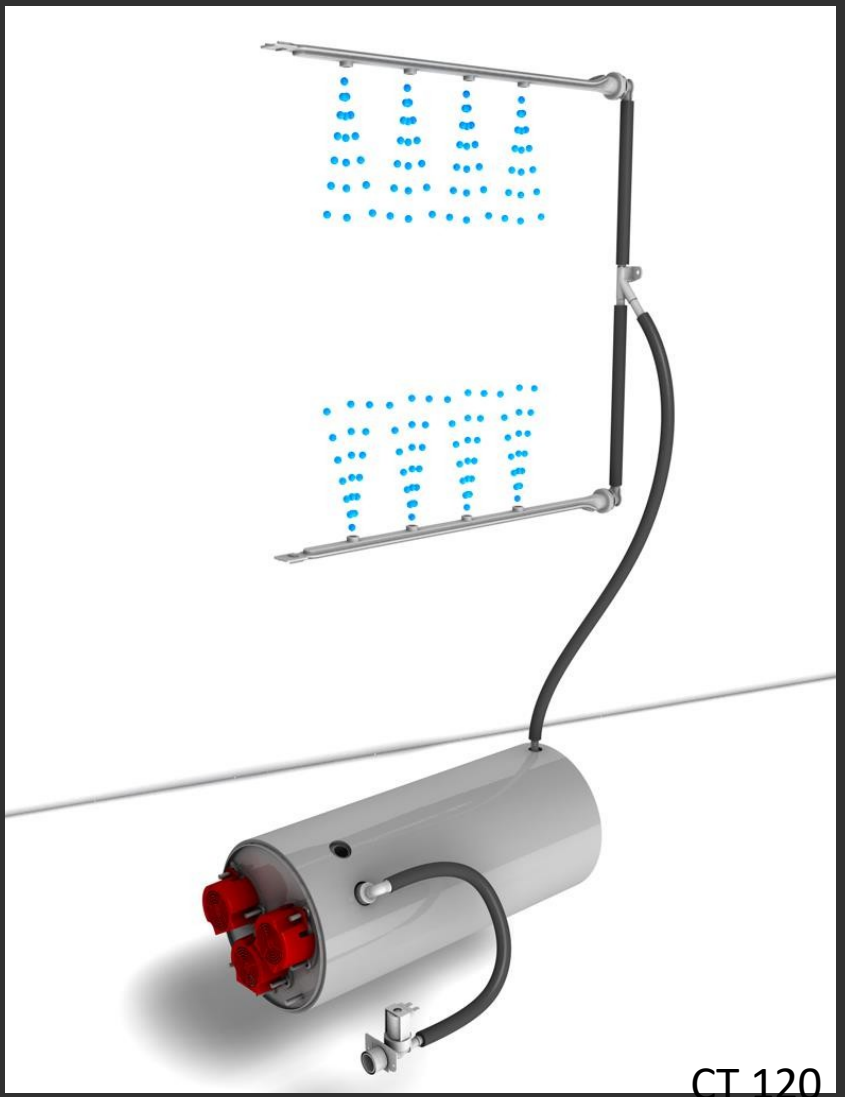
Tunnel Washers - Rinse Modules



Rinsing tray for A models

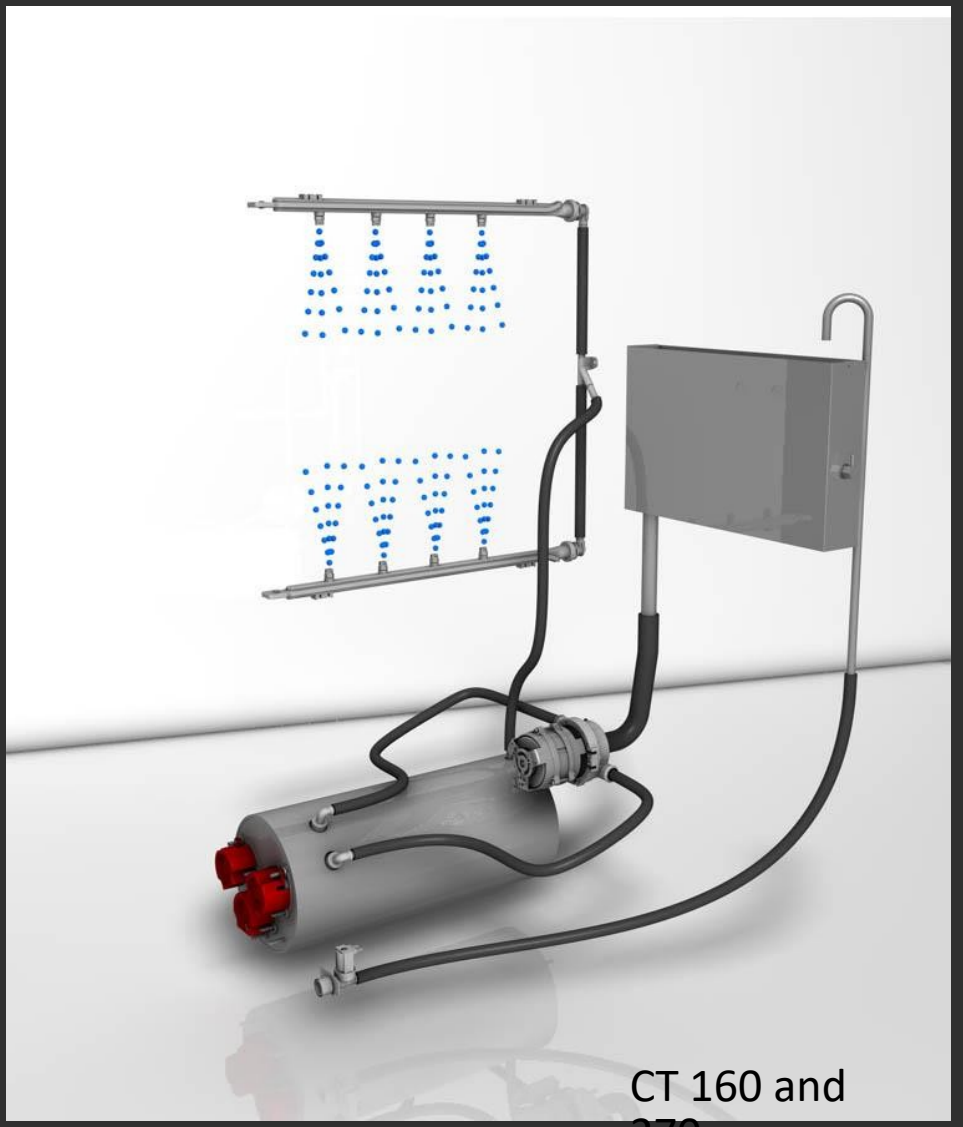
Pressure boiler

- New version of the circuit with connection to the pressure boiler
- Modified nozzle design, increasing the efficiency of the water used and reducing losses
- In combination with the powerful **HiTech** rinsing arms**, it contributes significantly to saving rinsing water**



ProRinse

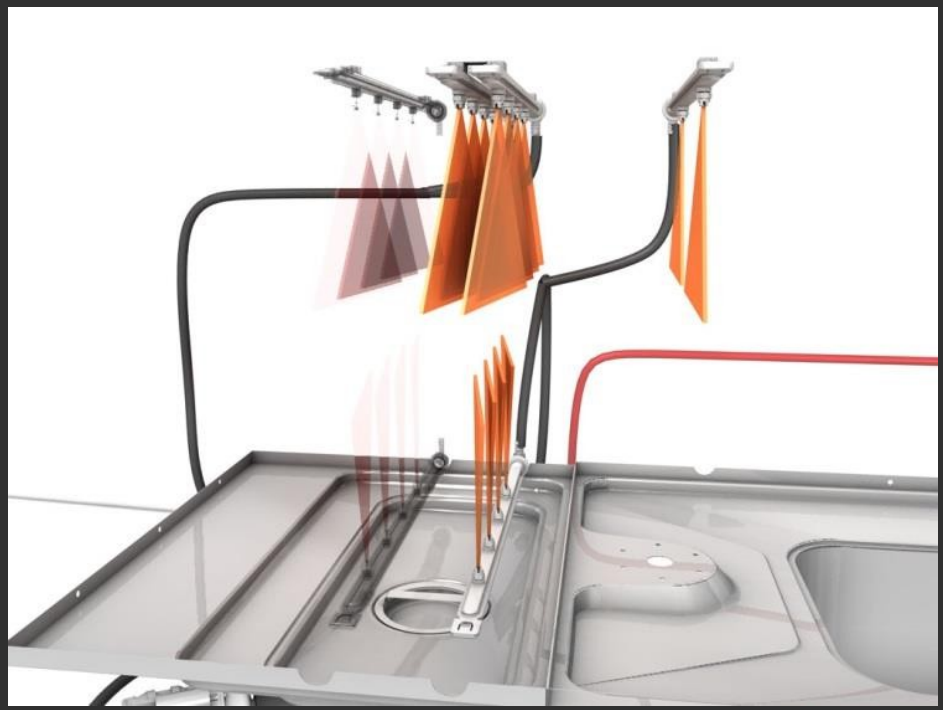
- Advanced system for controlling the amount of rinse water as well as its constant pressure
- **Better rinse water control reduces rinse water consumption by up to 25%**
- 200W 3-phase rinse pump
- Water source from ABT tank approved according to the WRC standard



CT 160 and 270

UltraRinse$_3$

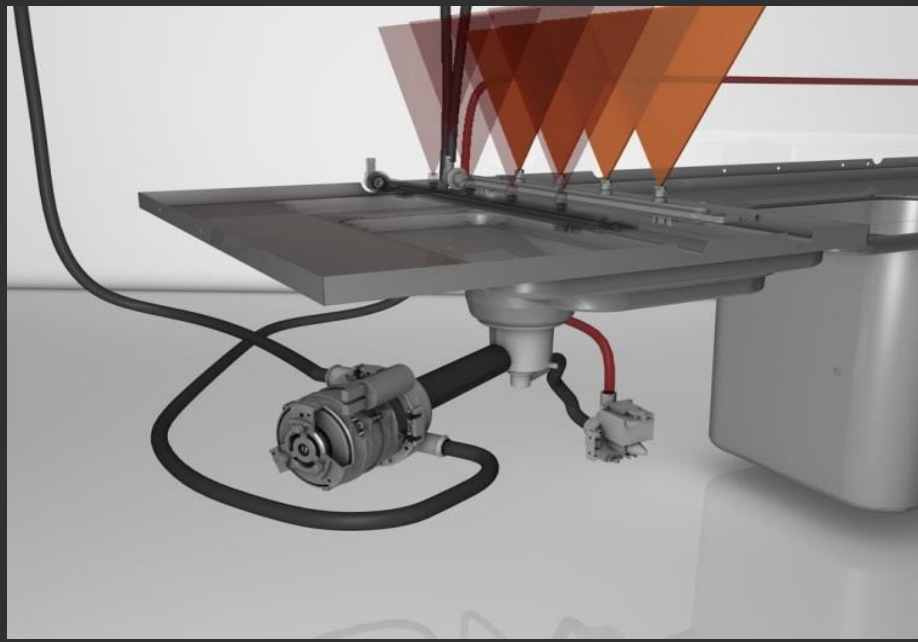
- Highly efficient 3-phase rinsing system (pre-rinse, rinse and final rinse).
- Based on the **ProRinse** system, enhanced by circulation and **reuse of rinse water in the 1st and 2nd part of the rinse** cycle.
- The rinsing water used is collected into a separate 5L rinse tank.
- The tank is equipped with a 250 W rinsing pump with an output of 70 L/min.
- In this part of the rinse cycle, the pump pumps water through a system of two upper and one lower rinse arm.
- A stable amount of rinse water (100 L/h) is used by another, pre-positioned rinse arm located at the end of the washing chamber.



A 200 and A 270

UltraRinse$_3$

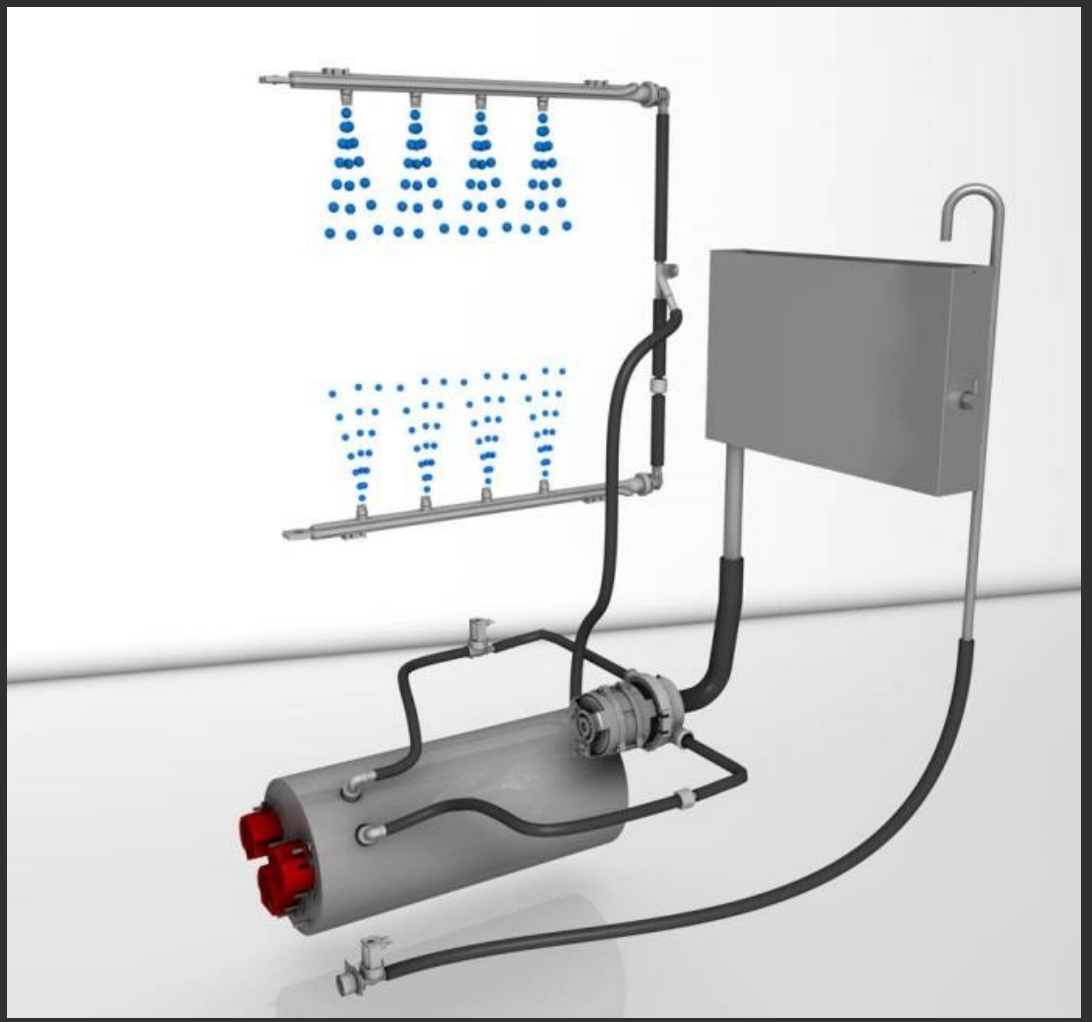
- The first part of rinsing off particles from rinsing water and washing chemistry takes place before the basket leaves the washing chamber.
- As a result, even the rinse water in the rinse bath remains clean.
- Part 2 of the rinse completes the pre-rinse from the pre-rinse phase and prepares dishes for a final rinse with fresh with hot water from the boiler.
- The 3rd stage of rinsing with hot fresh water is practically used for the final cleaning and warming of the dishes - thanks to this, fresh clean water from the boiler only the minimum needed in each cycle.



- **Up to 40% less water consumption compared to the ProRinse system and up to 50% lower than with conventional rinsing from the pressure boiler**

ProPortional

- The enhancement system, which now pending a separate patent
- Adjusts water consumption according to the actual output and programme needs of the dishwasher
- **Saves up to 26% of rinse water (depending on the model of dishwasher and the selected wash programme)**
- Simply and reliably uses of the **ProRinse** system
- The water from the ABT tank is pumped by the **DuoFlow** rinse pump through two independent paths to the boiler - one of which is opened by an electronic valve when the intensified rinse function is needed (higher pressure)



ProPortional

- From the boiler the water is led to the rinsing arms
- Approximately 60% of the water volume goes to the upper rinsing arms, due to the design of the individual arms and the size of the nozzles
- This water distribution ratio is ideal and most effective for rinsing plates, trays, etc.
- Each programme has its own intensity of water flow from the rinsing arms and this is regulated by the pressure of the boiler and the amount of water used for the final rinse.

Example for individual programs: the CT 270

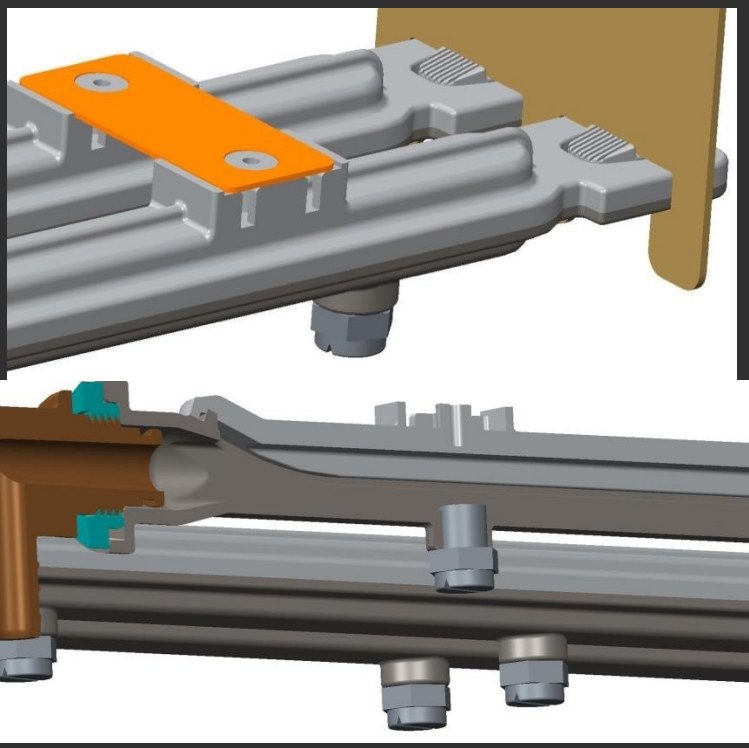
		Total	Upper shoulders	Bottom shoulders	L/basket
Quick rinse	L/h	280	170	110	1,0
Standard rinse	L/h	210	128	83	1,1
Extended Contact	L/h	210	128	83	1,9
Glass	L/h	280	170	110	2,2

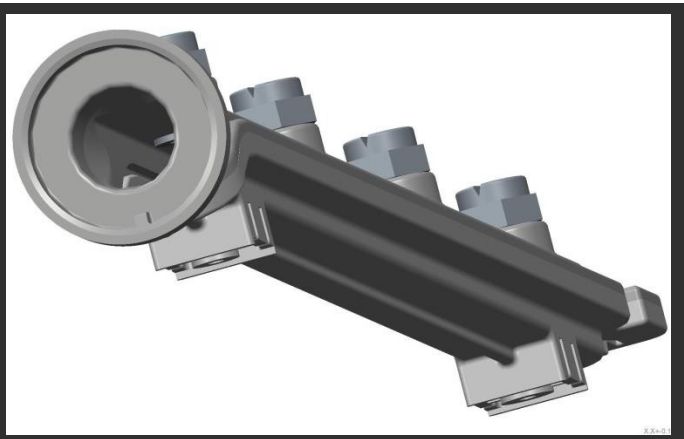
HiTech Rinsing arms

- A further improvement lies in the precisely over-designed shape used in the production of technically sophisticated components made of composite materials
- The new kind of shoulders are not just "pipes", as the traditional style of rinsing shoulders of steel
- They are led with a technically sophisticated design that improves water flow and reduces pressure loss to a minimum

HiTech Rinsing arms

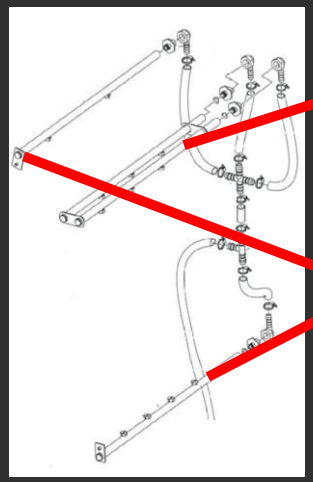
- Rinsing water spray is ensured by precisely calibrated all stainless steel nozzles
- These nozzles vary from boom to boom as the water flow requirements and the shape of the outlet stream vary
- This is one of the key factors for better water use and water reduction of consumption
- The system includes rinsing arms, handles and precisely designed connection hoses.

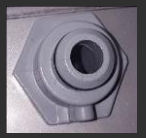




HiTech Rinsing arms

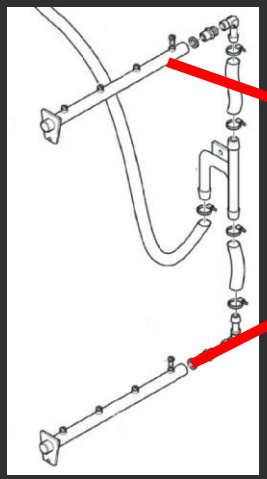
Triple rinse





Connections with small lock

Final rinse

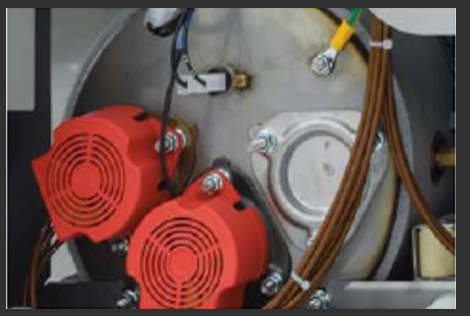


Connections with large lock

Rinsing technology by model

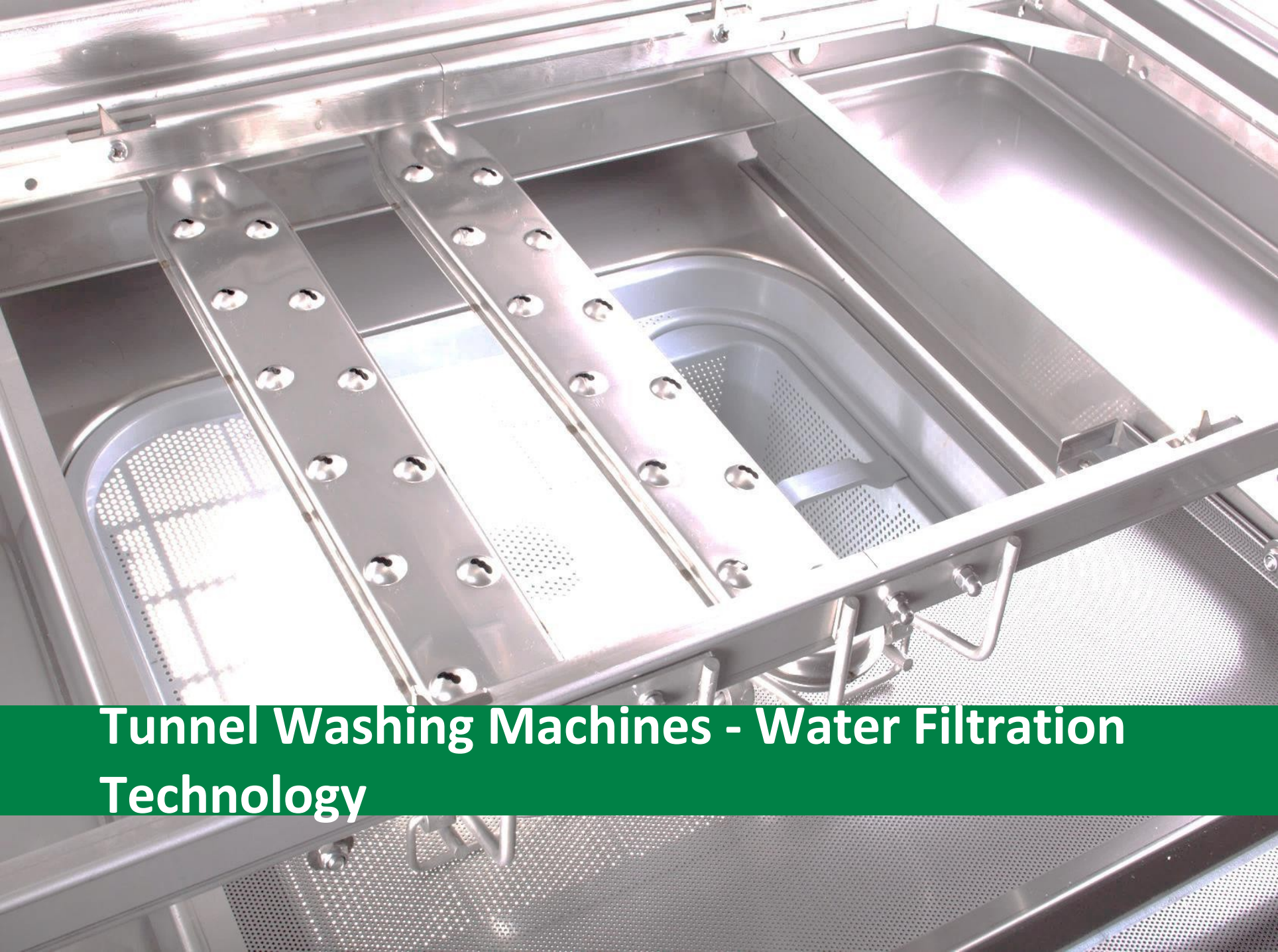
	CT 160	CT 270	A 200	A 270
Type of rinse	ProRinse & ProPortional	ProRinse & ProPortional	UltraRinse³ ProRinse & ProPortional	UltraRinse³ ProRinse & ProPortional
Rinse pump	200 W	200 W	200 W DuoFlo	200 W DuoFlo
Rinsing arms	1+1 HiTech	1+1 HiTech	4+2 HiTech	4+2 HiTech
ThermoStop	Yes	Yes	Yes	Yes
Speed control system	engine with double Vignette	engine with double Vignette	polarity + software	polarity + software
AutoTimer	Yes	Yes	Yes	Yes
Pre-wash module:				
Pre-wash filter system	-	Triple	-	Triple
Plug-in pre-wash strainer	-	standard	-	standard
Wash module:				
Filter washing system	Triple	Triple	Triple	Triple
Plug-in sieve washing	standard	standard	standard	standard

Boiler



- The 3rd free position in the boiler is for an additional coil for heating water in case of cold water connection.

This means +6kW in power compared to a dishwasher designed to be connected to hot water when delivered straight from the factory.

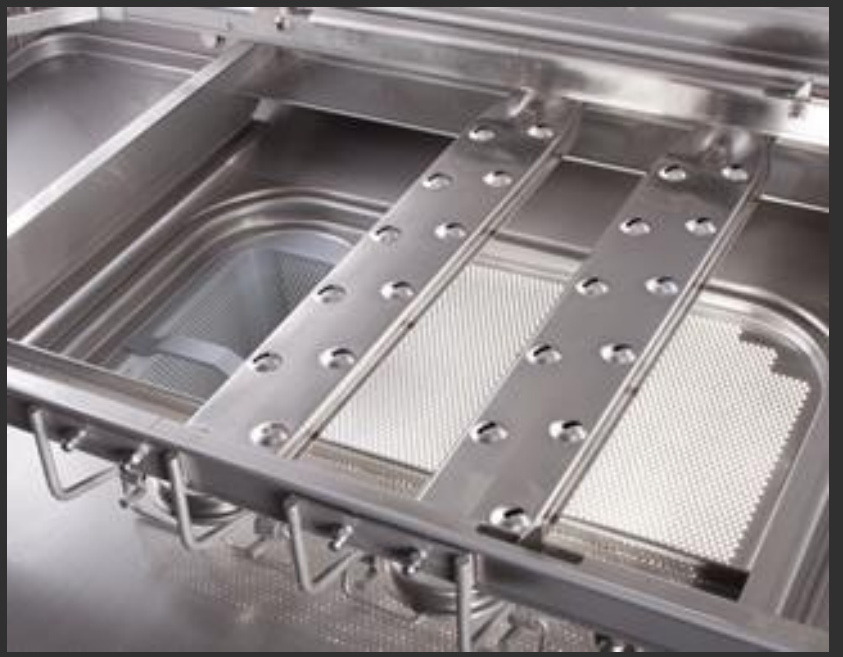


Tunnel Washing Machines - Water Filtration Technology

ProStrainer

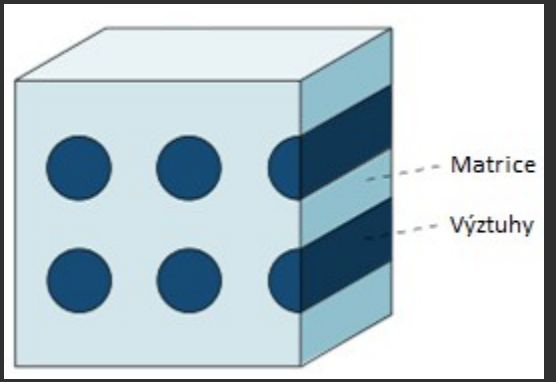
- This is an innovative system of integrated tank screens for tunnel washers

- The basket is made of **ProComposit** composite material, which is comparable to stainless steel sieves in many respects:
  - Safe to use
  - Impact resistant
  - They don't deform
  - Disassembled for cleaning
  - Long service life
  - Will not burn on contact with hot water

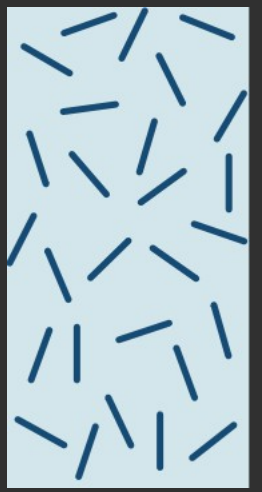


ProComposit

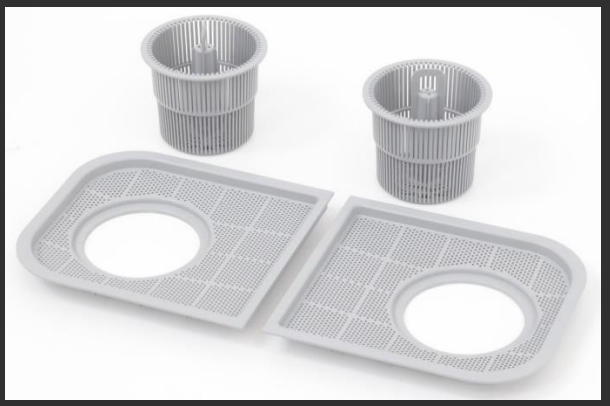
- The material of the rinse arms belongs to the group of advanced GFRP (glass fibre reinforced composites) and is composed of:



- Plastic die (40%)
- Glass fibre reinforcement (SiO_4) (30%)
- Mastek granulate reinforcement (Mg_3 Si O_{410} $(OH)_2$)(30%)
- The matrix connects and supports the fibres and transmits the load forces
- Fibres provide mechanical resistance and dimensional stability
- Talc increases the density of the material and thus increases tensile and impact resistance



ProComposit



- Offers high mechanical resistance
- It has increased impact resistance
- It is flexible and returns to its original shape
- Can be moulded into any mould

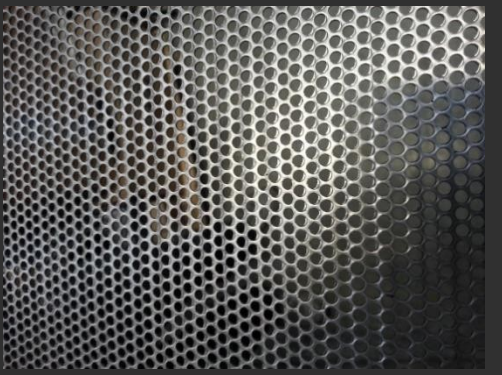
- It is resistant to chemicals and temperatures used in the range common in our industry
- In non-self-supporting structures, it has better properties than steel
- The disadvantage remains the higher purchase price of press tools at the start of production

ProGressive

- It is a complete and effective multi-level filtration system, consisting of:

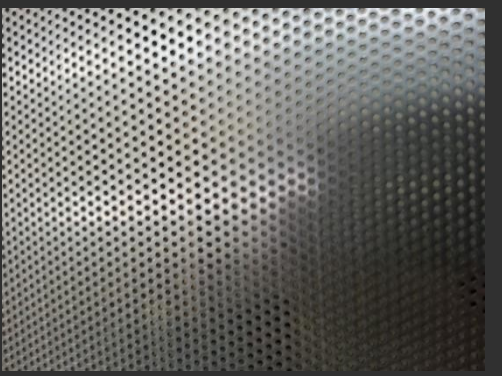
  - Socket filter with 3.0 mm sieve
  - Surface sieve with 2.5 mm perforation
  - Surface sieve with 1.0 mm perforation

ϕ 3.0 mm



ϕ 2,5 mm

ϕ 1.0 mm



ProGressive

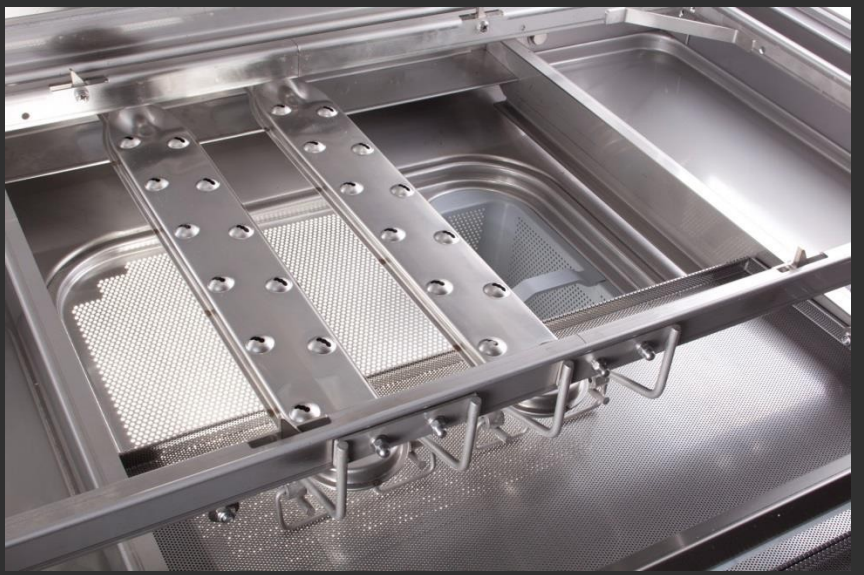
- Most coarse particles are removed by the high-performance washing system and trapped in the upper coarse filter
- Smaller impurities are captured in the **ProStrainer** surface sieve
- This keeps the water in the tank cleaner for longer

- The 1 mm screen filter catches all remaining essential impurities above the bath
- The water in the tank is thus clean enough and long-lasting enough to effectively wash a large number of plates and glasses over a long period of time
- In addition to the top filter, there is also a double filter above the tank on the outlet from the tank to the wash pump

ProGressive

- The drawer filter is designed so that it can be pulled out and cleaned during operation without opening the dishwasher door

- Special anti-drip design prevents water from dripping onto the floor when cleaning the drawer filter



- 3 mm prewash/wash screen filter tank is standard equipment

- 1 mm sieve filter above the prewash/wash tanks are also standard equipment

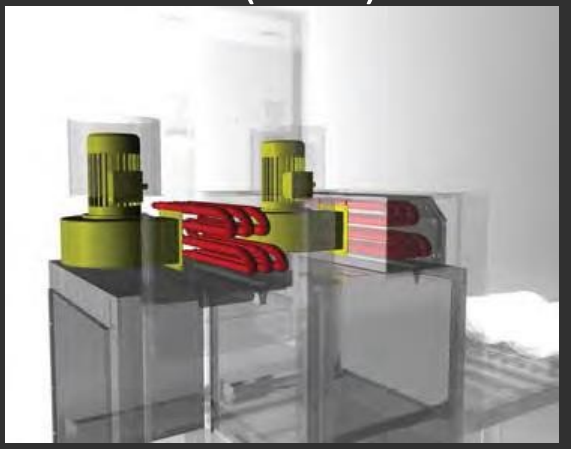
Tunnel Washers - Modules and Accessories

Drying modules

CT + A

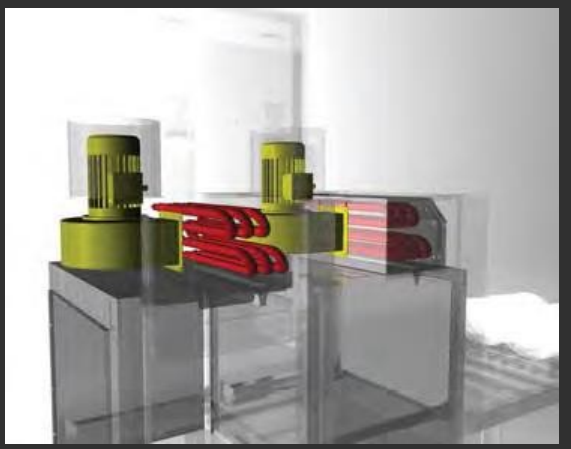
XT (2022)

6 KW (L/P)
Direct / corner



12 KW (6+6)
(LL/PP)
Direct / corner

9 KW (L/P)
Direct / corner



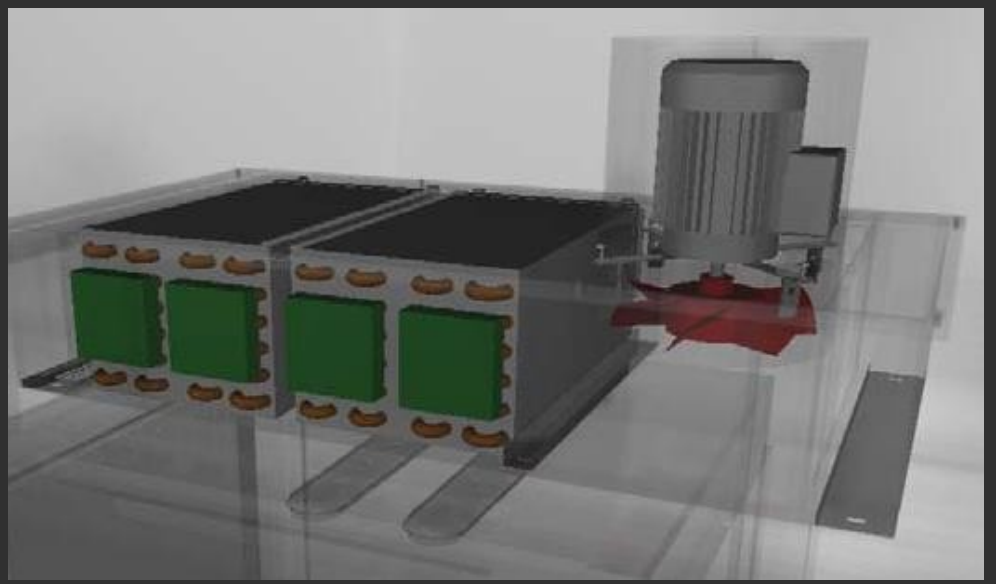
15 KW (6+9)
(LL/PP)
Direct / corner

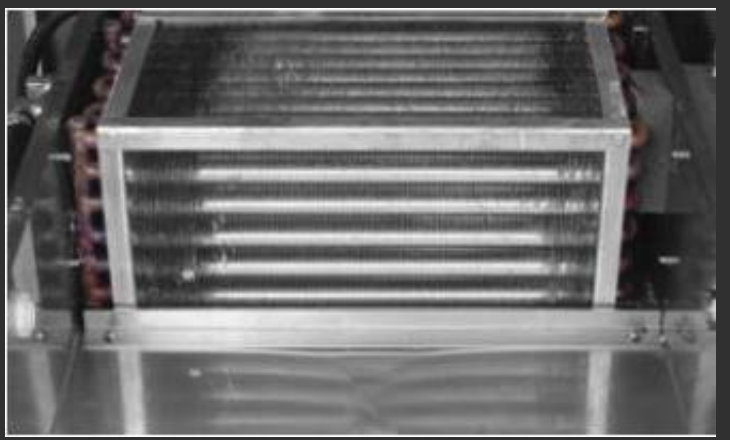
When using the drying module, there is no need for a hood at the outlet = cost savings.

Drying modules

Recuperation

- Heat recovery uses the residual heat from the waste vapour and converts it back into energy for heating water.
- Reduces the amount of steam leaving the dishwasher to a minimum.
- Saving on the purchase cost of the hood.
- Savings on electricity operating costs up to 125 000 CZK per year (CT270 at 6 h of operation per day)
- Return on investment for most models in 1-5 years with average operation.



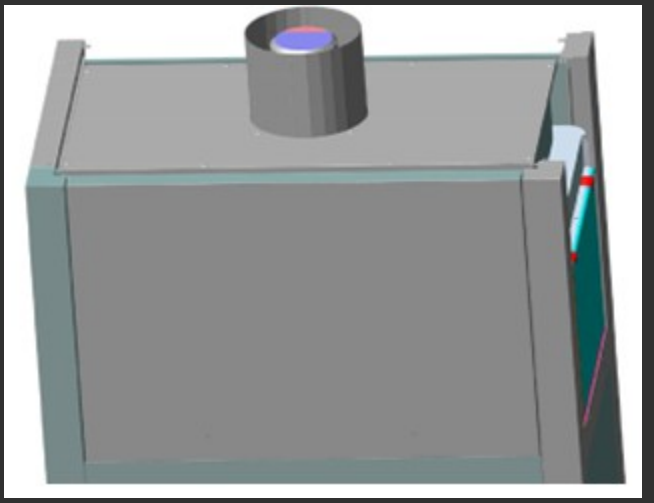


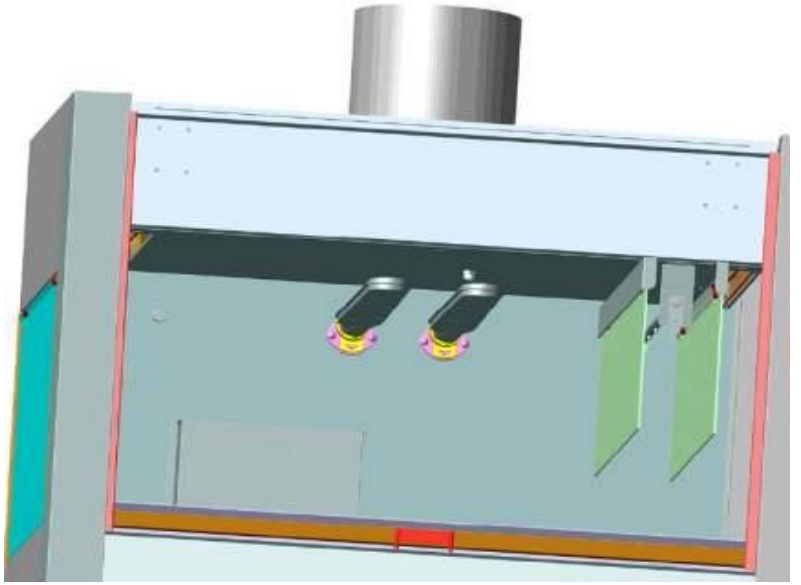
Ventilation unit

- Use in problematic areas of the dishwasher operation where the amount of steam coming out of the dishwasher needs to be reduced

- Always use in combination with a cooker hood, but do not connect the chimney directly.

- It cools the temperature of the washing chamber and reduces the washing efficiency.





Accessories - Water softeners

Množství změkčené vody v závislosti na její tvrdosti (°F)

Množství změkčené vody v závislosti na tvrdosti vody (francouzské stupně)
f - francouzské d - německé ca - množství vápníku v mmol

Tvrdost [f]	20°	30°	40°	50°	60°
Tvrdost [d]	11°	16,5°	22°	28°	33°
Tvrdost [ca]	2	3	4	5	6
AL 08	1 680 l	1 120 l	840 l	672 l	560 l
AL 12	2 520 l	1 680 l	1 260 l	1 008 l	840 l

Přepočet stupňů tvrdosti vody: 1° d (německý) = 1,8° f (francouzský) = 1,25° e

Parametry vstupní vody: **Tlak: min. 2 bary, max. 8 barů**
Teplota: min. 8°C, max. 25 °C

Automatic softener
at 8 / 12 L
AL 8 / AL 12

Automatic softener
for 16 L (8+8)
Duosoft 9

Volumetric softener
to 8 L
AL 08 V

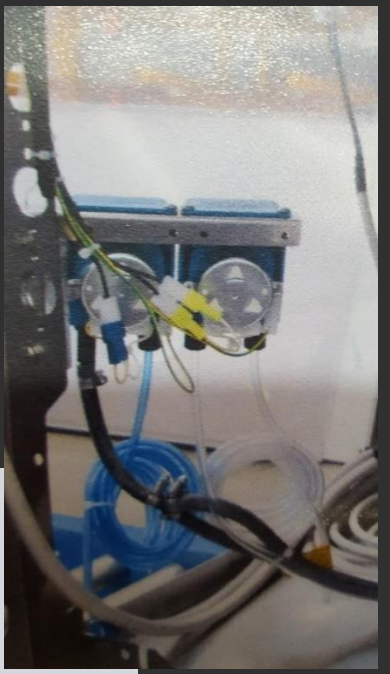
Accessories - Osmosis

- Osmotic membrane filtration removes viruses, bacteria, minerals and salts at the dishwasher inlet
- When using osmosis, an osmotic recovery unit is required.
- Perfectly filtered water saves all costly parts of the dishwasher.
- High hygiene standard.
- The filters are included in the first delivery of the instrument.
- Flow rate depends on water saturation and inlet pressure, outlet flow from approx. 420 L/h at 15°C
- Osmotic water is not intended for consumption, only for rinsing!

Accessories - Washing chemicals and dispensers

External dispenser chemistry - D3000

Level sensor kit



Internal chemical dispenser

Accessories - Filter cartridges - Washing and rinsing chemicals

Katex 1 / Katex 25 - 1 or 25 L resin

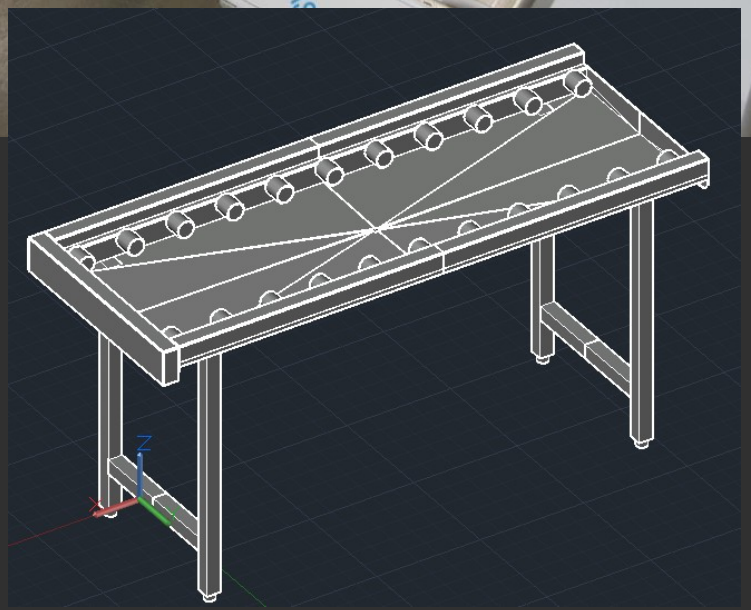
Salt T - tablet salt 25kg

RM Clean+ 12kg -

washRM Rinse+ 10kg - rinse

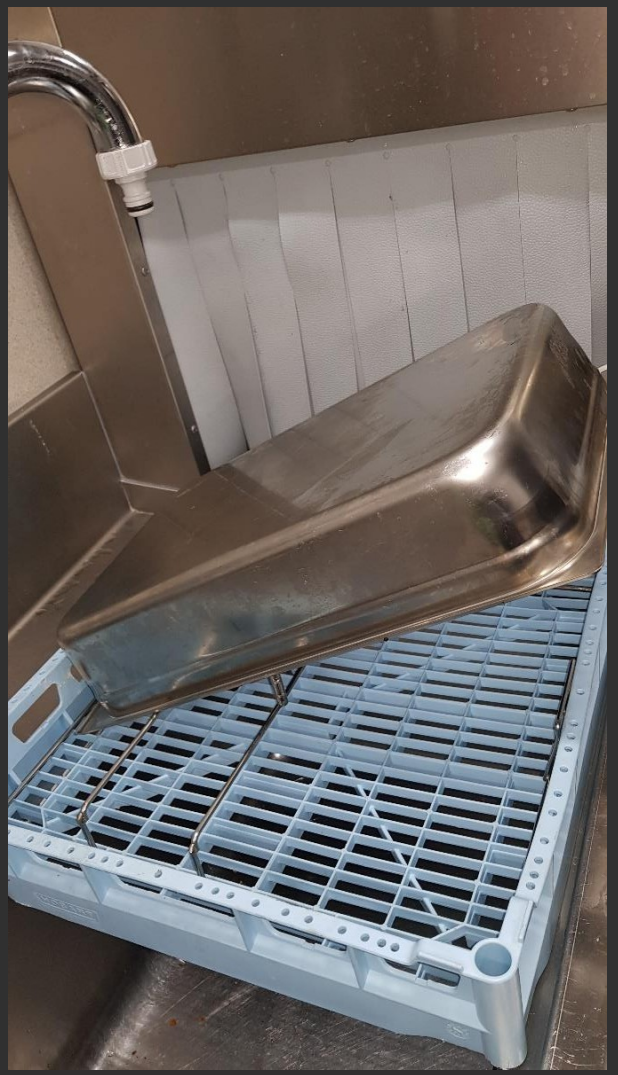
Accessories - Washing entry tables

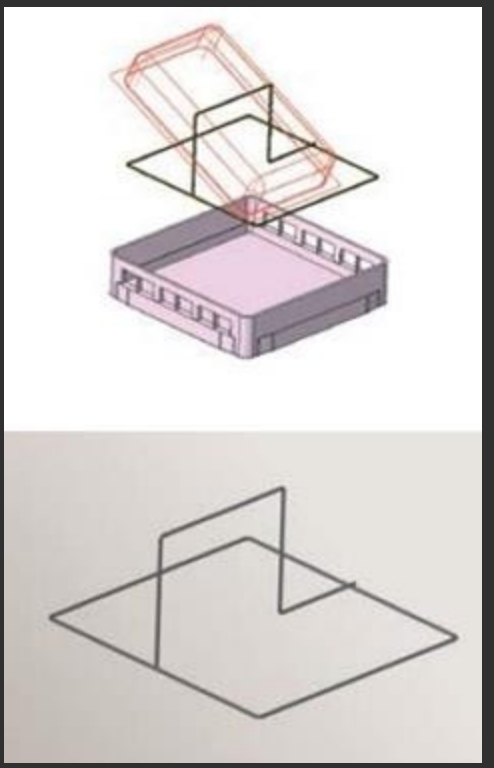
Accessories - Output tables straight



Accessories - Output tables 90°and 180°

Accessories - Washing baskets





Accessories - Washing baskets

CT and A tunnel washers - Overview of the technologies used

Meeting hygiene requirements and easy maintenance

- Deep-drawn tanks
- Washing chambers without internal piping
- Built-in strainer in the ProStrainer tank

Convenient installation and operation, faster service and safety

- ProMont modular construction
- Complete double jacketed construction
- Fully insulated double skin door
- Inlet opening 45 cm
- ProSmart LED interface
- Preset washing programmes (2/4)
- Time controlled washing AutoTimer
- Basket speed controlled by electronic inverter
- Side rails for baskets
- High capacity: for fresh, lightly soiled items or Extended contact: contact time 120 s
- Multi-speed drive motor with anti-fouling mounting without friction parts
- Water resistance IPX 5

Technological and practical advantages of washing = efficiency and longer service life

- Powerful washing module
- IdroWash2 washing arms
- Hydraulic brush type cleaning system
- DuoFlow two-way pumps
- Safety filters at the suction inlet of the pump
- ProGressive Progressive Water Filtration
- Water supply via tank according to WRAS

Technological and practical advantages of rinsing = higher rinsing quality and energy saving

- Auxiliary rinse pump
- EasyRinse/ UltraRinse3 multi-stage rinse
- ProRinse constant rinse
- HiTech rinsing arms
- Rinse economizer
- Adaptive ProPortional rinse (up to 25% cost savings)
- ThermoStop function
- DuoFlow rinse pump for A models
- ProChem Detergent Saving Device

Easy service

- Fully adjustable
- Advanced automatic diagnostics
- Built-in USB interface

Optional features and modules

- Increased heating capacity for connection to cold water supply
- Waste heat recovery system
- Drying module direct
- Corner drying module
- 300 mm cover on the inlet side
- Detergent dispenser
- Rinse aid dispenser
- Chemical level sensor
- Pressure limiter with pressure gauge
- Emergency switch
- Main switch on the panel
- Limit switch at the outlet of the baskets

Tunnel Washers - Variable Output Technology

Two-pole motor vs. Single-pole motor

- Why can our dishwashers use up to 4 basket feed speeds?
- 2-pole motor has 2 windings, 6 and 8 poles, allows 2 different output speeds
- The second speed is 75% of the original, maximum
- Two more speeds can be obtained by electronically setting the intermittent movement of the baskets, which corresponds to 50% of the original output speeds
- The maximum basket feed speed is determined by the design of the mechanical gearbox connected to the motor

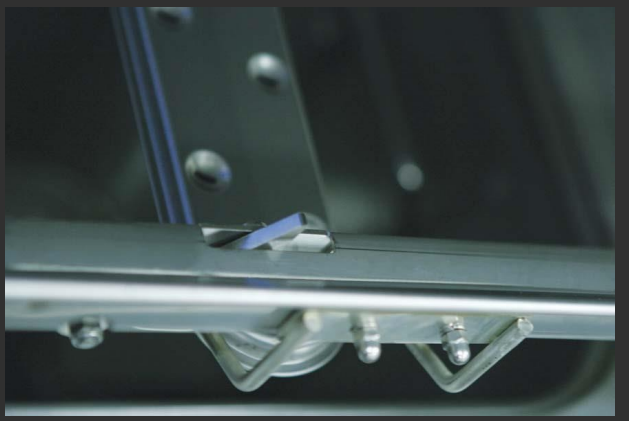
- An ordinary single pole has only 2 speeds at the output
- It has only one winding, 6 poles, and one output speed
- The speed of the baskets is then adjusted by a mechanical gearbox connected to the motor
- One extra speed can be obtained by electronically setting the intermittent movement of the baskets to 50% of the original output speed

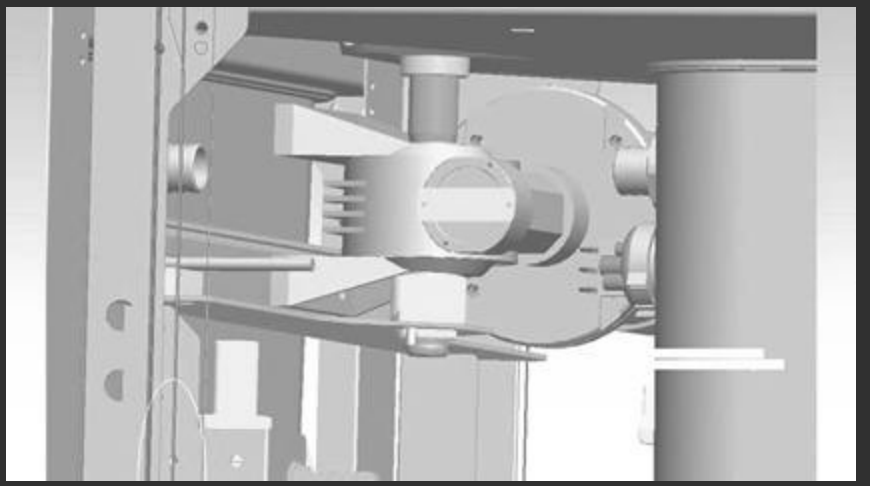
Basket shifting system

- Two-rail system with sliding
  By moving
- The rails have high resistance and rigidity
- Movable teeth AISI 304s with 30/10 ratio
- The two-rail system offers great advantages over the center single-rail system (which you can sometimes find in competing products)
  - More uniform and stable movement
  - No obstructions to water flowing from the lower arms to the basket

Basket shifting system

- Jam-proof motor installation without friction elements
- The motor is installed on a rotating shaft attached to the main fixed frame
- In the event of a jam, the torque is fed through the shaft into the motor rotation motion
- Safety microswitch disconnects the motor until the jam is resolved and the machine restarts
- No risk of engine wear





Tunnel Washers - Technology for easy use

ProGrams 4

- Four different selectable programs (CT160+270, A200+270), with different capacity (shift speed), wash water temperature, wash pump power, rinse water temperature, rinse water consumption, ratio of final rinse water between upper and lower arms.

  - **High capacity**: for non-dry, lightly soiled dishes
  - **Normal operation**: suitable for most normal traffic and pollution
  - **Extended contact**: time extended to 120s (according to DIN 10534)
  - **Glasses**: lower rinsing temperature, rinsing more over the lower arm, gentler washing

- A detailed description of each program is included in the manual.

ProGrams 2

- Two optional programs (CT120)

  - **Normal operation**: suitable for most normal traffic and pollution
  - **Extended contact**: time extended to 120s (according to DIN 10534)

Input size

- The size of the inlet opening is now 54 x 45 (used to be 54 x 40)
- **Size increase of approx. 13%**
- This makes it easy to wash larger trays and plates
- Any basket from the wide range of 50x50 formats can be used, glass baskets are best used with the glass programme with reinforced bottom rinse

TotalClean design

- Helps meet hygiene requirements and facilitates cleaning:
- No pipes in the wash and rinse Chamber
- Deep drawn stainless steel tubs
- Double and triple surface screens
- Easy access thanks to doors throughout length of the front panel
- Simpler and easily detachable shoulders
- The water and steam hinges can be removed and Wash
- Drain circuit also in the drying module

Curtains

- Different parts of the dishwasher are separated by double hinges inside
- They are made of food-grade rubber resistant to twisting
- They have a smooth glossy surface for ea cleaning
- The height of the curtains varies according to the sections they separate and the amount of steam or water droplets they are designed to catch
- They are attached to a non-bending

Emergency switch

- All our tunnel washers can be equipped with an optional emergency switch
- The switch is manual with no programming link to other functions of the dishwasher - it can be switched off at any time in a necessary situation and then switched on again
- Pre-wash and drying models need 2 emergency switches

Main switch

- It is mandatory to install a main switch (disconnector) of the appropriate power supply, close to the machine.
- This type of main switch is usually mounted on the wall near the dishwasher.
- However, if this mounting is not possible due to the distance from the dishwasher or other technical complications, it is possible to mount the switch directly on the dishwasher (optional and cannot be applied retrospectively, only straight from the factory)

Tunnel Washing Machines - Practical Experience and Applications

Tunnel Washing Machines - Suitable for different types of plants

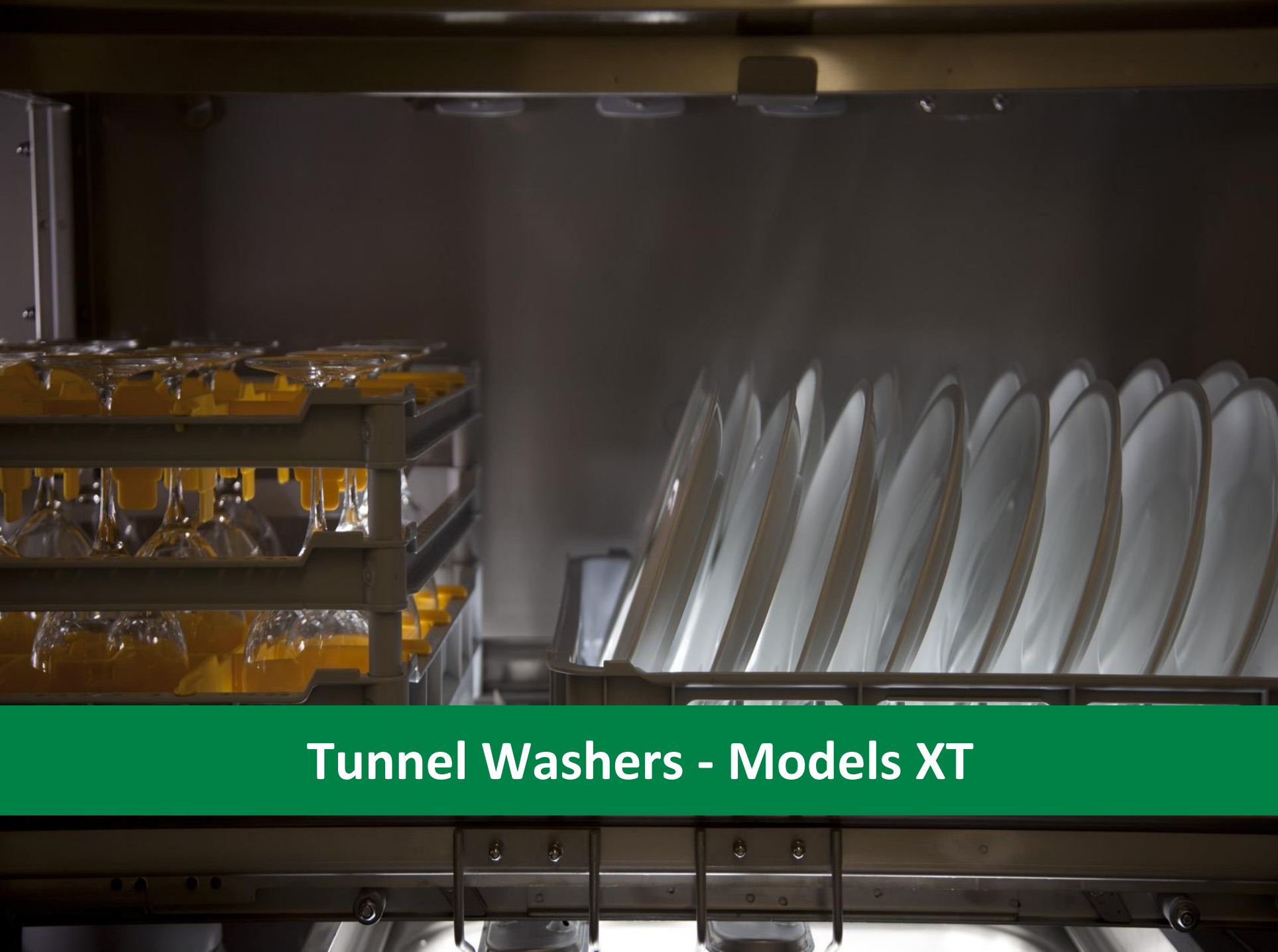
- Restaurant
- Hotels
- Spa
- School canteens
- Public canteens
- Company canteens
- Cattering Companies
- Public sector

Tunnel Washers - Competitive Advantages

- High efficiency thanks to high water temperature and powerful boiler.
- Low water consumption thanks to advanced rinse control and dosing systems.
- Low detergent consumption thanks to electronic dosage control.
- Convenient operation thanks to touch-sensitive digital control and preset programmes.
- High washing capacity of 120-270 baskets per hour (theoretically 2200-4800 plates/hour).
- Meeting hygiene standards thanks to the all-stainless steel design of deep-drawn baths and a sophisticated filter system and a 2-minute contact program according to DIN 10534.
- High adaptability to capacity-intensive operations thanks to modular design and a system of infeed and outfeed tables including corner drying modules.
- Acceptable price / high performance ratio.
- RM Gastro nationwide service.

Tunnel Washing Machines - Tender Parameters

- Modularity
- Left / right version
- Pre-washing and drying modules
- Capacity
- Noise
- Water consumption
- Power input
- Automation
- Ease of use
- Pull-out doors
- Constant dimensions even when using a recuperation module



Tunnel Washers - Models XT

XT tunnel washers

This is a new standard in the high-end market segment.

The main selling points are :

Capacity - up to 270-300 baskets

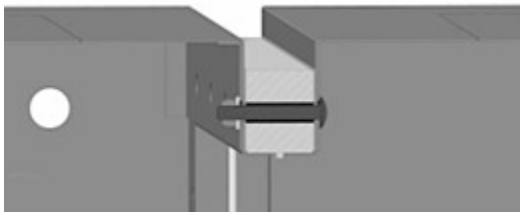
- Operating costs - saving water and time
- Easy to use - touch screen
- Easy installation thanks to modular design

Technology:

UltraRinse$_3$	**DuoFlow Wash Pump**	**ProActive**
ProPortional$_{plus}$	**ProGressive**	**TotalClean design**
HiTech Rinsing arms	**ProSteam**	
IdroWash washing arms	**ProChem**	

Modular design

The different models are obtained using a limited number of standardized modules.
We have developed a new mounting system for the modules to make it very easy to connect the modules, even at the customer's site.



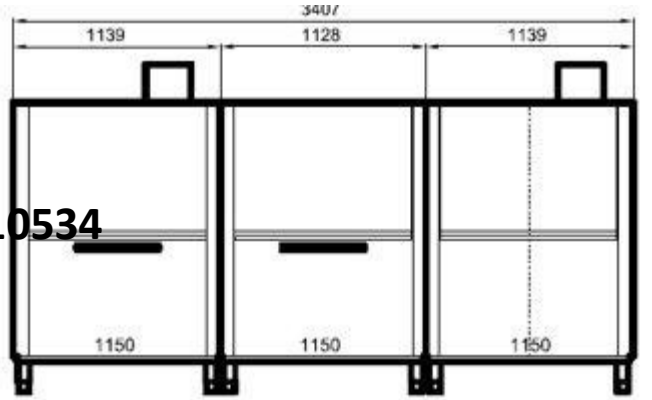
This system ensures perfect alignment of the modules and stability of the joint (made of nuts and bolts). Hydraulic and electrical circuits are divided accordingly.


1025

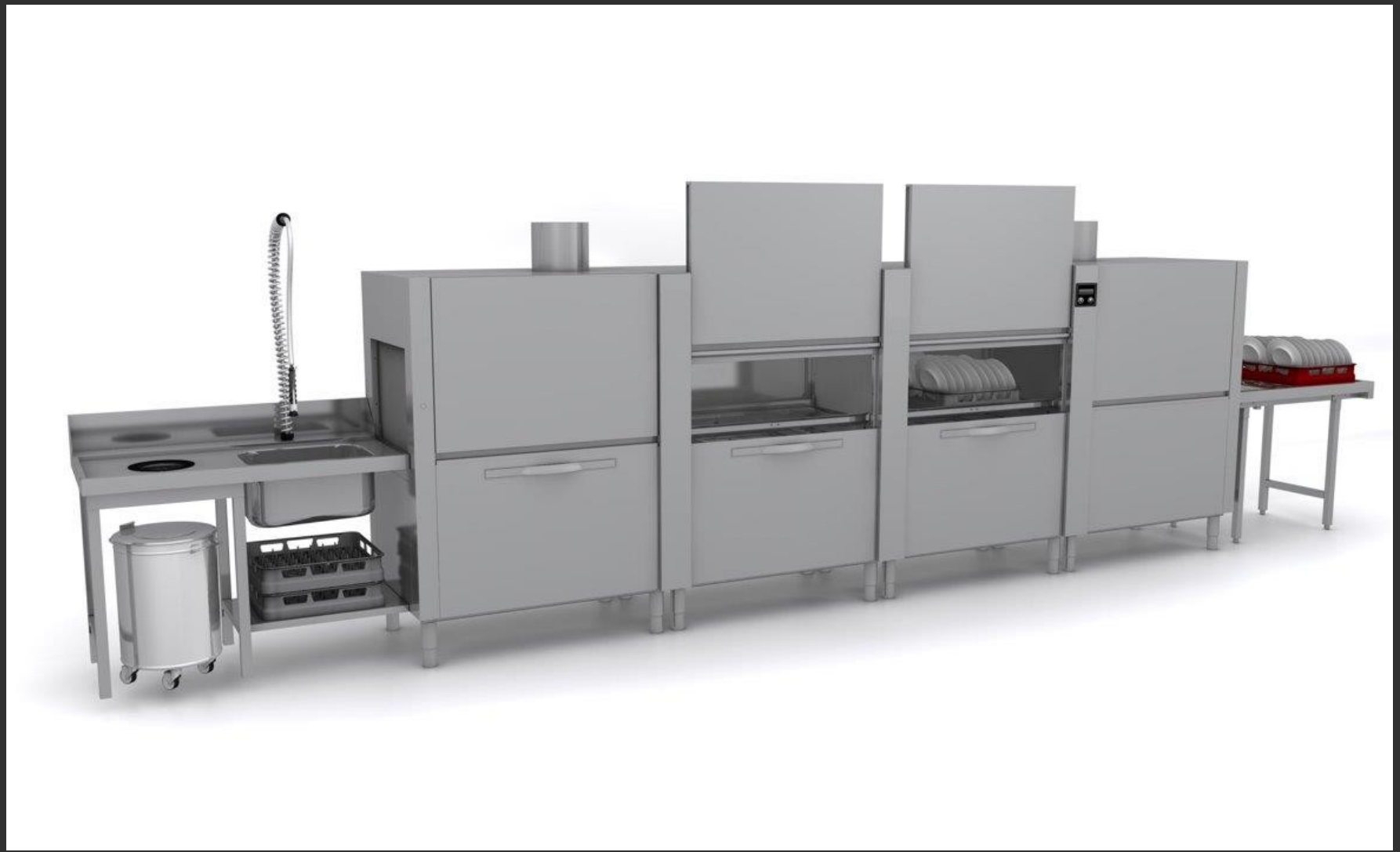
Tunnel washers - XT 270 ABT

Tunnel washers - XT 270 ABT

XT 270
XXL pre-wash module + Integrated washing + Rinsing and drying module
270 baskets/h max
165 baskets/hour with program according to DIN 10534
3.410 mm long
Minimum water consumption 0.6 l/basket
Inlet water temperature 10 - 60°C

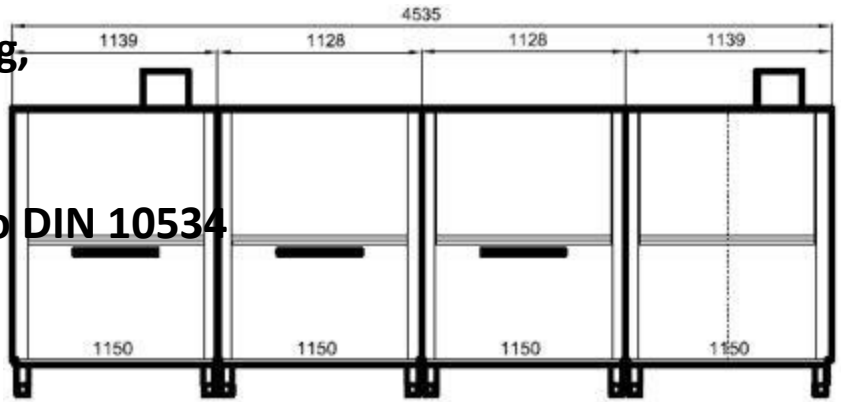


Tunnel washers - XT 300 ABT



Tunnel washers - XT 300 ABT

XT 300
XXL pre-wash module, 2x Integrated washing,
Rinsing and drying module
300 baskets/h max
230 baskets/hour with program according to DIN 10534
4.355 mm long
Minimum water consumption 0.6 l/basket
Inlet water temperature 10 - 60°C



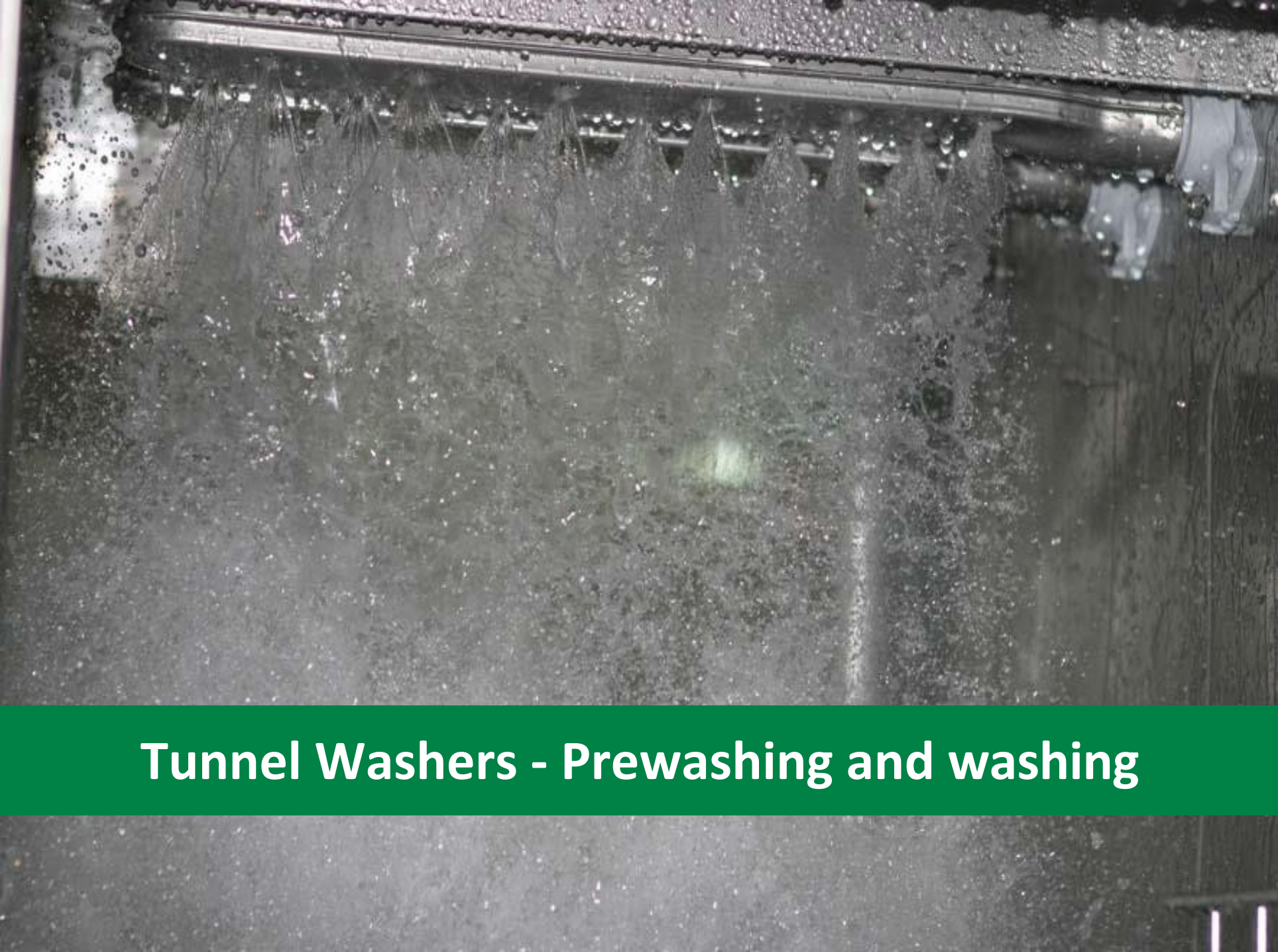
XT model programs

The XT dishwashers offer 5 programmes, which differ in speed and therefore capacity, washing and rinsing temperature, washing water pressure and rinsing water pressure (separately for the upper and lower rinsing arms).

Programs:

- ***High capacity***: non-dry, lightly soiled dishes
- ***Standard operation***: suitable for most operations
- ***Prolonged contact***: washing for 120s according to DIN 10534
- ***Intensive washing***: for pots, containers, heavily soiled, non-stick cookware
- ***Glass***: lower rinse temperature, gentler cleaning

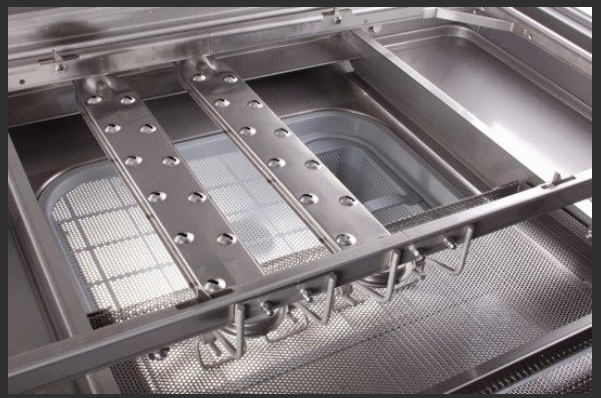
* "A" models have 4 programmes (the same, but without "Intensive wash")

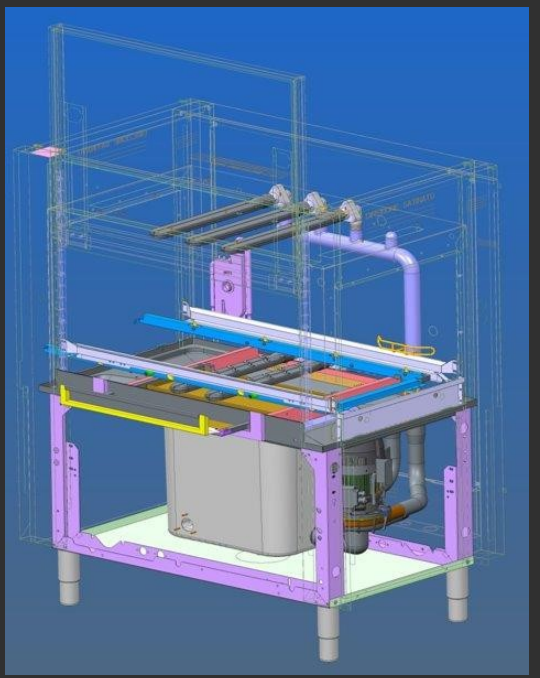


Tunnel Washers - Prewashing and washing

XXL pre-wash module on XT model

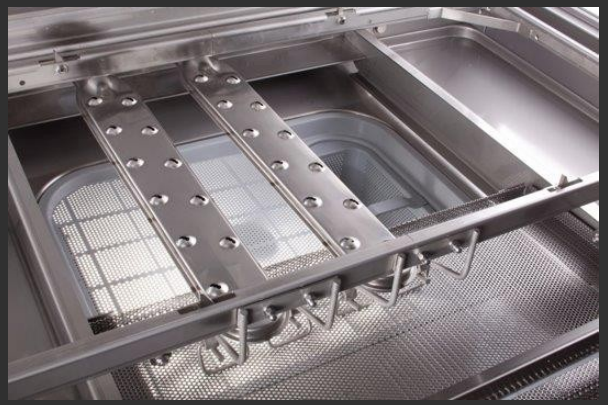
- Total length 1 150 mm
- Construction: double skin, insulated, including doors
- Pre-wash tank capacity: 70 l
- Pre-wash arms: 3 upper + 2 lower
- Number of nozzles: 60 (water brush function)
- Pre-rinse separate pump: **DuoFlow**
- Pump power: 2 700 W
- Pre-wash pump flow rate: 1 050 l/min
- Separate heating element 8 kW
- Preflush temperature 45 °C
- Advanced 3-phase filtering

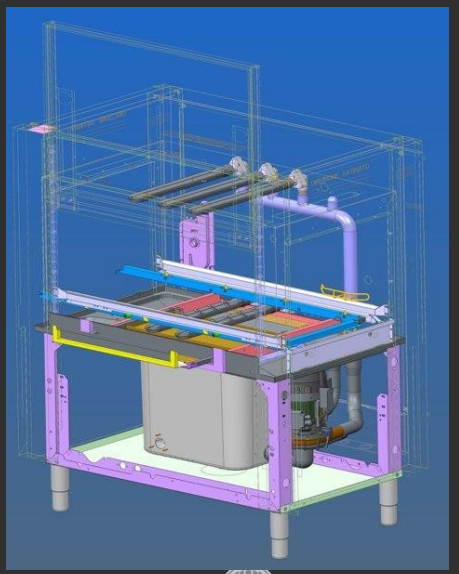




Wash module for XT model

- Total length 1 150 mm
- Construction: double skin, insulated, including doors
- Wash tub capacity: 70 l
- Washing arms: 3 upper + 2 lower
- Number of nozzles: 60 (water brush function)
- Rinse pump: **DuoFlow**
- Pump power: 2 700 W
- Pre-wash pump flow rate: 1 050 l/min
- Separate heating element 10,5 kW
- Rinse temperature 60-65 °C
- Advanced 3-phase filtering





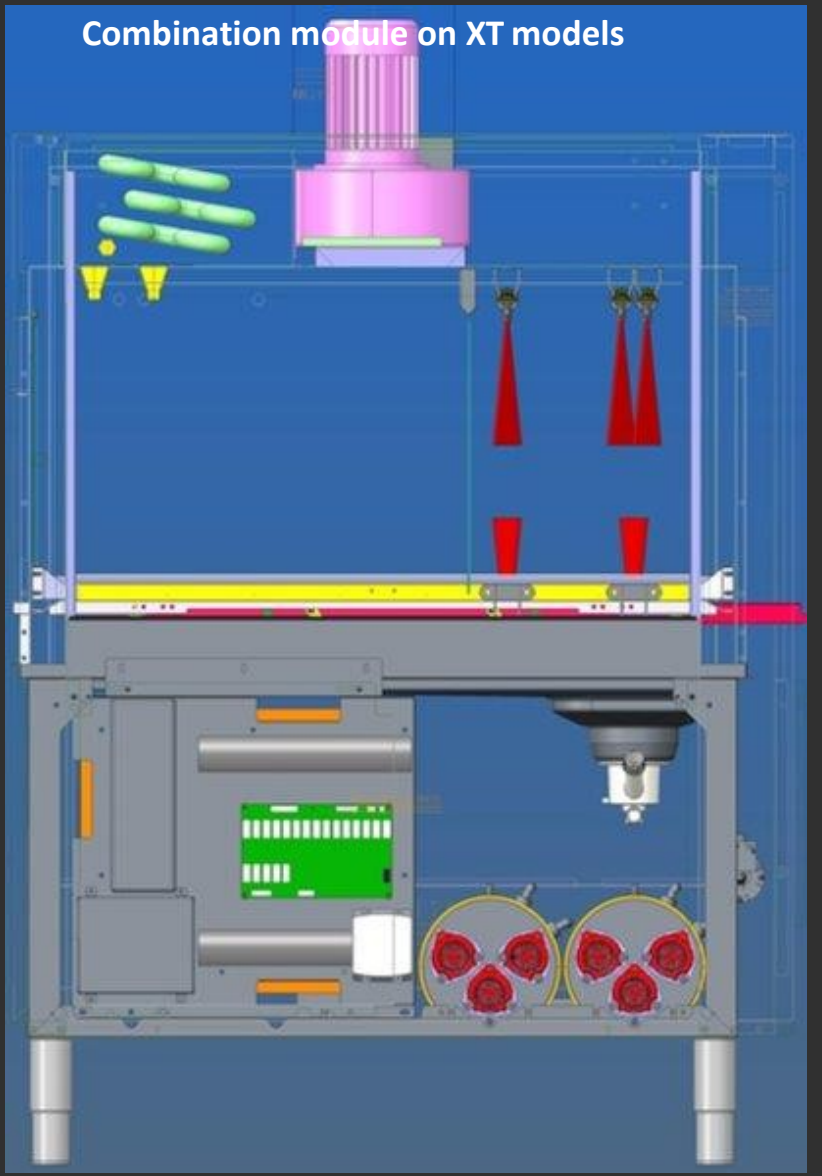
XT rinsing and drying modules

- An upgraded module that covers 3 function areas:

  Multiple rinses Dripping
  Drying

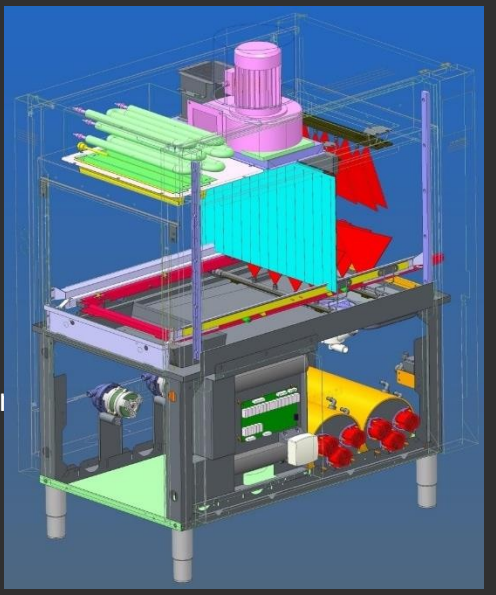
- Pull-out doors ensure perfect access to all parts of the module

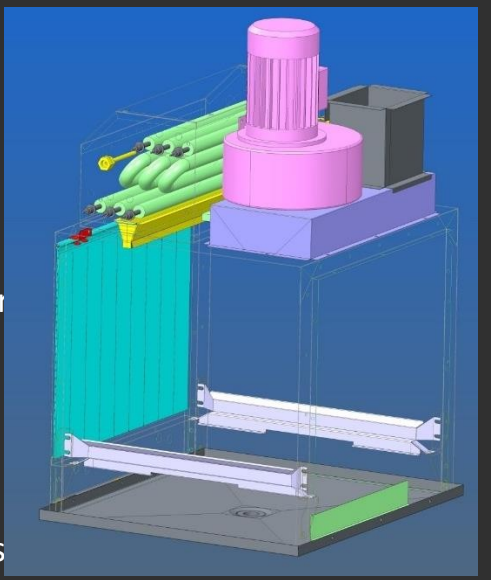
- The rinse section is 40 cm long and equipped with the UltraRinse3 system with **ProPortional** technology plus
- The drip section is 15 cm long and helps reduce moisture in the drying zone - less water to dry
- The drying zone equipped with **ProWind** technology is 60 cm
  Long



Tunnel Washers - ProWind Technology

- Low-temperature drying system that uses a mixture of cooler air from outside and warm air from inside the washer, heated to 60 °C (Modules 6 kW / 9 kW / 6+6 kW / 6+9 kW)
- The air flow for drying is provided by a 550W fan with a flow rate of air 1 400 m3/h
- The bottom of the drying section is modified to reflect the air blown from above a This allows for efficient drying from below (glasses, cups...)
- The advantage of using cooler air is that it keeps an air baffle that keeps moist air inside the dishwasher.
- The air we use is much drier than hot air from other systems
- Temperatures around the dishwasher are also more favourable for the operator
- The temperature differences and the output temperature of the glass is much mo case of glasses

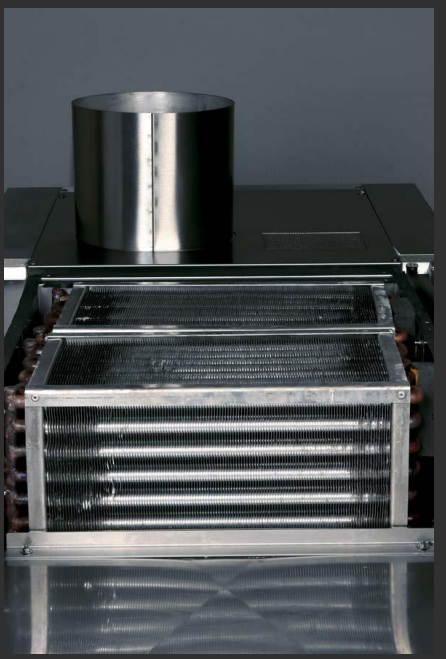




Combination module on XT models

Tunnel Dishwashers - ProHeat Technology

- Highly efficient heat recovery system, consisting of 2 heat exchangers (copper/aluminium) with a heat exchange surface of 2x 25m2
- Warm steam from inside the dishwasher is drawn in by a 180 W centrifugal fan and with an hourly flow rate of 700 m^3
- The steam condenses in the heat exchanger and gives up its latent heat to the incomi which it heats up to 40°C
- When connected to the **ProPortional**$_{plus}$ rinse system, each heat exchanger preheats inlet water to each boiler separately (the system works with the inlet temperature water up to 32°C
- Benefits: saving up to 6 kWh, reduced steam emissions to the environment, balances consumption energy and heating time during peak operating hours
- Heat exchanger modules are a standard part of the equipment of combined XT drying and rinsing modules



Accessories for tunnel washers

Corner drying unit

Corner pre-wash unit

Limit switch

Emergency switch

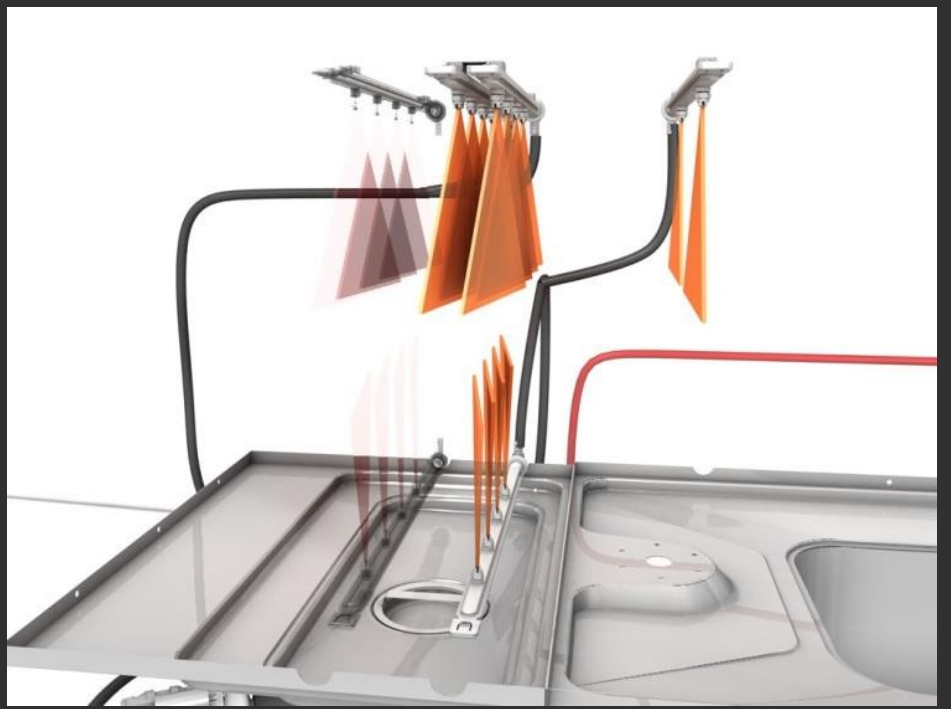
Pressure reducer

Tunnel Washing Machines - Technology used

UltraRinse$_3$ - A and XT models

- Highly efficient 3-phase rinsing system (pre-rinse, rinse and final rinse).
- Based on the **ProRinse** system, enhanced by circulation and **reuse of rinse water in the 1st and 2nd part of the rinse** cycle.
- The rinsing water used is collected into a separate 5L rinse tank.
- The tank is equipped with a 250 W rinsing pump with an output of 70 L/min.
- In this part of the rinse cycle, the pump pumps water through a system of two upper and one lower rinse arm.
- The stable amount of rinse water (100 L/h) is used by another, pre-positioned rinse arm located at the end of the washing chamber.

A 200 and A 270



UltraRinse$_3$ - A and XT models

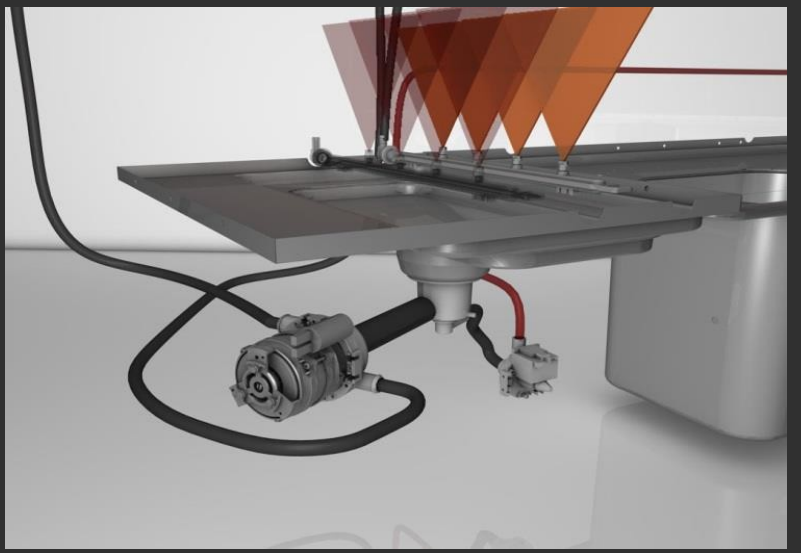
- Thanks to this system, the first part of the rinsing of particles from the rinsing water and washing chemistry takes place before the basket leaves the washing chamber.

- As a result, the rinse water also remains in the rinse bath tub clean.

- Part 2 of the rinse completes the pre-rinse phase and prepares the dishes for the final rinse with fresh hot water from the boiler. The 3rd stage of the hot fresh water rinse is practically used for the final cleaning and warming of the dishes - thanks to the
there is fresh clean water from the boiler in every the cycle needed only the minimum.

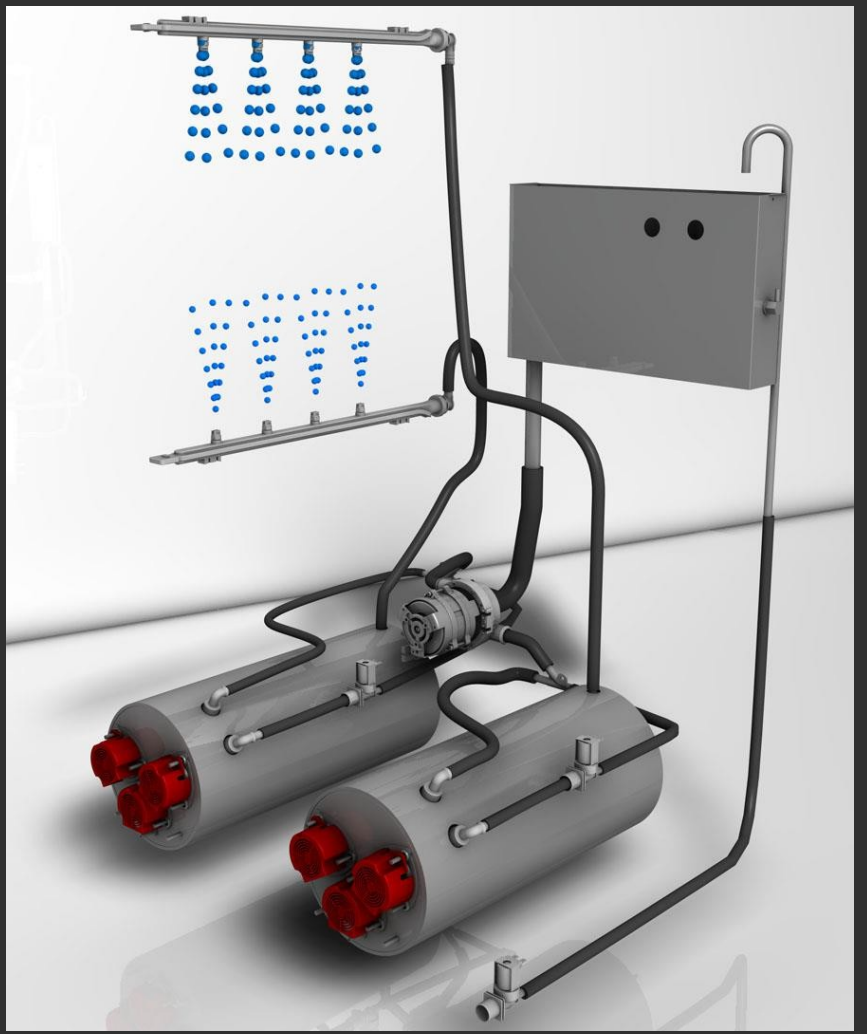
- **Water consumption is up to 40% lower than with the ProRinse system and up to 50% lower than with conventional pressure boiler rinsing**

A 200 and A 270



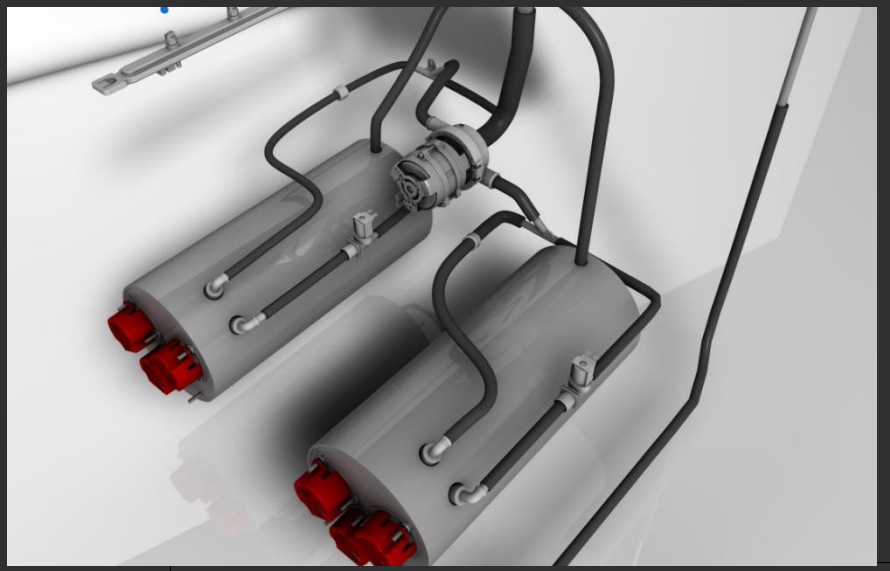
Pressure boiler - XT models

- The latest efficiency-enhancing innovations (pending to register a patent)
- Adjusts water consumption to the exact programme and speed of the dishwasher
- Adjusts the **water ratio independently between the lower and upper rinsing arms** according to the exact type of dishes, in any ratio
- **Reduces delays in high traffic** - hot water is always available thanks to two boilers



ProPortional$_{plus}$ - XT models

- It uses two completely independent water distribution circuits from the boilers to the upper and lower rinsing arms separately
- Each circuit includes heat recovery, a separate powerful boiler and its own rinsing arms
- Each circuit is capable of delivering different amounts of water and pressure to its rinsing arms, depending on the programme
- This makes water dosing more precise, always according to type of dishes washed, without unnecessary losses
- The system is all the more reliable because it uses no electrically controlled part in the hot zone



Example for individual programs: the XT 270

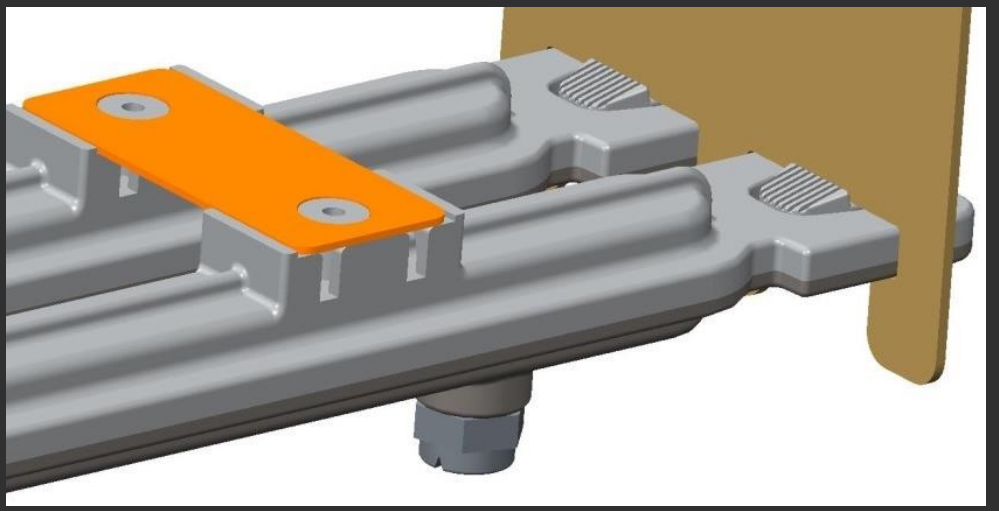
		Total	Upper	Lower
Quick rinse	Lt/h	170	100	70
Standard rinse	Lt/h	150	80	70
Extended Contact	Lt/h	150	80	70
Intense program	Lt/h	200	100	100
Glass	Lt/h	180	80	100

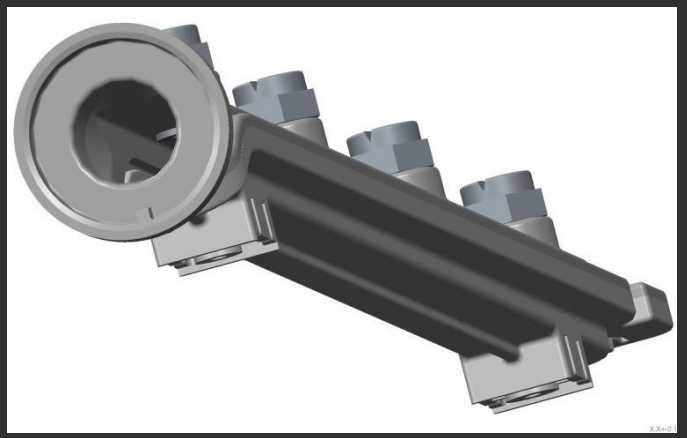
HiTech Rinsing arms

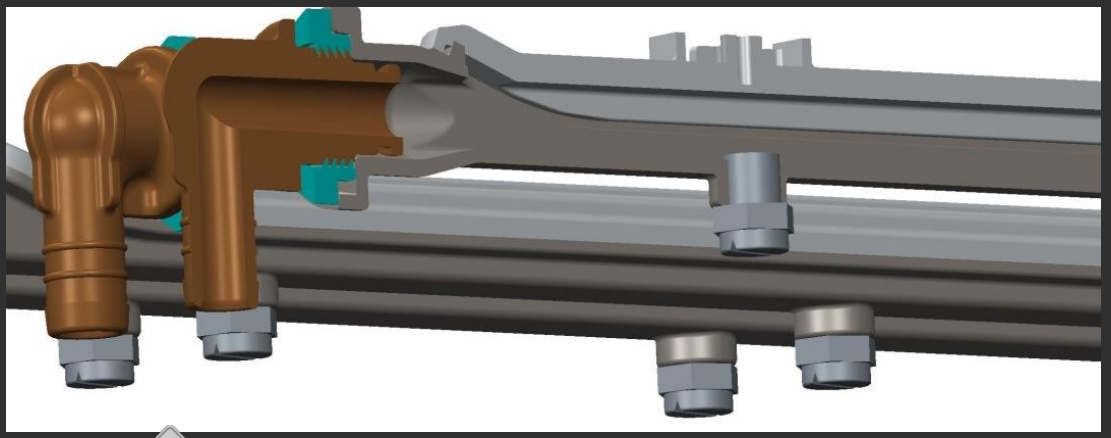
- A further improvement lies in the precise overdesign shape used in the manufacture of the technically sophisticated components
  from composite materials
- The new kind of arms are not just "pipes" like the traditional style of steel rinse arms
- They are led with a technically sophisticated design that improves water flow and reduces pressure loss to a minimum

HiTech Rinsing arms

- The spraying of the rinse water is ensured precisely calibrated all stainless steel nozzles
- These nozzles vary from boom to boom as the water flow requirements and the shape of the outlet stream vary
- This is one of the key factors for better utilization water and reduce water consumption
- The system includes rinsing arms, handles and precisely designed connection hoses.

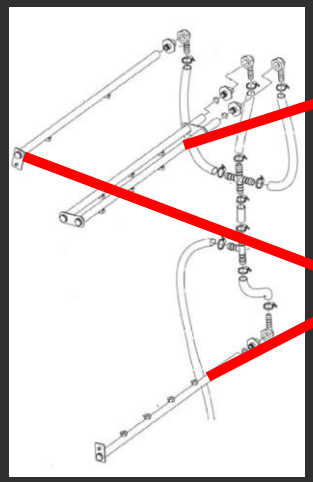






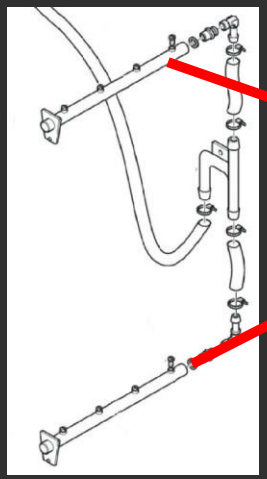
HiTech Rinsing arms

Triple rinse



Connections with small lock

Final rinse



Connections with large lock

IdroWash washing arms

- The distribution of water from the well positioned washing arms
- We have developed a new version of the washing arms in our existing **IdroWash** equipped facilities
- Washing efficiency has increased **from 51% to 56%** thanks to these new arms with **hydraulic brush function**

DuoFlow pumps

- Two-way pump technology increases the mechanical efficiency of the wash water while reducing power requirements and mechanical loads on the pump

- **This means you can wash more dishes in less time, save on energy costs and maintain a high quality wash**

- The efficiency of the **DuoFlow** washing pump is one third higher than that of a conventional pump. It therefore uses one third less energy for the same output.

- Wash pump: 1050 L/min (2.7 kW)
- (Rinse pump: 110 L/min (0.2 kW))

DuoFlow Wash Pump

- Traditional pumps have one inlet and one outlet and only further down the T or Y circuit a split for connection upper and lower arms
- These forks in the pipe are exactly the places where pressure is lost and noise increases the most
- The patented improvement is a pump that has one inlet from the tank and 2 outlets, supplying directly upper and lower washing arms
  With this system, there is no need for split arms in the rinse water circuit
- All the power of the water pump is used for rinsing water pressure and dishwashing, without any significant pipeline losses
- Since the pump's power comes from the electrical supply, which is among the operating cost items customer, **DuoFlow saves money with its cost-saving operation.**

DuoFlow

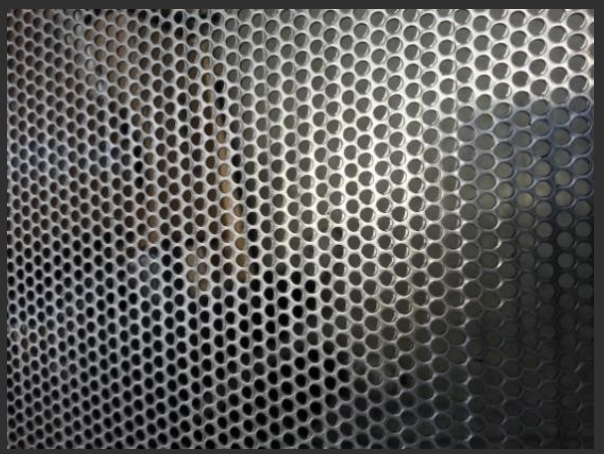
Traditional pump

ProGressive

It is a complete and efficient multi-level system filtration, formed by:

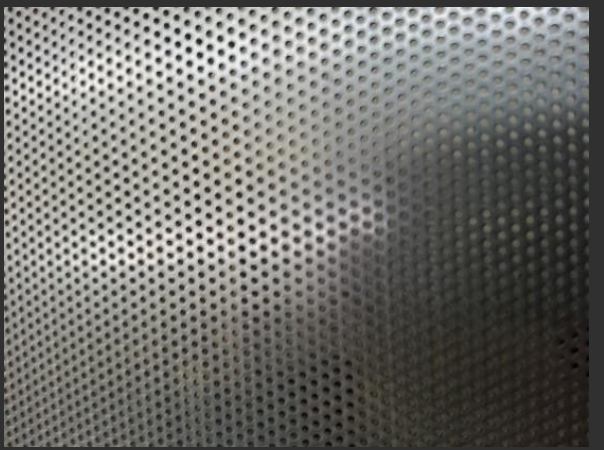
- Socket filter with 3.0 mm sieve
- Surface sieve with 2.5 mm perforation
- Surface sieve with 1.0 mm perforation

ϕ 3,0



mmϕ 2,5 mm

ϕ 1,0 mm



ProGressive

- Most coarse particles are removed by the high-performance washing
  system and captured in the upper coarse filter
- Smaller Impurities are captured v surface sieve

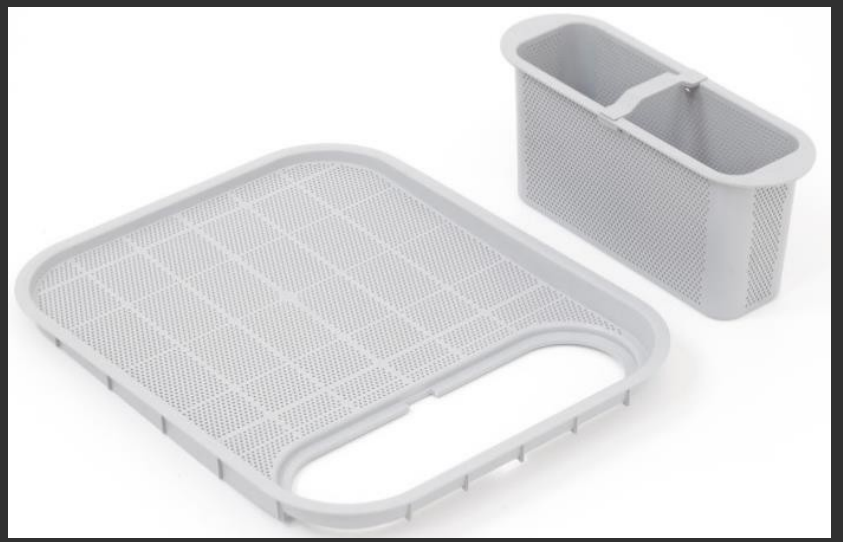
  ProStrainer
- This keeps the water in the tank cleaner for longer
- The 1 mm screen filter catches all remaining essential impurities above the bath
- The water in the tank is thus clean enough and long-lasting enough to effectively wash a large number of plates and glasses over a long period of time
- In addition to the top filter, there is also a double filter above the tank on the outlet of the
  tanks for washing pump

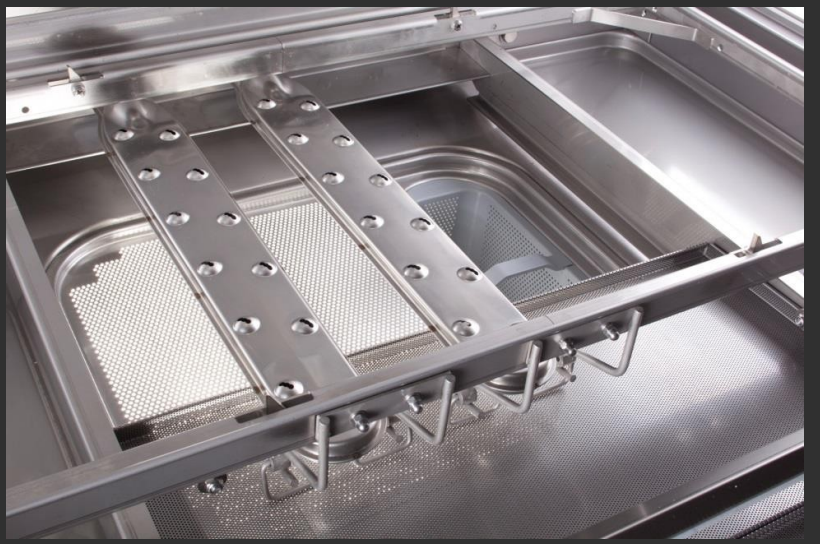
The drawer filter is designed so that it can be pulled out and clean in operation without opening the dishwasher door

Special anti-drip design prevents water from dripping onto the floor when cleaning the drawer filter

3 mm sieve filter for prewash / wash tank is standard equipment

A 1 mm screen filter above the prewash/wash tank is also in standard equipment





ProChem

- **Reduces detergent consumption by up to 60% (depending on the model of dishwasher and the washing programme)**

- It is a system for adjusting the pH of the water and dosing the washing and rinsing chemistry, taking into account the principle that
  alkaline wash water is replenished from hot clean acid rinse water

- The system automatically replenishes the detergent for the appropriate amount of fresh water used, which flows from the rinse tank into the wash tank

- Up to 100 L/h are constantly replenished and used for washing.

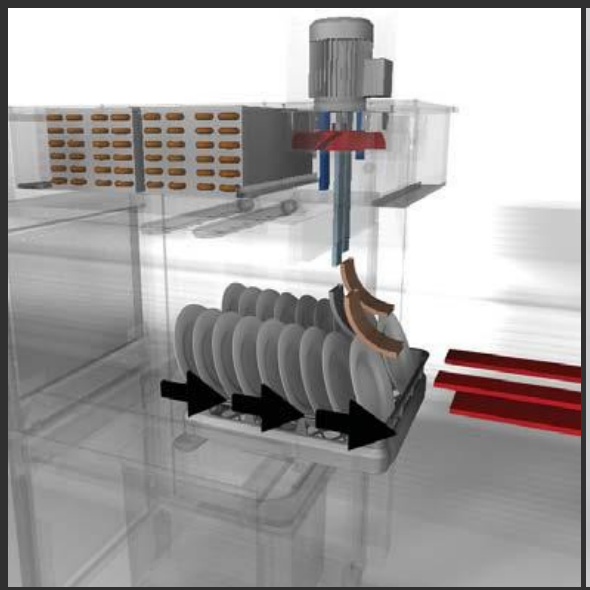
- This circuit has its own pump

ProSteam

- In some traditional tunnel dishwashers, air moves from the cooler sections to the warmer sections, which has a negative effect on the temperature of the environment and the dishes = on the efficiency of washing and therefore on the consumption - the system tries to balance and reheat the lost heat

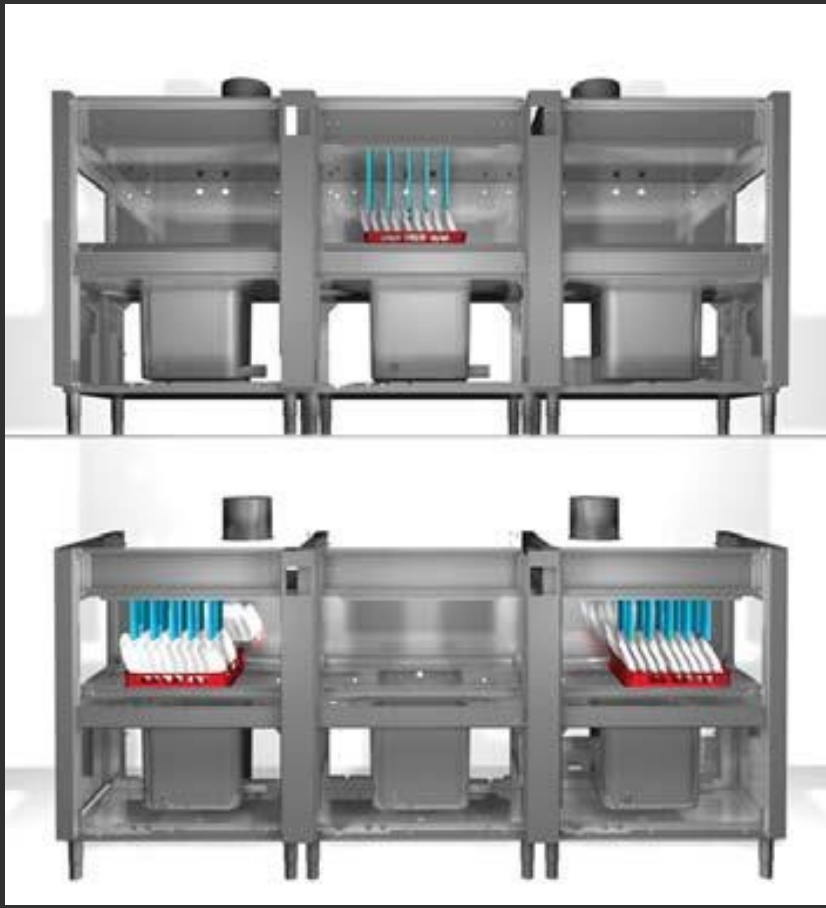
- In **ProSteam** technology, the air intake for air recovery is located at the front, in the pre-wash module, where the temperature
  the smallest and thus does not drain the heat from hot rinsing or washing.

- During the process, it also helps the movement of hot air into the washing and pre-washing phase, preheating the dishes and thus saving
  energy.



ProActive

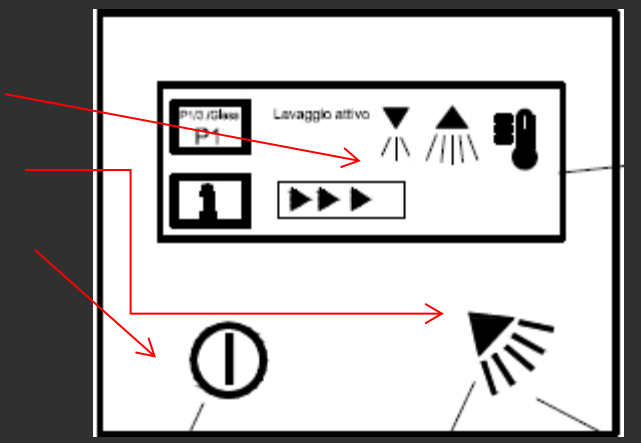
- The advanced electronic control of the XT dishwashers can switch individual modules on and off, depending on whether the dishes are currently in them and they should be in use or not
- In the case of surge operation, it is therefore an efficient and economical solution to wash even smaller quantities of dishes without consuming the full power of the dishwasher.
- The control system can also switch the dishwasher on gradually when it is fully switched on to avoid overloading the network with surges.
- The **AutoTimer** and **Rinse** systems also increase operational efficiency **Economizer**, which are also in type A dishwashers.



XT tunnel washers - Touch control display

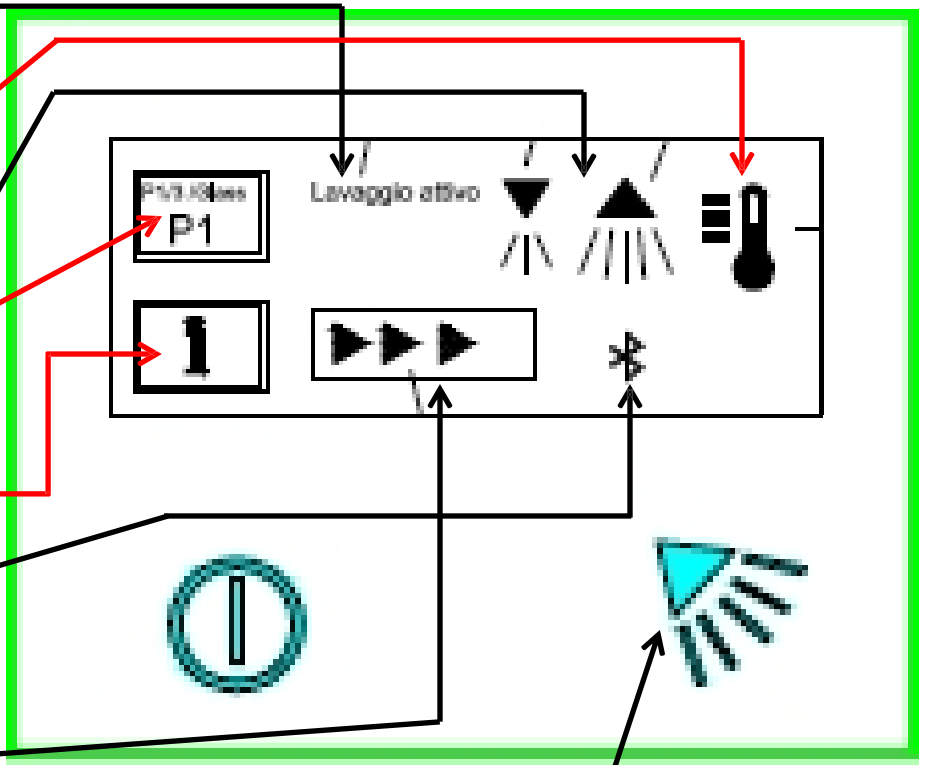
C4I Control touch screen

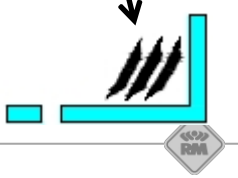
- Control, reporting and programme selection in one place
- 5" full touch graphic display + 2 control buttons (one with colour underlay according to programme)
- The display is protected by a strong safety glass



C4I Control touch screen

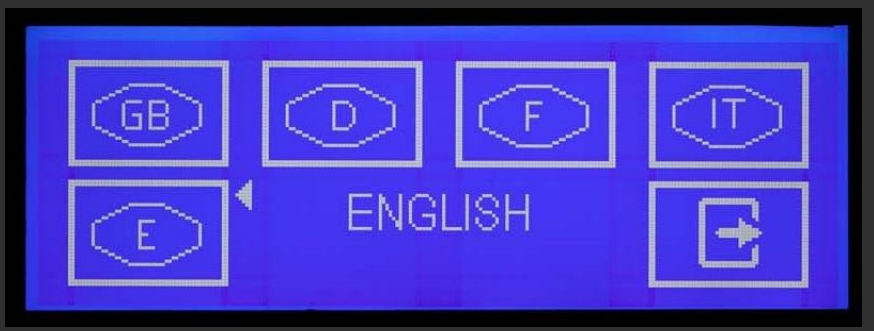
- Text messages
- Temperature + screen input for temperature control
- Washing or rinsing in operation
- Selected program + entry to the program selection screen
- Access to information screenshots
- Communication mode
- Dishwasher in operation or..
- ..Disconnected limit switch





C4I Control touch screen

- Choosing a washing programme
- Choice of form of input
- Choice of language
- Setting all parameters



C4I Control touch screen

- View the status of each module separately (input water, pre-wash, wash, rinse, dry)
- Continuous temperature monitoring in the boilers
- The information is in text data and symbols
- It is also possible to place an indication of the bath temperature and boiler on the main screen
- All error messages are logged into the report and displayed with an icon on the screen - after pressing it a code and description of the error will appear

Tunnel Washers - Technology for easy use

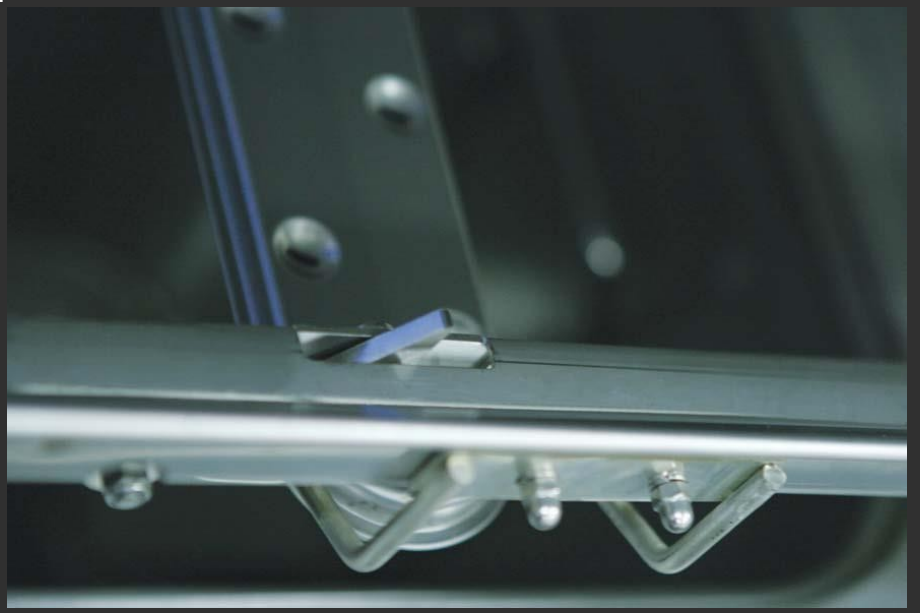
Basket shifting system

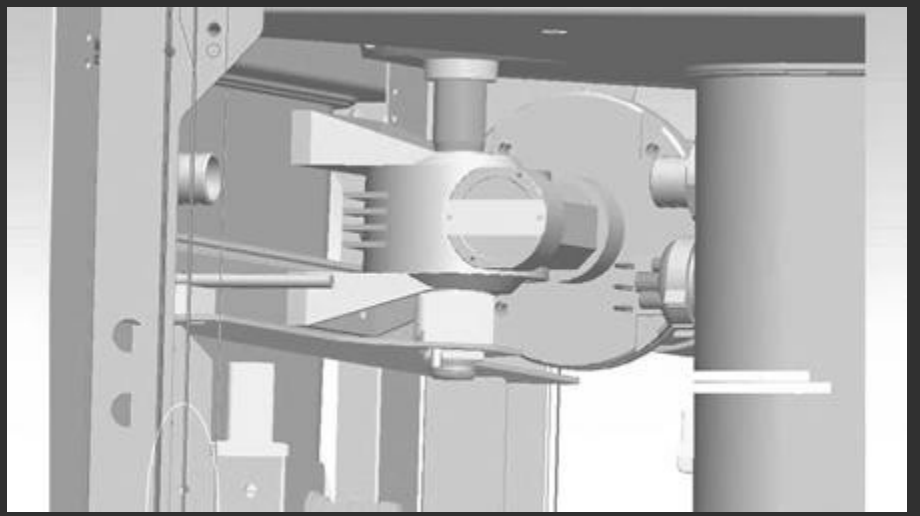
- Two-rail system with sliding motion
- The rails have high resistance and rigidity
- Movable teeth AISI 304 with 30/10 ratio
- The two-rail system offers great advantages over the center single-rail system (which you can sometimes find in competing products)
- More uniform and stable movement
- No obstructions to water flowing from the lower arms to the basket

Competitors' shift system

Basket shifting system

- Jam-proof motor installation without friction elements
- The motor is installed on a rotating shaft attached to the main fixed frame
- In the event of a jam, the torque is fed through the shaft into the motor rotation motion
- Safety microswitch disconnects the motor until the jam is resolved and the machine restarts
- No risk of engine wear
- No risk of shaft bending





Input size

- The size of the inlet opening is now 54 x 45 cm
- This makes easy washing possible larger trays and trays
- Any basket from the wide range of 50 x 50 formats can be used, glass baskets are best used with the glass programme with reinforced bottom rinse

TotalClean design

- Helps meet hygiene requirements and facilitates cleaning:
- No pipes in the wash and rinse chamber
- Deep drawn stainless steel tubs
- Double and triple surface screens
- Easy access thanks to full-length front panel door
- Simpler and easily detachable arms
- Water and steam hinges can be removed and washed
- Drain circuit also in the drying module

Curtains

- Different parts of the dishwasher are separated inside double hinges
- They are made of food-safe rubber anti-twist
- They have a smooth glossy surface for easier cleaning
- The height of the curtains varies according to the sections they separate and the amount of steam or water droplets they are designed to catch
- They are mounted on non-bending stainless steel bar

Emergency switch

- All our XT tunnel washers are equipped with an emergency switch as standard.
- The switch is manual with no programming link to other functions of the dishwasher - it can be switched off at any time in a necessary situation and then switched on again

Tunnel washers in general - Operation and maintenance

Correct operation - filters

CLOGGED FILTERS IN THE PRE-WASH AND WASH TANKS. THE WATER IS NOT RETURNING TO THE WASH TANK. THE LEVEL IN THE WASH TANK HAS DROPPED DURING WASHING, THE MACHINE STOPS.

SOLUTION: CLEAN THE FILTERS MORE OFTEN

THE SOLENOID VALVE FILTER IS BLOCKED BY SAND OR IRON DEBRIS, THE LEVEL IN THE BREAK TANK DROPS, THE MACHINE STOPS AND THE MESSAGE "NO WATER BREAK TANK" APPEARS ON THE DISPLAY

SOLUTION: CLEAN THE FILTER

Correct operation - Cleaning the filter (machine without pre-wash)

Fine steel sieve in the washing tub after 1.5 hours of work in the morning.
Must be cleaned continuously during the day.

Correct operation - bulky dishes

NOT ALLOWED LARGE POTS!!!!

KITCHEN CUTTING BOARDS ARE NOT ALLOWED!!!

CRATES ARE NOT ALLOWED!!!GN CONTAINERS

ARE NOT ALLOWED IN THIS POSITION!!!!

OVERLY LARGE GN CONTAINERS ARE NOT ALLOWED!!GN

CONTAINERS WITH A SPECIFIC BASKET ARE OK!

THE USE OF THESE OBJECTS REMOVES WATER FROM THE WASHING TANK. MACHINES WITH SHELF CONVEYOR ARE DESIGNED FOR WASHING DISHES, GLASSES, CUTLERY AND

OF DINNER TRAYS. OTHERWISE, THE LEVEL IN THE WASH TANK WILL THEN DROP, AND THE MACHINE WILL STOP.

Correct operation - amount of foam

Foam in the wash and pre-wash tank causes a faulty level in the pressure switch. SOLUTION: REMOVE THE FOAM!

Possible causes of foam: 1) Previous soaking in hand wash soap (Prewash jar remains on dishes),

2) Too much rinse aid-poorly calibrated dosage,3) wash tank temperature is below 50°C,

4) Insufficient hand scraping of leftovers, butter residue or other greasy foods that are put directly into the dishwasher

Proper operation - clean dishes

If the back of the dishes are not washed properly and the machine is used without a pre-wash module, the stacked

Too many dishes too close together or too dirty or dry.

It is necessary to change: the speed of washing after using the dishes, the settling of the dishes in the baskets, to consider the main types of soiling of the dishes (grease, burnt, sauces, dried pasta, porridge, other solid residues...) or to get a pre-wash module.

Main benefits - tunnel washers

ProPortional$_{plus}$ - XT models):

The XT series washers use two completely independent water distribution circuits from the boilers to the upper and lower rinsing arms. Each circuit includes heat recovery, a separate powerful boiler and its own rinse arms. Each circuit is capable of supplying different amounts of water and pressure to its rinse arms, depending on the programme

This makes water dosing more precise, always according to
the type of dishes washed, without unnecessary losses.

Thanks to more precise water dosing, savings are made
water and at the same time energy for heating it.

Double-walled design (all tunnel washers:

All RM tunnel washers have a double-walled construction.

The double-walled design of the dishwashers allows for higher thermal efficiency due to less heat loss, while reducing machine noise.

Double-walled dishwashers save energy costs for heating water while providing greater comfort in the kitchen thanks to lower noise levels.

Main competitors

www.winterhalter.com

www.hobart.cz

www.electroluxprofessional.com

www.zanussiprofessional.com

www. meiko.cz

www.granuldisk-cs.cz

www.kuppersbusch.cz

www.silanos.it

www.alba-horovice.cz

Test questions

- What are the main differences between a professional dishwasher and a home dishwasher? What are the two main customer benefits of a quality dishwasher
  for the customer?
- Name the 4 main types of dishwashers found in the RM range.
- What are the main differences between QQI and TT dishwashers? Please give at least 3 examples. What kind of operations are they suitable for?
- The customer is a school canteen for about 400 boarders. Need to wash dishes between 12:00-14:30. The diners have a tray, soup, main course, compote
  or dessert and one drink (tea). Take into account that the customer does not want to invest in air conditioning. Which dishwasher will you offer the customer and why?
- What is a tunnel washer? Describe its main features. What is the name of the highest capacity range of RM tunnel washers.
- What is a double-walled design for dishwashers? List the main advantages and benefits of using double skin construction. For which range of dishwashers in the RM range
  You can't find a GASTRO double skin construction?
- What is the purpose of the RM S Series dishwasher. What are the main differences from a conventional undercounter or freestanding dishwasher?
- What rinse temperature do glass washers use? Why?
- What is a dishwasher recovery unit? Where is it used and why is it a good idea to recommend it to the customer to purchase with a continuous washer?
- Describe the main role of the Evelution3 discharge system. What are its advantages and benefits? What is the main difference between Evolution3 and the system
  Archimedes?
- Describe how the DuoFlow system works and what advantages it has over a conventional pump.