

STAHL
WÄSCHEREIMASCHINEN



ATOLL 220

ATOLL

**The successful and innovative
washer extractor range.**

**Now even more cost-effective
and efficient.**

An important differentiating mark in many industries is the standard and quality of the linen, consequently great attention has to be paid to its care. The elegant sheen and high-quality look of table cloths and toppers is most important, bed linen and clothing have to be immaculate and give a feeling of cleanliness and towels that are not only clean but also fluffy and absorbent leave a lasting positive impression. At the same time industrial users expect professional linen care operators to work fast, thriftily and economically.

We have listened to and valued our customers' needs and requirements for more than 100 years. Since 1909 and for four generations our family has met these demands. They have always been our motivation to continually improve our machines and to manufacture them here in Sindelfingen. This is how STAHL has become a label for quality products manufactured in Germany and sold throughout the world. The new generation ATOLL washer extractor is another success story. Our ATOLL machines are ideally suited for the care of today's textiles and they are well prepared for the fabrics of the future.

Compact, individual – and the right size for any requirement

We currently produce the ATOLL machines in 13 different sizes, offering you the right machine for your requirements. Our small 'professionals' are suited for a filling weight of 5.5 and 7.7 kg, the compact models take 10, 12, 14, 19, 22 and 29 kg and the large volume machines have a load capacity of 35, 45, 60, 80 and 110 kg. The diversity of this range is enhanced by offering you a choice of heating the ATOLL using electricity, direct or indirect steam, thermal fluid or a dual heating system. We are always happy to accommodate any special requirements, flexibility is our trademark.

- **Extremely robust construction**
- **Long service life**
- **PTS 3 power-transmission-system helps save energy**
- **Extremely stable bearing with 5-year warranty**
- **Ergonomic design to promote efficiency**
- **Made in Germany for over 100 years**



ATOLL 77

ATOLL 140

ATOLL 220

Superior Construction:

The robustness of the ATOLL is already impressive. A look at the design immediately proves its construction to be of superior quality. The inner workings, encased by stable stainless steel sheets, are as indestructible as they look. This also includes a spring/damper system which ensures a maximum stabilization of the free swinging drum and an absolutely quiet running of the machine. The entire construction is based on a strong, hot-dipped galvanized machine frame.

PTS 3 – the 3rd generation PTS-drive:

The PTS 3 power transmission system developed by us does not require any maintenance and only uses as much energy as actually needed for the particular job at hand. It reduces, for example, power consumption during the spin cycle depending on the drying stage of the laundry. The PTS 3 with the pioneering efficiency motor lessens current peaks, detects and controls unbalances, ensures a quiet operation, infinitely variable wash and spin revolutions, a gentle starting of the drum as well as a fast and wear free breaking of the drum without any mechanical break components.

Impressive drum bearing:

The high quality of the machine is most impressively demonstrated by its powerful bearing. It was developed by us and reflects our philosophy of highest quality and long service life in the best possible way. Its hard-wearing design, including its impressive dimensions, self-lubricating components and multiple protective features against suds, puts us in a position to grant you a five-year-warranty on the bearing.

Ergonomics to promote efficiency:

Your staff's health and job satisfaction is an important success factor for your company. This is also a consideration in the development of our machines. Large access doors ensure an ergonomically sound loading and unloading of the machine and the large service hatch can be conveniently accessed from the front. Depending on the room situation the door can be hinged on the right or on the left.

New large stainless steel drain valve:

Our newly developed stainless steel drain valve is large and of step geometrical design to prevent dirt deposits and the jamming of foreign objects. It is triggered by water or air and thus remains closed even in case of a power failure, so that you do not lose any water and do not have to restart the wash process. This is another example of STAHL's contribution to a smooth running of your operation.



ATOLL 1100

ATOLL 600

One of the most important factors determining the quality of textile care is the mechanical treatment of the load. The linen has to be treated gently, while being cleaned thoroughly. The wash process has to be fast, while using as little water and energy as possible.

Gentle and efficient Eco-Drum:

We are aware of these demands – and have answered them with the ATOLL. The perforations of the stainless steel drum run in smooth conical radiuses from the inside to the outside. This ensures a very gentle treatment of the linen, increasing the desired self-friction and decreasing the friction with metal. Another advantage is the strength saving unloading of the machine.

In order to offer you the highest possible grade of efficiency we have also optimized the number of perforations and their size. This results in a fast draining of suds, which is particularly important during the spin cycle, in order to achieve the desired residual moisture level quickly. Depending on machine size, the ATOLL is equipped with four to six scoops, which are also perforated. This scoop technology ensures more agitation and a faster flooding of the wash load, saving time and energy. A further advantage of our Eco-Drum is the convex shape of its rear wall. In comparison to the usual systems, this shape reduces amount of water that does not come into contact with the wash load, resulting in additional water and energy savings.

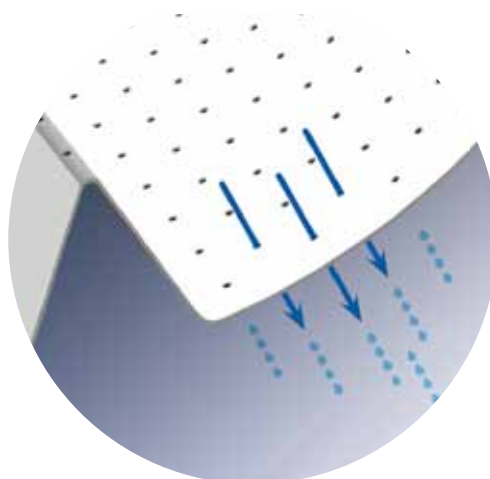
“We have always been very thorough in our thinking processes. The development engineers in charge at our company are members of the owner family, which has been engaged in the production of industrial laundry machines for more than 100 years.”

- Linen saving conical perforation of the Eco-Drum
- Perforations efficient in number and size
- Perforated scoops for fast flooding of the wash load
- SPEED-FLOW-System (hydrodynamic water flooding)
- PULS pendulum overflow rinse process to save water
- SWI heat insulation to save energy
- Eco-Drum + SPEED-FLOW + PULS + SWI = perfect combination for efficiency



STAHL Eco-Drum:

- Fast draining including lint
- Gentle conical perforations with soft radiuses

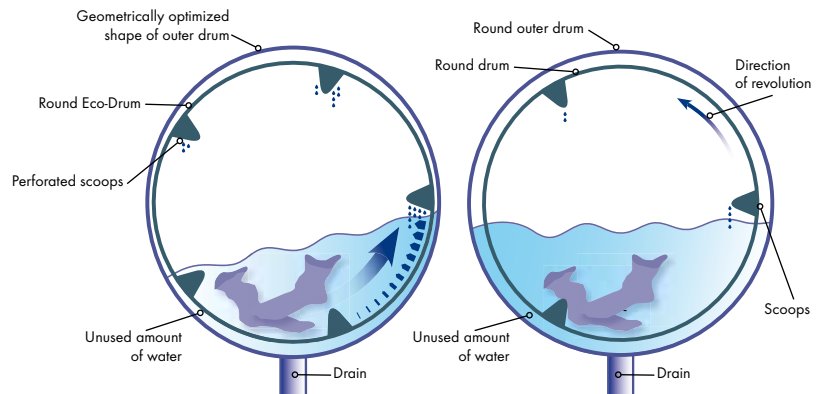


Drum without conical perforations:

- Removal of lint is cumbersome
- Difficult removal of fluff balls
- Hard edges put strain on linen

SPEED-FLOW – hydrodynamic water flooding:

Subjecting the wash load during the wash process to a changing water pressure (s. Diagram) in addition to mechanical agitation saves energy, water, time and detergents. With the SPEED-FLOW-System we have achieved this path-breaking design: The round Eco-Drum revolves in an outer drum that is geometrically optimized rather than round itself. Due to this construction in combination with the perforated scoops, the ATOLL achieves a hydrodynamic performance, offering you this exact benefit of increased efficiency. This construction also reduces the space between outer and inner drum, resulting in less unused water.



SPEED-FLOW-System by STAHL:

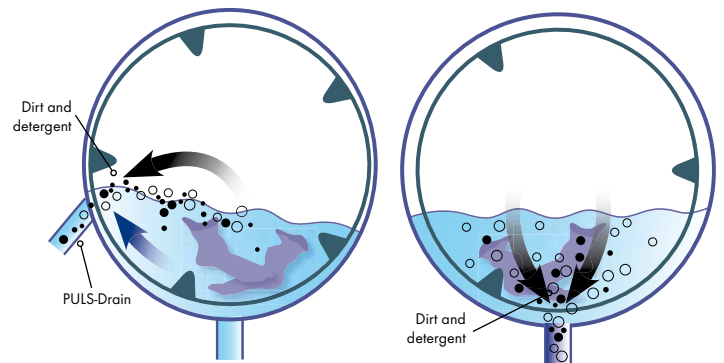
- Water pressure increases at the narrowing on the right. The water flows quickly and with pressure onto and through the wash load (jet effect)
- More scoops = more agitation of water and wash load

Conventional System:

- The round drum in the round outer drum does not create any hydrodynamics
- Fewer scoops = Less agitation of wash load
- More unused water = higher water consumption

PULS – pendulum overflow system:

The pendulum overflow system is another example of our highly developed art of engineering. With PULS-Technology dirt particles bonded in the suds float up to the water surface to be drained off via the overflow. The water of the rinsing bath remains clean so that you can reduce many wash programs by a complete rinse process. This in turn results in the advantages of shorter wash times, a reduction of energy and water consumption, a higher degree of cleanliness and less wear and tear on the linen. By adding an integrated water reclamation system you can achieve another marked reduction of your water consumption.



PULS-Process by STAHL:

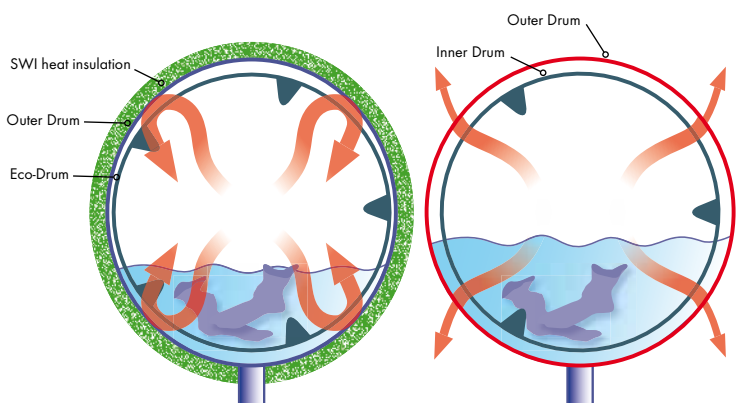
- Dirt bound in detergent is drained via overflow (Arrow)
- Rinse bath remains cleaner = Save on rinse

Conventional rinse without PULS:

- Dirt and detergent come into contact with wash load during rinse. More rinses are necessary

SWI – specialised heat insulation with thermo effect:

Our SWI specialised heat insulation is another feature contributing to your energy savings by ensuring that the heat remains inside the outer drum instead of radiating out. This thermo effect reduces heating-up times and saves about 30 % of heating energy.



SWI heat insulation by STAHL:

- SWI stops heat from radiating out (red arrow) as unused energy and keeps it inside the Eco-Drum instead. This results in marked energy savings
- No heat loss = Energy savings

Conventional machines:

- Without insulation a high proportion of the heat is radiated out (red arrow) as unused energy
- High heat loss = Energy loss

FREEpro Control Unit – Wash Technology Now and in the Future



We were the first to install microprocessor control units in our washing machines and we have expanded on this lead. The third generation *FREEpro* in use today represents a continuation of this development with the aim to offer you the perfect solution for your needs rather than some arbitrary standardized answer. The *FREEpro* is extremely easy to operate and gives the user complete freedom of choice, as all adjustable parameters can be programmed individually and independently of each other e.g. wash times, wash and spin revolutions, temperatures, water levels, dosing types as well as wash and spin cycles.



Enormous choice of programs:

Our *FREEpro* comes with 13 standard programs, covering various requirements. This puts you in the position of starting the wash process directly. Overall there are 99 memory spaces at your disposal to save your individual wash programs, which can be easily created at your PC or using the menu navigation of the control unit. *FREEpro* offers a large selection of pre-programmed modules (e.g. rinse, water-proofing) which can be put together with very little effort to form new programs.

Simple, easy and flexible programming

- 13 standard programs included
- 99 spaces for free programming
- Dialogue based, simple programming
- Easy individual program selection
- Free and infinitely variable wash parameters
- Machine and computer networks as well as online functions possible

Extensive diagnostic and monitoring functions:

FREEpro always shows the status of the wash operation on a large and easy to read clear text display. Additionally it also provides you with extensive information and diagnostic functions as a standard. Empty level indicators for liquid detergents, water meters and printers can also be connected. Quantity control functions with level sensors ensure an ecologically friendly and efficient water consumption by adjusting it depending on the relevant load volume.



FREEpro allows you to define your program authorizations, so that only authorized programs are shown on the display.

**Everything under control
– with FREEpro of the 3rd generation**

- **User navigation in plain language**
- **Large selection of languages**
- **Constant process monitoring**
- **Visual representation of the program process**
- **Possibility to retrieve extensive statistical information**
- **Fault diagnostic system**
- **Timer to operate machine at cheaper times (e.g. off-peak electricity)**
- **Timer with week and week-end settings**

STAHL machines can communicate with each other if they are connected via a network. This means that instead of programming every single machine individually you simply copy the programs from one machine to the other, without the need for chip cards. You do not need any buffer batteries to secure your programs. This saves you time and effort and increases your operating efficiency.

Recording operating data, network capability and internet connection

Your ATOLL can be fitted with a high-tech connection upon request. This will make it possible for you to gain relevant operating data. The machine could for example be connected to a printer, which delivers the required information in black and white, you can diagnose faults or send your data to higher-level systems. The service technician can extract even more detailed information on load types, operating hours etc.

By connecting *FREEpro* to a PC and the Internet the control data can also be viewed by a technician, should the need arise. The advantage is that we can remote access your machine from Sindelfingen for diagnosis or to offer help in regards to question on the wash process. If desired, we will remind you of maintenance and inspection intervals, which can also be partially performed via the Internet.

Ecological savings with liquid dosing system for detergents

Another factor to bear in mind when considering the investment in your new ATOLL machine are the follow-up costs. The liquid dosing system of wash detergents and auxiliaries offers you a number of advantages in this aspect. *FREEpro* communicates with all standard liquid dosing systems and triggers the feed of washing detergents at the right time and for the correct amount within gram range. The addition of auxiliaries like boosters, bleaching agents etc is also triggered automatically, eliminating the risk of accidental overdosing or miss-timing. All you have to do is set your desired quality level once and you will consistently and reliably achieve the same degree of cleanliness.

The ATOLL as well as the liquid dosing system are suited for all types of textiles, fabrics and processes. This goes for heavily soiled floor mats and mop heads as well as disinfecting procedures for example for care homes, the processing of delicates and outer wear processed at cleaners or bedding and towels from hotels – all this is just a question of selecting the right program.

The Wet-Cleaning System:

The ATOLL has been renowned for a long time as the perfect machine for all standard wet-cleaning systems. All you have to do is to select the desired program via the *FREEpro* control unit.

The optimized PTS-drive is ideally suited for wet-cleaning. The *FREEpro* control unit can even be programmed for slight swinging motions of the Eco-Drum with long soak intervals. The pendulum overflow rinse process makes at least one rinse and intermediate spin redundant, so that the ATOLL also saves water and energy in wet-cleaning processes.

Matching drying tumblers equipped with *FREEpro* control units and residual moisture sensors offer you the perfect STAHL combination for wet-cleaning.

- **Extremely gentle Eco-Drum**
- **Gentle handling of the linen with swing motions**
- **PTS 3 drive for perfect drum movements**
- **Optimal control of water level, temperature, revolution speeds and reversing intervals**
- **Short wash time as PULS-process makes at least one rinse redundant**
- **Accurate liquid dosing system**



FREEpro – the next generation technology

- **Control technology to satisfy any requirement**
- **Controlled cool down to prevent creasing**
- **Combination of powder and liquid detergents within one program**
- **Combined PULS/Cool-Down/SPEED-Flow/SWI technologies to save time, water and energy**
- **Intelligent cold and warm water supply**
- **Trigger of external dosing pumps**
- **Connection to integrated or external water recuperation system**
- **Control of external energy management and trigger of peak-load switch**
- **Quantity control with level sensor**
- **Modern sensor technology to comply with temperature curves**
- **Easily adaptable to future wash processes and new textiles**
- **Dual heating system**

Cost Efficiency through Ecological Operation

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We believe that the protection of the environment starts with the ecological construction and production of the machines. Ecological development means first of all that we refrain from using non-recyclable materials and that we concentrate on choosing uniform materials wherever possible.

One of the best examples is stainless steel which we use remarkably often in our components and which is particularly well suited for recycling into production. In order to simultaneously improve the ecological balance and the cost /benefit ratio for the customer we have made it our ultimate priority to maximize the machines' service life.

Our vertical production range ensures that we can easily control our quality level as well as avoid emissions due to transport. This also goes for our suppliers, who are preferably based close to our own plant in Baden-Württemberg. The construction engineers have always paid great attention to the minimization of our machines' energy, water and detergent consumption.

ATOLL reduces costs and is kind to the environment:

- **SWI – specially designed heat insulation keeps the heat inside the outer drum. This "thermo effect" saves approximately 30 % of heating energy.**
- **PULS – pendulum overflow rinse process reduces amount of rinse baths, detergents, wash times, wear and tear on linen and energy consumption.**
- **SPEED-FLOW – hydrodynamic water flooding reduces water and energy consumption.**
- **Marked additional savings in water consumption can be achieved by installing a water recuperation system.**
- **ATOLL is 100 % recyclable.**
- **Liquid dosing system for cost reducing and ecological operation can be fitted any time.**



ATOLL 450

Our Advantage – The Complete Range for any Requirement

STAHL
WÄSCHEREIMASCHINEN

ATOLL and WS

- washer-extractors for ecological, intensive wash-technology

DIVIMAT D and DIVIMAT S

- hygienic washer-extractors for the disinfection of linen from nursing homes and hospitals

HYDRO-EXTRACTORS

- robust hydro extractors for professional use

DRYING TUMBLERS

- industrial heavy-duty automatic dryers

FLATWORK IRONERS

- compact high performance specialists for the professional top-finish

DOMESTIC and STAR-FOLD

- folding machines for precise and quick processing

KOMBI-FOLD

- the machine for fast sorting, folding and stacking of dry linen and towels

Our extensive product range is suited for any professional laundry process. Our washer-extractors are complemented by high-performance dryers which are also produced by us and are just as robust and durable. Our flatwork ironers are renowned for their product and finish quality. We offer a large selection of various types which all have one thing in common: their high level of performance combined with low energy consumption. Our range is completed by folding machines for flatwork and terry cotton items as well as machines for ironer preparation e.g. detanglers and feeder machines. Customers throughout the world work with STAHL laundry machines, with the quality of "Made in Germany".

Specialized applications of our ATOLL

Hard-wearing and robust due to its construction on the one hand, highly flexible due to its modern PTS drive and intelligent *FREEpro* control unit on the other hand – that is ATOLL. These characteristics make it so well suited for specialized applications:

- Cleaning of door mats
- Mop heads
- Clothing of rescue workers
- Textile horse gear in equestrian sports

We will gladly advise you on these and other applications.



Type ATOLL		55	77	100	120	140	190	220	290	350	450	600	800	1100
Drum volume	l	55	77	100	120	142	190	220	293	330	450	580	770	1150
Load capacity (dry load)*	appr. kg	5,5	7,7	10	12	14	19	22	29	35	45	60	80	110
Extraction speed variab. up to	rpm	1100	1100	1000	1000	1000	1000	1000	900	900	900	900	800	800
Number of scoop ribs		4	4	4	4	4	5	5	5	6	6	6	6	6
Connected wattage														
Electric-Heating	kW	5,4	7,2	9	12	12	18	18	18	36	36	36 (54)	81	81
Steam-HP (4-6 bar)	kg/h (ca.)	5	7	9	12	12	18	18	18	36	45	60	130	200
Installation connections														
Water cold 3/4"-thread	DN	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1 1/2"	1 1/2"
Water warm (opt.) 3/4"-thread	DN	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1 1/2"	1 1/2"
Steam HP 1/2"-thread	DN	12	12	20	20	20	20	20	20	20	20	20	25	25
Water drain	mm	50	50	70	70	70	70	70	70	70	70	70	100	100
Dimensions														
Width	mm	690	690	790	790	790	1010	1010	1010	1150	1150	1150	1600	1600
Depth	mm	740	786	825	975	975	1030	1030	1210	1200	1380	1680	2000	2200
Height	mm	1000	1000	1240	1240	1240	1370	1370	1370	1620	1620	1620	2100	2100
Net weight	kg	220	230	310	350	350	410	410	470	950	1070	1660	3400	3500

* Depending on load type

100 Jahre 1909 - 2009
STAHL
WÄSCHEREIMASCHINEN



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