



INDUSTRIAL WASHING MACHINES

# crusader

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...taking hygiene to the 21st Century



## Layer pad washer trounces expectations!

IWM (Industrial Washing Machines) has recently supplied an innovative customised washing machine to Demes Palettenlogistik in Germany for washing and drying a variety of solid and corrugated plastic layer pads. The first of its kind, the all-new LPW600 machine offers exceptional ease of operation, with a pneumatic stacking system as well as state-of-the-art PLC-based control, monitoring and reporting systems.

**D**emes Palettenlogistik has a long history in supply chain management of pallets and layer pads for the glass packaging industry, and effective washing of the plastic layer pads (slip sheets) is crucial to the success of the company's business.

When its main plant in Stadtlohn was being upgraded, Demes contacted IWM to discuss the supply of a new layer pad washing machine. Demes needed a robust easy-to-use washer that could wash up to 600 layer pads per hour with a typical size of 1200 mm x 1000 mm and with varying thicknesses. IWM and Demes had worked together in the past, but this was the first joint project for the companies in more than 12 years.

IWM sales and design engineers visited Demes operational sites in Germany and France to assess requirements prior to embarking on a full engineering design process. IWM and Demes worked closely together, with IWM drawing on its many years of experience in washing machine design, complemented by the use of advanced 3D modelling techniques. Demes contributed its in-depth knowledge of layer pad management, and clear ideas of how the new machine would need to fit into its operations.

At the end of this preliminary analysis, IWM confirmed that the most appropriate solution would be a completely bespoke layer pad washer, designed for ease of operation and incorporating an innovative layer pad transportation system, intelligent monitoring and a pneumatic stacking system. A key feature of the proposed design was a continuous roller-driven pad transport conveyor system with spring loaded and individually driven rubber rollers.

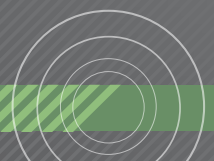
After Demes gave the go ahead to proceed with this forward-

looking design, IWM produced a machine into which layer pads are fed manually. They are then subjected to sustained jetting with hot water and detergent, which are both re-circulated from a storage tank. This arrangement keeps costs down by minimising the amount of water needed for a complete wash cycle.

Energy costs and environmental impact are further reduced by making use of the hot water supply that is available throughout the Demes site. The water for this supply is heated by burning scrap wooden pallets that are too damaged for further use. To make full use of this low-cost source of heat, IWM arranged for the hot water to be circulated through specially designed heat-exchanger coils in the wash water tank, which significantly reduces the amount of electrical heating needed.

To maximise the effectiveness of the washing process, the wash section incorporates two sets of rotating brushes to remove soiling from the pad surfaces. The brushes have a spiral design to transport debris away from the pads before they enter the rinsing section for a final clean, to remove loosened debris and detergent residue.

After they have been thoroughly washed, brushed and rinsed, the pads travel through a two-stage modular high-power air knife system, which delivers them completely dry, ready for immediate wrapping. *Continued...*



*Continued...* At the out-feed stage, the pads are automatically stacked under gravity onto a suitable pallet prior to removal from the machine, helping streamline unloading operations for users...

Although the outfeed is gravity-fed, the positioning of the layer pads are controlled carefully to ensure that the stack is trim and square so that it can easily be packed for distribution to the company's clients.

An added refinement is a blower system that circulates de-ionised air over the pads while they are waiting to be packed. This ensures that static electricity on the pads, which could attract dust particles to them, is discharged.

During trials it was found that although the machine had been designed to provide a nominal throughput of 600 pads per hour, it did in practice provide excellent results even when running at 1000 pads per hour. Operational reliability also greatly exceeded expectations. At the time of writing, the machine has washed almost 3 million pads and while doing so, it has jammed only twice.

The reason for this outstanding performance is the careful attention IWM gave to the design of the pad transport system. Each pair of rollers in this system has its own sensors, which immediately detect when the rollers are pushed further apart than they should be during normal operation. This typically indicates that a damaged pad has been fed into the machine, or that two pads have been fed in together. When excessive gapping of any pair of transport rollers is detected, the machine stops immediately allowing the problem to be rectified quickly and easily before jamming can occur.

Johannes Demes and his team at Demes Palettenlogistik are delighted with the performance and reliability of the custom-designed layer pad washer developed and supplied by IWM. Johannes commented, "I have had many years' experience with pad washing systems, and I can say without any reservations that the IWM machine is by far the most efficient and well built that I've ever seen. It's a superb piece of engineering and it's already helping us to boost our efficiency and profitability."

## IWM launches new range of weigh and scale pan washers for the food

The new range of weigh pan washers from Industrial Washing Machines Limited (IWM) combines speed and convenience with efficiency and economy, making them ideal for use in all sectors of the food manufacturing industry.

Based on tried and tested predecessors, the new standard range is available in three models to ensure an accurate match with all applications, the new washers are capable of washing up to 56 weigh pan/scale pan heads, along with radials and other accessories, in just two to 30 minutes depending on the level of soiling and the wash cycle selected.

The new washers are an ideal solution for manufacturing plants where there is a requirement for regular changeovers when, for example, introducing a new flavour, and for sanitising pans after they have been used with common food allergens such as nuts, seeds, soy, milk or dairy products.



Designed after consultation with customers, the weigh pan washers are small enough to sit on mezzanine floors next to the weigh scales, so there is no need to carry the weigh scale pans downstairs for washing. This helps reduce the risks to workers' health, and increases safety.

The hot water rinse at 85°C is usually sufficient to flash dry pans – especially stainless steel types – ready for re-use. A full hot air drying system can, however, be provided where the fastest possible turn around is necessary.

IWM have a number of flexible options to transport weigh pans and load them into the equipment, together with easily manoeuvrable racks and trollies designed to operate on the mezzanine areas.





# New eco-friendly washing machines for industry



IWM (Industrial Washing Machines) has recently announced that it will be expanding its offer to include TEIJO top-loading, single-stage and multi-stage component cleaning machines. By becoming a UK distributor for TEIJO products, IWM is adding to its portfolio general-purpose industrial cleaning machine systems as well as machines that are specifically optimised for use in the automotive and industrial manufacturing sectors.

TEIJO machines use water-based technology, obviating the need to use expensive and potentially hazardous solvents. They are ideal for pre-cleaning of components before welding, removal of anti-corrosive treatments

before machining, cleaning of engines and engine parts, descaling of cylinder heads and many similar applications.

Eco-friendly and robust, TEIJO machines are designed with a closed cleaning fluid system which filters and reuses fluid, creating significant water and energy savings. The fluid normally consists of water and 1 to 5% detergent, depending on the application. The machines achieve excellent detergent economy, as the wash liquid can be reused for up to several months, depending on the degree of soiling.

Multiple-stage alkaline cleaning, descaling and rinsing, wax removal and rinsing, phosphating and rinsing, are just a few of the many functions offered as standards with the TEIJO multi-stage cleaning machines.

To reduce energy consumption, the maximum temperature of the washing fluid is set at 80 degrees Celsius. The short heating time and large fluid tank ensure that even the most soiled components are easily and reliably cleaned every time.

“Becoming a TEIJO distributor means that IWM has added another important family of product options for our customers,” explains Carl Hollier, managing director at IWM. “The TEIJO range of component washing machines complements our own food manufacturing and processing ranges. This collaboration will raise the profile of TEIJO machines here in the UK and it will help IWM to supply efficient and cost-effective solutions to suit an even wider range of customer requirements.”

## Let IWM clean up while you watch!

IWM is offering existing and potential customers the opportunity to bring soiled trays/baskets, racks, s/s Eurobins and utensils to the company’s totally refurbished demonstration area at its Birmingham headquarters and see for themselves just how quickly, easily and economically these items can be cleaned and sanitised by the latest products in the IWM range.

The new demonstration area has been constructed to represent a typical high care food industry washroom and is extensively equipped with machines capable of meeting almost every food industry hygiene requirement. All of the machines are fully operational and can be demonstrated at short notice.

# IWM offers complete turnkey package for logistics sector

Industrial Washing Machines (IWM) has recently delivered a complete turnkey solution to PHS Teacrate in Durham after a major investment at the distribution centre. The T2000 washer/dryer system is ideal for logistics operations and, thanks to a state of the art monitoring system; it helps save energy, water and gas.

Designed, manufactured and installed by the IWM team of engineers, the T2000 was created to wash and dry supermarket distribution crates, dolly's, plastic crates for foodstuffs and breadbaskets.

Robust, versatile and easy to use, the T2000 machine has a minimum throughput of 1600 trays per hour and a maximum of 2000 for light to medium soiled trays. The trays can be loaded and unloaded manually.

The high performance washing is achieved thanks to the stainless steel screw type nozzles that cover the product on a 360-degree angle. The high capacity tank holds 1500 litres of water, which is pushed through the system via six bespoke pumps with capacities ranging from 3.0 to 5.5 kW.

Equipped with a triple tank and two conveyerised lanes for incoming trays, the T2000 comes complete with a blow dryer module. Once the trays pass through it, they are quickly dried by the stainless steel high velocity air-knife system coupled to the fans.

Electricity, gas and water consumption are carefully monitored through purpose built monitoring systems including pulse-enabled gas, electric and water meters as well as a pulse-enabled waste monitoring irrigation meter.

In addition, the remote mounted control panel accommodates the water pump motor starters, rotary filter motor starters, conveyor motor inverters, a set of gas and fan burner controls, steam extract fan motor starters, dryer/blower fan motor starters, voltage transformers for 24 V dc control, set circuit breakers and mains isolator as well as standard switchgear.

Remote monitoring of energy is made simple thanks to the customised software created by IWM. The software allows users to interrogate data via a Siemens S7 PLC and a Siemen 10" HMI. The latter displays all necessary I/O interface modules, temperature analogue I/P cards, power supplies, and fault-finding display and control software.

"The project we did for PHS Teacrate was part of a major investment in plant and machinery," explained Carl Hollier, managing director at IWM. "We offered a complete turnkey solution which helped double PHS Teacrate's crate washing capacity and will generate up to 20 new jobs in the region. As it is the first of a new generation of high tech machines into the logistics market, we hope it will pave the way for many and exciting projects of this kind", he said.



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