

## NEW DRY POLYMER FEED SYSTEM MAXIMIZES POLYMER ACTIVATION

The PolyBlend(R) DP110 Dry Polymer Feed System is the new integrated sequential batch, continuous feed system from Siemens Water Technologies ([www.siemens.com/water](http://www.siemens.com/water)). It replaces the existing DP105 system and uses the same blending technology as its predecessor but at almost half the size. The DP110 system's smaller footprint makes it ideal for replacement and retrofit applications in water and wastewater treatment plants sized up to 38,000 metric tons/day (10 MGD) at a 1 mg/l dosage rate.

The DP110 system's unique mixing technology and innovative design provides consistent and reliable performance while optimizing polymer preparation and activation. In addition, it reduces polymer consumption and saves energy with a lower total current usage. The system's small footprint eliminates the need for multiple tank installations, reducing space requirements.

With the DP110 system, dry polymer and water are first mixed in the vortex created by the rotating tank impeller. The system is engineered to prepare polymer solution concentrations up to 0.3% by weight, with a maximum dry polymer feed rate up to 0.86 kg/h. The system is controlled through an easy-to-use microprocessor-based touch screen operator interface. The LCD display enables complete operation of all functions including dosage rates, solution concentration, run and flow totalizers and alarm conditions. The PolyBlend DP110 system



can also be supplied with a number of additional options including polymer solution transfer pumps and customized controls.

## TOPAS Dust Dispersers

- dust dispersing for filter testing according to ISO 5011
- wide dosing range
- automated control
- mass flow control



- accurate and continuous dosing
- wide dosing range
- especially appropriated for long-term tests

- defined and reproducible aerosol generation from test dust containing linters (fibrous materials)
- according to ASHRAE 52.2 EN 779



Topas GmbH  
 Wilschstraße 1 Phone +49 (351) 21 66 43 - 0 E-mail [office@topas-gmbh.de](mailto:office@topas-gmbh.de)  
 D-01279 Dresden Fax +49 (351) 21 66 43 55 Internet [www.topas-gmbh.de](http://www.topas-gmbh.de)

## PURIFICATION SYSTEMS IMPROVE EQUIPMENT LIFE

Parker Hannifin ([www.parker.com](http://www.parker.com)) has launched a range of portable purification systems which can significantly improve the performance and service life of a wide range of industrial machinery.

The new PVS systems are able to remove water, air and particulate contaminants from large volumes of hydraulic, lubricating and transformer fluids efficiently and automatically, considerably reducing maintenance and eradicating expensive downtime costs. Parker's PVS purifiers are able to remove 100% of free water and between 80 and 90% of dissolved water from fluid systems through heating and distilling the contaminated oil, minimising the problems associated with water contamination including corrosion, reduction of lubricating properties, reduced dielectric strength of transformer fluid and costly unplanned downtimes.

Once the water has been removed, the oil also passes through a filter for further purification (particulate removal), before being returned to the operating system. The PVS systems have been developed specifically for use in industrial locations, with robust stainless steel construction, caster wheels, forklift guides and lifting eyes for ease of portability, and compact dimensions to enable the machines to be installed quickly and simply on the factory floor. The PVS range currently consists of five models, with flow rates ranging from 18.9 to 170 l/min and the systems are suitable for a range of industrial applications including pump and paper, aerospace, railroad, steel mills, marine and power generation.

### OPTI CANADA USES ZIMPRO® WET AIR OXIDATION SYSTEM

OPTI Canada's Long Lake Project needed a system that would reduce costs associated with landfill disposal and waste for their "next generation" oil sands development, which integrates established and proprietary technologies. Combining Steam Assisted Gravity Drainage (SAGD) with OPTI Canada's OrCrude™ technology, hydrocracking and gasification, this system produces a premium synthetic crude oil. The Long Lake Project is expected to produce 58,500 b/d of products, primarily 39° API premium sweet synthetic crude oil. Asphaltenes from the OrCrude process go into a gasifier, which produces syngas (a mixture of carbon monoxide and hydrogen used to generate the steam required for the SAGD process and to further upgrade the synthetic crude) and a soot waste product which requires off-site disposal.

A Zimpro® ([www.siemens.com/water](http://www.siemens.com/water)) wet air oxidation system was chosen to treat the soot slurry for its ability to dramatically reduce the amount of wastewater solids requiring off-site disposal and make valuable metals in soot available for recovery as a potentially valuable product. Wet oxidation is the oxidation of soluble or suspended components in waste water using oxygen as the oxidizing agent. When air is used, the process is referred to as wet air oxidation. Wet Oxidation and Wet Air Oxidation (WAO) systems are used primarily for the treatment of high strength industrial wastewater streams.

Adding the Zimpro® wet air oxidation unit to the gasification process will reduce soot volume to about 10% of its original volume, substantially reducing the amount of material to be disposed. Ultimately, the system reduces the costs associated with landfill disposal and waste. In addition, the Zimpro wet air oxidation system will allow the recovery of valuable materials present in the soot, like nickel and vanadium.



### UV TREATED WASTEWATER IRRIGATING ARIZONA GOLF COURSES

UV treated wastewater is being used to irrigate two golf courses in the town of Anthem in Arizona, USA. Founded less than 10 years ago, Anthem, a town just north of Phoenix, now has a population of over 40,000. As part of its rapid expansion the town has recently installed Berson UV disinfection technology ([www.bersonuv.com](http://www.bersonuv.com)) to ensure its water and wastewater is as clean as possible.

The closed chamber, medium pressure UV systems allow the town to not only meet increased demands in its water and wastewater treatment capacity, but also to exceed the output quality standards. Two local golf courses are currently using a combination of UV treated wastewater and fresh river water for irrigation.



With the increase in population, it is expected that the courses will soon be using wastewater exclusively. "We have two treatment plants, one for drinking water and one for wastewater," explained Jeff Marlow, the wastewater foreman at Anthem. "The drinking water is treated by three PMD systems, handling a combined flow of over 26 million litres/day, while the wastewater is treated by three InLine systems handling a combined flow of over 11 million litres/day. Both the water and wastewater systems work in conjunction with microfiltration, while the wastewater plant also uses nitrification/denitrification."

"By reducing our dependence on chlorination, the water treatment units also allow us to minimise the output of chlorination by-products like Total Trihalomethanes (TTHM), while the wastewater systems are optimised to meet the upcoming Arizona Pollutant Discharge Elimination System (AZPDES) Permit Program," added Jeff.

### FILTER SUITS COMMERCIAL VEHICLES

Racor Filter Division Europe ([www.parker.com](http://www.parker.com)) has launched a high-performance transmission filtration product specifically designed for heavy duty and fixed bed commercial vehicles. The new filter's multi-layer synthetic micro-fibre media is designed to ensure maximum dirt holding capacity, for effective filtration and a long service life. The filter is capable of

providing greater than 99% efficiency against particulate contamination, helping to keep lubricating oils cleaner for longer and thus to protect drive and transmission components. It has been developed following extensive field trials, which resulted in a solution that is able to operate reliably and consistently at temperatures between -40°C and 130°C, making it ideal for use in vehicles around the world, regardless of environmental conditions. The filter offers flow rates of up to 30 litres a minute and can withstand operating pressures up to 7 bar.

### LARGEST GAS TIGHT HORIZONTAL VACUUM BELT FILTER EVER BUILT

Larox ([www.larox.com](http://www.larox.com)) recently delivered the largest, totally gas tight horizontal belt filter ever built. The Pannevis GT filter, with a filtration area of 3 m wide x 16.8 m long (50.4 m<sup>2</sup> total filtration area) was recently delivered for a solvent based edible oil application. Operating under a nitrogen atmosphere, the Pannevis GT filter offers total containment of solvent based processes in an inert environment for safe and hygienic processing of a wide range of products including fine chemicals, bio-products, solvent-processed foodstuffs, solvent wetted organic solids, pyrophoric materials and pharmaceuticals.

The filter as delivered was designed to work at temperatures below ambient and was equipped with 3x counter-current washing with the washes applied by banks of spray nozzles for maximum cake coverage during each wash stage. Washing of the filter cloth prior to discharge also ensured all possible solid phase product is recovered. Both the solid and liquid phases are further processed as valuable products in this application.

The Pannevis GT filter offers all the advantages of the standard Pannevis RT filter including capability to carry out co- or counter-current washing, reflux washing, vibration, all forms of mechanical compression and either hot gas or micro-wave drying. They can be configured in any combination of the above options for multi-step processing exactly as the standard RT filters.

The filter housing is normally operated with a slight internal over-pressure using nitrogen, which is continuously recirculated around the filter circuit so that all components including filtrate receivers and pumps are totally inert. A very small make-up of nitrogen is required to compensate for nitrogen exiting with the filter cake.

Large windows in the sidewalls and lights in the roof ensure complete visibility. The windows also provide local access within the housing. The floor and roof of the housing are

rounded while the sidewalls are flat so ensuring that all internal surfaces are easily cleaned and self draining. Clean-in-place (CIP) is a standard option and the filter is designed for sanitary processes as all dead spots are eliminated, windows and nozzles are angled to drain back into the housing and internal surfaces can easily be polished to a specified level.

The Pannevis GT filter is extremely reliable and maintenance is simple. All the major maintenance items including the cloth drive, bearings, pneumatic cylinders and sensors are mounted outside the housing, eliminating both the risk of product contamination and the need to access the inside of the filter housing for normal scheduled maintenance. Thus the inert integrity of the filter is maintained at all times. Continuous filter cloth cleaning eliminates cross contamination and guarantees 100% product recovery, as cloth wash liquid can be recycled over the filter cake for total solids capture. Batch identification, when required, is easily achieved by carrying out semi-continuous operation. Full validation procedures to meet all FDA final product requirements are proven and available. When operating with solvent, the filters meet all the requirements of ATEX 95 category 2.



### COMPLETE SEPARATION UNITS IN A HYGIENIC DESIGN

Westfalia Separator ([www.wsgb.co.uk](http://www.wsgb.co.uk)) offer a range of customised separator units that have been specifically designed for use when it is imperative that mechanical separation processes are carried out under hygienic or aseptic conditions, for the safety of employees and for the production of contamination free end products. The Westfalia Separator hygienic design, self-cleaning disc stack separators come complete with controls and ancillary equipment as a single packaged unit, assembled on a frame for easy installation and operation.

With a double mechanical seal separating product environment from the drive chamber, the Westfalia separators permit closed product handling without the risk of contamination from external foreign bodies or the risk of escape of materials.

Using the Westfalia HydroStop system, which allows precisely adjusted ejection, solids are automatically discharged by opening the bowl of the separator with the ability to pre-set discharge volumes to achieve maximum solid concentrations and minimum discharge times of <0.1 s. Gentle feeding of the product into the bowl using the hydrohermetic feed system means shearing forces which might damage delicate products

are avoided, making the system ideal for bio-tech applications. In addition, compared with fully hermetic machines, the Westfalia system does not have any seals that may wear out in the product chamber so it is not possible for worn seals to contaminate the product.

The unique design of the Westfalia disc stack separators and special manufacturing technology mean there are no dead spaces or seams where bacteria can collect and endanger the purity of the product. The special seals and seal grooves used in the centrifuge also feature minimum dead spaces and can be thoroughly flushed during cleaning in place. The stainless steel surfaces can be polished up to RA <0.6 micron.

CIP of all product contact areas is completed using spray nozzles which direct cleaning liquid to difficult to reach areas. Should steam sterilisation be required, Westfalia sterilise the whole installation, including the separator. As it is necessary to maintain temperatures of >121°C throughout the sterilisation process, the separator is designed as a pressure vessel up to 2.5 barg. After completion of the sterilisation process, the packaged unit is blanketed with sterile air to avoid the external penetration of bacteria so that the separator and the installation can easily be kept sterile until the next production process.

## NETWORKED CONDITION MONITORING OF AIR ASSETS

domnick hunter ([www.domnickhunter.com](http://www.domnickhunter.com)), a leading provider of compressed air treatment, gas generation and process filtration solutions offers a comprehensive range of networked condition monitoring services, including leak detection, particle counting and air quality management surveys, via a dedicated service team. The latest service offering is a networked condition monitoring (NCM) device that effectively monitors and records operating data from a wide range of assets, including compressed air dryers and gas generators. The data logging and trend analysis capability of NCM provides real-time data which not only ensures that the condition and performance of the equipment is continuously tracked, but also allows domnick hunter to audit systems and make specific operational recommendations that enable customers to maximise utilisation and energy efficiency savings. The latter is now a priority for most businesses given today's rising energy costs and climate change taxation.

Darrin Leahy, Aftermarket Business Development Manager at domnick hunter, says "NCM is an exciting addition to domnick hunter's service capabilities. It provides continuous networked condition monitoring so that customers can ensure optimum performance of equipment throughout their production cycle". NCM, which can be easily retrofitted to existing equipment, constantly gathers and transmits information such as pressures, dewpoint, gas purities and temperatures to a central server at regular intervals. This improves accuracy by avoiding time spent with trial and error troubleshooting, ensuring service engineers have the right information at the onset. The ability to monitor vital parameters is standard practice amongst many industries, for example food manufacturers are now able to check dewpoint temperatures of compressed air and take action to prevent spoiled batch runs, electronic component manufacturers are able to monitor nitrogen gas purity and take action to prevent high oxygen levels causing weak solder joints.

## PRESTIGIOUS CONTRACT RENEWAL WITH HEIDELBERG CEMENT

Donaldson Membranes ([www.donaldson.com](http://www.donaldson.com)) has again been awarded the order for 16,000 m<sup>2</sup> Tetratex ePTFE filter media for CBR, Lixhe, a subsidiary of Heidelberg Group in Belgium. The bags and services at the site including assembly were supplied by TTL-France, a subsidiary of Testori Group. Tetratex ePTFE filter media was originally selected after discussion with the OEM, Redecam and the bag manufacturer Testori to meet the strict emissions requirements, the severe working conditions and the bag life expectations by Heidelberg. The choice has proven a great success story with results above expectations. Dust emission is currently below <0.5 mg/Nm<sup>3</sup>.

Mark Rigby, Director of Donaldson Membranes said "We are delighted to have won this contract again. The excellent results and performance achieved by our filter media originally supplied at Lixhe together with our partners Testori/TTL-France have enabled us to renew this prestigious contract against severe competition. We look forward to working with Heidelberg Cement in its ongoing projects to increase production and meet environmental requirements."

## BAYFILTER™ BOASTS THE GREATEST FLOW RATE IN THE STORMWATER INDUSTRY

BaySaver Technologies, Inc. ([www.baysaver.com](http://www.baysaver.com)) has announced the launch of its new BayFilter stormwater filtration system. After nearly a decade of research and development, the new multi-layered underground sand filtration system removes very fine sediment and nutrient pollutants from stormwater runoff at an astounding flow rate of 30 GPM per cartridge – twice the flow rate of any other filter cartridge in the stormwater industry.

As stormwater makes its way through 43 ft<sup>2</sup> of surface area per cartridge, BayFilter removes more than 80% TSS (d<sub>50</sub> = 23.2 microns) and greater than 50% of total phosphorous including dissolved phosphorus. It also boasts a 50% reduction of turbidity. The filter's unique hydrodynamic backwash self-cleansing component dislodges pollutants and restores the porosity of the media after every storm, contributing to efficient operation, extended maintenance intervals, and a long product lifespan. "We customize each BayFilter system to assist specifying engineers, regulators, developers and contractors with regulatory compliance, limited space conditions, and installations in ecologically sensitive areas" says John Mosheim, P.E, BaySaver's Director of Engineering. "Based on flow capacity and treated sediment load, as well as local jurisdictional sizing criteria, each BayFilter system is designed for maximum efficiency and performance."

## FILTRATION

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### SCREENING UNITS HELP ENSURE CLEAN BEACHES

The new Southern Water GBP80 million wastewater treatment works for the Margate and Broadstairs catchment area is under construction to meet the stringent European Urban Waste Water Directive. As well as bringing extensive environmental benefits to the area, it will help local beaches meet the European Bathing Water Directive and boost the tourist trade. The installation of four of the Hydro International SludgeScreen screening units was essential to protect the treatment process from excessive incoming rag (www.hydro-international.biz).

The new works are being built next to the existing Weatherlees WTW near Sandwich, which already separately treats wastewater from Ramsgate, Deal and Sandwich. The new works will also take wastewater pumped from Foreness Point and North Foreland WTW via nearly 15 km of new underground pipeline, and will treat 20 million litres of wastewater generated daily by the 93,000 Margate and Broadstairs residents and visitors.

Project engineer Alan Coles of consulting engineers Black and Veatch commented: "The four Hydro SludgeScreens are required because some of the untreated wastewater from particular areas has a high rag content, which needs to be removed before the full treatment process. The screens operate with three in operation and one on standby to minimise any downtime. They are installed on a single concrete plinth, over skips which collect the rag for disposal; their small footprint is ideal for a modern treatment works."

The new process will see the solid waste including rag content removed at the Margate Headworks targeted by the Hydro SludgeScreen, the wastewater will then flow to Weatherlees Hill WTW to undergo full treatment including disinfection with UV before pumping it back to Margate WTW for safe release out to sea through the existing long sea outfall.

### FILTRAMAG ADOPTED ON DRAX PULVERISING MILL GEARBOX

Drax coal fired power station, near Selby in North Yorkshire, is the cleanest and most efficient coal-fired power station in the UK. The output capacity of the six turbo-generators is an impressive 4,000 MW, and can currently provide enough power to meet 7% of the UK electricity requirement. Each turbo-generator is supplied with superheated steam from a dedicated boiler, which burns pulverised fuel supplied by 10 grinding mills. Following exhaustive trials the Eclipse Magnetic Filtramag has been selected as the preferred filtration system for the lubrication oil of the heavy-duty gearboxes fitted to the coal pulverising mills.

To ensure that maintenance down time is minimised, an Eclipse Magnetic Filtramag filtration system (www.eclipse-magnetics.co.uk) is fitted along with a circulation pump, a motorised cooling fan and a thermostatic temperature control, onto an interchangeable transportable platform, containing quick release couplings. As part of a rolling programme less efficient filters still used on many of the pulverising mills will be replaced by Filtramag units, as each mill is taken out of commission for major maintenance work.

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**Industrial Process Division,  
Thomas Broadbent & Sons Ltd.  
Huddersfield HD1 3EA England.**