



GreenLink

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World class liquid transfer solutions

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Foreword



Anuj Bhagwati, Head - A.T.E. group

Dear Readers

Water is critical to all life – human, animal and plant. And so it's also the basis of human welfare. Huge strides in human health in the past century have been possible only because of safe drinking water and better sanitation for more and more people.

Agriculture and animal husbandry have also benefitted enormously from advances in water management. As water is an excellent solvent, it's also essential to most industry as a process fluid. Its unique thermal characteristics have made water an integral part of the utility and energy industry. Managing and moving water is hence one of the most basic operations underpinning modern life.

The earth's population and increasing economic development have both put pressure on resources, especially water and clean energy. In past issues of GreenLink we've seen what A.T.E. can do to protect and recycle water, thus working to mitigate issues of water quality and water availability. In this issue, we look at another business that also furthers A.T.E.'s environmental goals – the flow technology business.

Let me explain the link between flow technology and the environment in more detail. The biggest single use of water is actually in cooling power plants. In addition, the biggest single use of power is in moving water around. This circular connection means that in order to tackle environmental issues, we will have to find ways to move water around more efficiently. And that's what A.T.E. tries to help you do through its flow technology business.

Thanks to pumping and control system advances, it's now possible to manage high water availability with reasonable energy costs. This requires the selection of the right high-tech pump for every application. A.T.E.'s team of expert engineers works hard to find every customer the right solutions that optimise life-cycle costs.

I'm sure you'll find it useful to go through the next few pages, which give you an in-depth view of our principals and our product range, describe an interesting application of an online pH controller, let you hear directly from one of India's largest municipal corporations, and explain A.T.E.'s well tested but newly launched solar thermal solution.

With best wishes,
Anuj Bhagwati

In Focus

Flow management – providing the highest efficiency

A.T.E. entered the pump business more than three decades ago. Over time, A.T.E. has built up deep knowledge across industry verticals for a number of applications spanning a range of flow rates, pressures, viscosities, and fluid types. Hence A.T.E. is recognised as an expert providing efficient solutions for water management. With this domain knowledge, coupled with a strong reputation for impeccable customer service, A.T.E. has established itself as a reliable partner for all liquid transfer solutions.

Today, A.T.E. offers a wide range of high technology pumps for a variety of applications representing some of the world's best brands such as Sulzer (ABS), Iwaki, Yamada, Ebara, and also A.T.E.'s own TeraFlow brand of vertical multistage stainless steel centrifugal pumps and the hydropneumatic system BoostStar. The portfolio of brands also includes Walchem controllers.

The water management solutions offered by A.T.E. are handled by its Flow Technology business unit. Our wide product offerings range from centrifugal and positive displacement pumps, submersible dewatering and drainage pumps, process pumps, multistage stainless steel pumps, dosing and metering pumps, hydro-pneumatic pressure boosting systems and grease lubrication systems, and controllers. The application areas encompass water distribution and management, wastewater handling, dosing system in cooling towers, dewatering, HVAC, boiler feed and blow down maintenance, humidification, and specific textile applications in processes of dyeing, scouring, bleaching and mercerizing. Our end-to-end solutions start with studying the application requirements, selection, precise sizing, integrating and supplying of pumps and systems with knowledge based application engineering and

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Energy efficient pumps from A.T.E.

backed by excellent installation, commissioning and after commissioning services.

A.T.E. works across industry verticals like textiles, water treatment, pharmaceuticals, chemical, healthcare, food-processing, and also municipal and infrastructure water and wastewater projects and building services segment. A.T.E.'s impressive list of customers include many leading corporates such as:



A.T.E. has also successfully executed several large scale infrastructure projects with many major municipal corporations of India, such as Kolkata Municipal Corporation, Ahmedabad Municipal Corporation, Delhi Jal Board, etc.

A.T.E. has recently undertaken a major revamp of this business unit to efficiently handle the enhanced portfolio of products, projects, and solutions with excellent service support. The revamp has seen the expansion of its team of professionals to handle sales and service, a renewed focus on service, and robust inventory management to ensure quicker turnaround times for orders.

Here is an overview of the principals represented by A.T.E.

ABS Pumps – Sulzer Group, Germany

ABS Pumps is a 140 year old organisation and today forms a part of the Swiss multinational Sulzer Group. ABS are world-leaders in products and solutions for the water and wastewater industry.

ABS manufactures highly efficient submersible sewage and storm water pumps ranging from 1 kW to 1000 kW, mixers, aerators, agitators, flow boosters, etc., for a wide range of applications such as dewatering, wastewater, sewage and effluent, sludge handling, mixing, aeration and stirring applications.



ABS pump in action

Ebara Corporation, Japan

Ebara Corporation is a Japanese engineering multinational established in 1920, headquartered in Tokyo, Japan, and has over forty subsidiaries across five continents.

Ebara offers the most comprehensive range of centrifugal surface and submersible pumps in SS sheet metal and cast iron construction. The offering covers a wide range of clear water and drainage handling applications that includes building services, industrial utilities, pressure boosting systems, HVAC, water treatment, dewatering, firefighting.

Iwaki Co. Limited, Japan

Iwaki Co., a renowned engineering and manufacturing company, has been a leading producer of chemical pumps since 1956. Iwaki is the world leader in dosing and metering pumps and specialises in seal-less magnetic drive centrifugal pumps.

Iwaki pumps cover a wide range of applications viz., chemical dosing for industrial processes such as pharmaceutical, food and beverage, paper and pulp, sugar, textile, etc., dosing for water treatment, swimming pool chlorination, electronics and semiconductor industry applications, food and beverage processes, fire-proof motor applications, accurate transfer of strong acid, proportional feeding of additives, chemical liquid concentration control, automatic pH control, liquid sampling/metering setup and accurate quantity spraying.

Yamada Corporation, Japan

Yamada Corporation has over 100 years' experience in the design, manufacture and distribution of fluid handling products. An industry leader in Air Operated Double Diaphragm (AODD) pumps, piston pumps, ink pumps and industrial lubrication equipment, Yamada's technology has been typical of Japanese reliability and technology, serving various industrial geographies and applications world-wide.

AODD pumps working with air pressure eliminate the need for a mechanical seal, motor, or any other accessories. The pump is a self-priming constant efficiency pump and can also be used in submerged conditions and is the best solution for an explosion proof environment.

Walchem, Iwaki America Incorporated, USA

Established in 1989, Walchem is a leading manufacturer of online analytical instruments. Walchem provides controllers for chemical treatment of industrial water. Walchem integrates advanced sensing, instrumentation, fluid pumping and extensive remote data communications technologies to deliver innovative solutions to the global water treatment market.



Walchem controllers

In addition to these global brands, A.T.E. has also launched its own brands of pumps and systems for a variety of water management applications.

TeraFlow vertical multi-stage stainless steel centrifugal pumps

A.T.E.'s TeraFlow vertical multi-stage stainless steel centrifugal pumps are designed and engineered to deliver the best possible hydraulic efficiency in

A.T.E. has also launched its own brands of pumps and systems for a variety of water management applications.

diverse applications such as water supply in industrial and commercial establishments, industrial washing plants, water treatment plants, etc. The inline design of the TeraFlow pump makes it compact and easy for installation. TeraFlow pumps are equipped with mechanical shaft seals of detachable cartridge type for easy maintenance. The TFVI and TFVL series of TeraFlow pumps are standardised pumps made of all stainless steel 304/316 construction.

BoostStar Hydropneumatic (HyP) systems

A.T.E. BoostStar Hydropneumatic (HyP) systems are engineered using the most stringent quality standards. At the heart of BoostStar HyP systems are A.T.E.'s TeraFlow centrifugal pumps and instrumentation & control systems made of the best control gear. The scalable design of the BoostStar HyP systems enable a variety of configurations, ranging from fixed speed systems to advanced and fully automated variable speed systems. The BoostStar HyP systems are available in a wide-range of configurations of pumps (vertical, horizontal, submersible), and with varying levels of automation and intelligence and are designed for the lowest total cost of ownership.



A.T.E. BoostStar at Thermanx

A.T.E. – committed to sustainability

A.T.E. has always been committed to sustainability. In line with its theme of 'Partnering People & the Planet', A.T.E. has also created and deployed several original and sustainable products and solutions that include industrial IoT and Machine-to-Machine (M2M) based remote monitoring, wastewater treatment, eco-friendly cooling, and concentrated solar thermal system, thus encompassing three essential elements of life: **A**ir, **w**aT**e**r, and **E**nergy.

With such a strong commitment to sustainability and with its pan-India sales and service network and with a subsidiary office in Bangladesh, A.T.E. is well positioned to serve every need of industries for efficient and effective water management.

Clean Talk

Kolkata Municipal Corporation (KMC) is one of the large municipal corporations in India. A.T.E. has partnered with KMC for the successful execution of several mega-wastewater management projects since 2009. In an interview with A.T.E., Mr P J Biswas, Technical Advisor, talks about the corporation, and their experience dealing with A.T.E. over the years.



P J Biswas, Technical Advisor, KMC (S&D)

A.T.E.: Can you brief us about Kolkata Municipal Corporation (KMC)?

Mr Biswas: KMC was set up in 1726 and its management consists of a Mayor and 9 aldermen. KMC is one of the largest and oldest corporations in India managing the city of 10 million (resident and floating combined) population. KMC is responsible for supplying 350 MGD water, clearing 4000 MT of solid waste

per day, managing 136 clinics and 119 health units and running 358 primary educational schools with more than 40,000 students. In the last few years, KMC has brought about a phenomenal change in Kolkata by upgrading basic infrastructure, revamping inefficient administrative processes and introducing some innovative strategies for improved delivery of citizen services through its 42 departments to provide various services to the citizens of Kolkata.

A.T.E.: What were the challenges faced by KMC in wastewater management?

Mr Biswas: KMC has 62 drainage pumping stations within Kolkata, which are combined pumping stations pumping sewage during dry weather and storm water with sewage during rains. Managing these stations is a big challenge as Kolkata has common sewage and storm water channels. Like in other cities, in Kolkata too civilians use sewerage lines/open drains as dustbin for dumping all rubbish – whatever is not needed in the houses, factories or offices is dumped into the open drains. During storm weather we have huge problems as on one hand we have to fight against rain water flooding and on the other hand the sewage lines are filled with tyres, video tapes, tannery waste, plastic bottles and a lot more.

All this junk ultimately reach the pumping stations and thereby into the sewage pumps. This causes choking of sewerage lines and damages the sewage pumps.



Installation at KMC

This is why KMC always opts for most reliable equipment. KMC has always been a pioneer in implementation of modern and dependable technology so as to meet all emergency situations.

A.T.E.: Could you please tell us the steps you have taken in the area of wastewater management?

Mr Biswas: We took a series of steps for the efficient management of wastewater, some of which are:

- Replacement of the old vertical turbine pumps with highly efficient submersible pumps. In 1997 the first submersible pump for wastewater in India was installed in KMC.
- Developing screening system.
- Cleaning/de-siltation of old sewage lines, some of them built during British rule. This work is under progress.
- Construction of new drainage system in the areas which do not have proper drainage system.
- Setting up of new sewage treatment plants.

A.T.E.: Could you please tell us what factors influenced your decision to go with A.T.E. for your sewage pumping solutions?

Mr Biswas: We found A.T.E. to be a very reliable flow technology solution provider in terms of its pre-sales technical services, product offerings from globally reputed pump companies, and its competency in wastewater field. A.T.E. offers sewage and storm water pumps with skewed type impellers.

We found A.T.E. to be a very reliable flow technology solution provider

A.T.E.: *Could you please tell us your experience dealing with A.T.E. in the execution of projects you have done with them?*

Mr Biswas: The execution team at A.T.E. possess good technical skills and have good professional approach. They are quite result oriented and committed to meeting execution deadlines. We found them responsive in providing emergency support and immediate solution to resolve the service related issue.

A.T.E.: *In all how many ABS pumps are currently working in KMC and how you find the performance of these pumps?*

Mr Biswas: We have in all 31 ABS submersible pumps currently in use. The pumps range from 37 kW ratings to 273 kW. The first pump was installed in 2009 at Thanthania drainage pumping station.

Our experience with ABS pumps is quite satisfactory. Even the pumps installed in 2009 are working very satisfactorily. Through our experience we find that ABS submersible pumps with special non-clog semi-open, skew type impellers with internal spiral are quite suitable for our type of applications. This design has proved to be the best we have till now as they give trouble-free service and can handle rags, fibrous materials, etc.

Our experience with ABS pumps is quite satisfactory. Even the pumps installed in 2009 are working very satisfactorily.

A.T.E.: *How do you find the services from A.T.E.?*

Mr Biswas: As I had mentioned earlier, A.T.E.'s service in Kolkata is quite responsive and satisfactory. It has a good customer support team and competent service engineers based in Kolkata.

A.T.E.: *Do you look at A.T.E. as your long-term partner?*

Mr Biswas: Yes, we expect A.T.E. will maintain its excellent technical/service support in future as well.

Product Showcase

Morarjee Mills gets consistent fabric quality with Walchem controllers

A.T.E. provides advanced technology for chemical control in various applications. The case study shows how a customer was able to get uniform fabric quality with automated chemical control provided by A.T.E.

Background

Morarjee is a leading player in the premium cotton shirting fabric and high fashion printed fabric segments. Morarjee's subsidiary company, Integra Apparels and Textiles Limited, specialises in readymade garments. Both companies sell their products globally and are extremely quality conscious.

Challenge

Finished fabrics are washed in a print washer, which carries out a multi-stage washing process. First the fabric passes through a bath of caustic solution, which is alkaline in nature, followed by a bath of acetic acid to neutralise the alkalinity in fabric, and finally into a rinsing bath. The acetic acid bath solution needs to be maintained at a precise pH level for optimum fabric washing and also to prevent damage of the fabric texture.

The critical part of the whole process is maintaining the permissible pH level of the acetic acid washing solution in the bath consistently and accurately based on different fabric characteristics and reactions. The usual practice by the plant operators is to measure the pH value of acetic acid bath manually and then add chemicals to get the desired recipe. It is however very difficult to maintain a consistent pH level by this method. Manual operation also leads to:

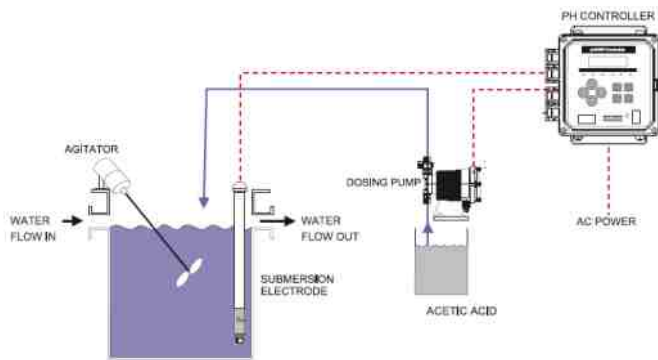
- Process and production delays
- Inaccurate recipes
- Improper cleaning of fabric
- Extra man-hours
- Wastage of expensive chemicals

Solution

After a comprehensive study of the system, A.T.E. installed an integrated solution based on a Walchem "online" pH controller WPH410 with an inline pH sensor which continuously senses and measures the pH levels of the solution in the bath, and a



Walchem controllers



Flow diagram of dosing system

bellows pump, all mounted on a single skid. Accordingly, the controllers operate the dosing pump/s to dose the required measure of chemicals proportionately into the bath so as to keep the pH values at the desired level. The total process of measuring and dosing is fully automated.

Result

With the Walchem automated process, Morarjee Mills has been able to gain following benefits:

- Consistency of fabric quality
- Accurate online chemical dosing
- Maintaining of precise pH value of acetic bath solution recommended for each type of fabric
- Saving of expensive chemicals
- Increase in productivity
- Fully automated operation without any manual intervention

Naturally, Morarjee Mills is fully satisfied with the results after the installation of the Walchem controller, and this also shows the way forward for other mills for ensuring consistent fabric quality.



TechUpdate

A.T.E. Concentrated Solar Thermal system – harness the power of the sun

Rising fuel prices and climate change are two major reasons why manufacturers around the world are evaluating different methods to harness renewable sources of energy. One such source of unlimited, clean energy is the sun. India's tropical climate makes it an ideal candidate to deploy emerging renewable energy technologies that make use of solar energy; every day, India receives millions of watts of solar energy.



A.T.E. solar thermal concentrator

With energy efficiency and renewable energy as key approaches to reduce the demand for fossil fuels, A.T.E. has developed a Concentrated Solar Thermal (CST) system that provides low-cost thermal energy for various applications.

A.T.E.'s solar thermal concentrator follows the sun in the sky to ensure that the maximum amount of solar energy is captured. This energy is concentrated on to a receiver (filled with water) that is mounted at the focal point of the dish, thereby, generating steam.

The thermal performance of A.T.E.'s CST system is as follows:

Particulars	Value
Rate of steam generation*	100 kg/day
Dryness fraction of steam	> 85%
Annual steam generation	24000-30000 kg/year
Rated thermal power [#]	13.75 kW
Environmental impact (direct)	Reduction of 11 tonnes CO ₂ /year of operation

*Average rated conditions DNI 5.2 kWh/m²/day

[#]Rated conditions at DNI 1000 W/m²

A.T.E.'s solar thermal concentrator produces both steam as well as hot water, which can be used for various applications such as pasteurisation, cooking, extraction, sterilisation, and for boiler feed water and clean-in-place applications.

A.T.E. is empanelled as a manufacturer with the Ministry of New and Renewable Energy (MNRE), Government of India. The performance of the A.T.E. solar dish concentrator has been certified by MNRE's Regional Test Facility at the University of Pune.



Fact Sheet

2 MLD Sewage Treatment Plant commissioned at Rashtrapati Bhavan

A.T.E. Envirotech along with its principal, Huber, Germany, has supplied all critical equipment required for the 2 MLD (Million Litres per Day) Sewage Treatment Plant (STP) installed at the President's Estate at Rashtrapati Bhavan, New Delhi. The treated water is to be used for horticultural purposes in the Mughal Gardens, located in the Estate.



Honourable President of India, Shri Pranab Mukherjee inaugurated the STP

This prestigious project was inaugurated on 8 June 2015 by the Honourable President of India, Mr Pranab Mukherjee, in the presence of the Lieutenant Governor of Delhi, Mr Najeeb Jung, and the Chief Minister of Delhi, Mr Arvind Kejriwal.

IIT Delhi provided technical consultancy services for the project and L&T were awarded the construction, operations, and maintenance of this project.

The critical equipment supplied by A.T.E. and Huber for the state-of-the-art STP include manual bar screens, rotary drum and mechanical screens, grit separation and treatment machinery, control panels, and belt conveyors. The grit separation and treatment machinery installed consists of Huber's well-known Vortex grit separator, which has a separation efficiency of 95% (for grit particles that are >0.3 mm) and Vortex grit washer which guarantees 98% removal of grit particles that are greater than 0.15 mm. A.T.E. also handled the installation and commissioning of the equipment that were supplied.

A.T.E. Envirotech has a wide range of innovative and well-proven technologies and provides comprehensive and cost-effective wastewater treatment and recycling solutions – including zero liquid discharge – for a wide range of applications. A.T.E. has successfully executed over 200 projects across 10 countries. For the clean and safe disposal of sewage, A.T.E. also provides technologies from Huber SE (Germany) – a world leader in wastewater treatment. Huber has over 35,000 installations worldwide and a presence across 60 countries.



EcoTouch

Sustainable solutions for the cities of tomorrow from A.T.E.

The first Smart Cities India Expo was held this year from 20-22 May, at Pragati Maidan, at Delhi. The expo was organised in the wake of the Indian government's plans to build 100 new smart cities and drive infrastructure development for 500 cities with an allocation of \$60 billion for the Smart Cities project in the 2015-16 budget.

The A.T.E. group participated in this exhibition with the thought-provoking theme of "Ideas that impact India". The 76 year old group has a wide range of innovative and well-proven technologies to make smart cities environmentally and economically sustainable. A.T.E. had on display its innovative IoT-based remote monitoring solution, its revolutionary FAAC (Fresh Air Air-Conditioning) cooling solution, a comprehensive range of wastewater treatment solutions, a range of energy efficient pumps and booster systems, and a Concentrated Solar Thermal (CST) system that reduces carbon emissions.



A.T.E. at Smart Cities Expo 2015

The exhibition was packed with government officials, investors, industry leaders and experts from around the globe to discuss and exchange ideas, information, project reports, etc., on the opportunities and future requirements for developing smart cities in India. A.T.E. intrigued the visitors with its innovative and energy efficient solutions that were displayed.

