



Insider 1/2011

GEA Tuchenhagen Magazine

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Imprint

Editor: Jürgen Henke

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Suggestions and Questions?
We appreciate any comments on this issue,
your contact: juergen.r.henke@geagroup.com

On the occasion of the 80th anniversary of GEA Tuchenhagen, Insider's editorial team has invited Mr. Franz Bürmann, Managing Director of GEA Tuchenhagen GmbH, to an exclusive interview. The interview was conducted by Jürgen Henke.

80 years of GEA Tuchenhagen: definitely an occasion for celebration and also a reason to pause for a moment and to take stock of the past and a look at our future...

When the company was established in 1931 by Otto Tuchenhagen, the foundation was laid for the development of a highly successful business over the next eight decades. In the years after 1995, when we became a member of the GEA Group, GEA Tuchenhagen emerged definitively as one of the three leading component manufacturers in the world. The integration into the GEA Group has helped us considerably to achieve this. After the reorganization of the GEA Group into six segments in 2010, we are now part of the GEA Mechanical Equipment segment together with GEA Westfalia Separator Group and GEA Niro Soavi – and to sum things up: we are truly benefiting from this realignment, both in our daily business and with regard to our strategic development.



Could you explain these strategic goals in more detail?

As strategy is always based on today's actual situation, I'd like to begin by saying that our business development has been extremely positive in the past two years. We're now even expecting to surpass by far the previous sales record set in 2010.

And we're not only talking about GEA Tuchenhagen in Büchen: our Flow Components Business Unit also includes our locations in the United States, Canada, China, Poland, France and England. All put together we are heading towards sales of more than 100 million

Euros. We've managed to achieve this thanks to the dedication and motivation of our 500 employees in this Business Unit. To come back to our strategic outlook, we are focusing on the ongoing expansion of our market position as technology leader for components for the food industry, mainly in the field of valves, pumps and cleaning devices. To accomplish this, we are planning investments to expand our production facilities here in Büchen as well as in Poland and Asia.

We want to strengthen our global position, to consolidate and further increase it. Today, we have an export percentage of roughly 75% of our sales: 25% is distributed throughout Europe and 20% each to the USA and Asia. In the United States, our continued sales presence, in conjunction with new products specific to this market, have helped to substantially boost sales in this area. Asia, with its dynamically grown markets, is always a challenge. We must, and want to, do more here – with products specially configured for this customer group and are manufactured locally to

80 Years GEA Tuchenhagen

keep them marketable and competitive. We are also keeping an eye on Latin America as we'd like to benefit from the positive developments that can be seen happening through this region.

Looking at the situation for Büchen, what role do you think our facility and our staff here will play in the company's future?

To say it in three words: a strong one! For GEA Tuchenhagen, the local environment has always been important and we support the region with numerous activities, from kindergarten to sports events. Our employees live and work in the region. Many have been with the company for several years and are dispensable in building our know-how base.

And as far as the future is concerned, we are already in a good position. GEA Tuchenhagen's vocational training program has long been considered exemplary and top-rated. We offer dual-mode courses in Industrial Engineering, Business Management and Mechanical Engineering in cooperation with the Nordakademie and HAW Hamburg. We also offer vocational training for industrial management assistants, industrial mechanics and metal cutting mechanics.

Among our staff of 360 we have 28 apprentices. And not to forget: we regard this vocational training quality as our bridge to the international tasks in our company.

The much-cited catch phrase of an innovative company turns up again and again, what do you think about that?

A company that wants to be successful in today's global market must be innovative in many respects. First is our products: factors like energy efficiency, careful use of energy, water, gentle product handling as well as sustainable and environmentally compatible production processes play an increasingly significant role.

The processes in our company also require constant improvement and adjustment to the relevant situation. This includes the manufacturing process and turnaround time in our production facilities; being flexible and efficient isn't an option but a requirement for our everyday business.

Thanks to "vigorous" innovation and investment in the past few years we have established ourselves as a serious manufacturer of pumps for hygienic applications and wish to expand this business field even further. Revenue yielded from cleaning technology has also increased significantly, thanks to the acquisition of another company, and unit assembly has achieved positive growth rates in the upper segment.



And how will we present all this to our customers?

Another important question and the way we solve it will be critical for the success of our company – and increasingly so in this world of ever faster communication. Customer loyalty, for instance. In the past few years we have achieved this through our Tuchenhagen Innovation Center, where we have organized and held technical forums, seminars and training courses on all aspects of components and their application in an ongoing dialogue with our customers. Now, with some pride, we are looking back at 20 events with roughly 400 international participants every year. Customer Information is another important field. On average, we attend well over 30 trade fairs, conferences and symposia throughout the world. We use this platform to present our components, provide information and discuss details



face to face – and, it goes without saying, this is also the setting to demonstrate our potential to new customers. The direct dialogue is very important to us. This includes the day-to-day contact between our employees and our customers. And when further developing our communication paths we will also be focusing even more on modern media such as Twitter and Facebook.

Perhaps some closing words?

In the past 80 years, GEA Tuchenhagen has been successfully established as an internationally renowned company. We would like to continue to strengthen the market position we have gained by offering our customers the best solutions. The GEA Group creates excellent conditions for us to succeed in this objective. We have a great company with positive thinking, motivated and competent employees. So I'm very confident that we will manage to attain our ambitious goals in the coming years.



NEW: Orbital cleaners TMC 45 & TMC 85 with pneumatic motor

The GEA Tuchenhagen GmbH extends its product range of the VARIPURE cleaning devices. Besides the planetary gear motor we are pleased to offer a pneumatic drive motor for the orbital cleaners TMC 45 & TMC 85 from now on.



The pneumatic drive motor leads to the following advantages:

- No power connection required
- High torque compared to multi-disk motor
- Decreased running noise compared to multi-disk motor
- Small frame size
- Reduced weight
- Very low compressed air consumption



For more information about our VARIPURE cleaning program see:

WEB

www.tuchenhagen.com/components/cleaning-product-recovery/orbital-cleaners

Brochure:

- VARIPURE Orbital Cleaners (612e)

To request brochures please contact: juergen.r.henke@geagroup.com

The new, updated components catalogue 2011 has been issued!

GEA Tuchenhagen components for liquid processing:

See our complete product range, available as print version or on CD!

Save your GEA Tuchenhagen catalogue now, with all product types and sizes in detail:

- Valves (VARIVENT®, ECOVENT®, STERICOM®, VESTA®)
- Actuators and accessories (VARIVENT®)
- Special valves
- Butterfly valves (T-smart)
- Process connections (VARINLINE®)
- Cleaning technology (VARIPURE)
- Pipe connections
- Pumps (GEA Tuchenhagen®-VARIFLOW)
- Expansion compensators (VARICOMP®)
- Product recovery systems (VARICOVER®)
- Tank safety systems (VARITOP®)



More information about our new GEA Tuchenhagen catalogue see:

WEB

www.tuchenhagen.com/library/catalogue-process-components

To request brochures please contact: juergen.r.henke@geagroup.com

On the Web: All GEA Tuchenhagen websites now reflect the merging and growing of the GEA Mechanical Equipment Segment

This headline sums up a significant achievement. The project began with the companies of the GEA Mechanical Equipment segments agreeing that the various company websites should be set up in the same program and run on the same server."

For specialists it will be obvious what this means but, in a nutshell, all data, text, illustrations and photos – each and every character of the existing websites – had to be loaded

into the new program. Our goal of improving user-friendliness for ease of locating relevant content of our sites has been achieved.

One specific user-friendly improvement: a special, password protected download area (ExtraDownload) was created where our customers can download our operating manuals in PDF format.

The new GEA Tuchenhagen websites are now available for the USA, Poland, France and Germany in the applicable language. A new edition, we are proud to announce, is our Chinese language website, which enables us to effectively support our market activities in this region.

Here are the current web addresses:

www.tuchenhagen.de
 www.tuchenhagen.com
 www.tuchenhagen.us
 www.tuchenhagen.pl
 www.tuchenhagen.fr
 www.tuchenhagen.cn



For queries and suggestions about the GEA Tuchenhagen website please write to:

juergen.r.henke@geagroup.com

Gerhard Meister - an entire working life with GEA Tuchenhagen!

1 April 1964 was the starting point for a career which can undoubtedly be called unique in GEA Tuchenhagen's company history.

Gerhard Meister began his vocational training as a machine assembler and has stayed with the company ever since.

After his apprenticeship, he went through various positions and responsibilities in our component manufacturing shops. In 1974, G. Meister was made work scheduler for valve manufacturing, and in 1986 he became group leader in the technology division.

In 1996, he took charge of the materials management department in the Flow Components division and was appointed deputy to the head of manufacturing for factories I and II. He was responsible for production scheduling/materials planning, final assembly and the warehouse. In 1997, G. Meister was given power of attorney, and in 1996 when manufacturing operations were reorganized, he assumed overall responsibility for logistics, including materials planning, purchasing and control.

In 2001, he was appointed Deputy Head of Production and Head of Production in 2006. In 2008, G. Meister was given procuration for GEA Tuchenhagen GmbH.

After more than 46 years on the job we are now saying goodbye to G. Meister and wish him all the best for the new phase of life he is entering into!

Holger Glüß - our new Head of Production!

Holger Glüß was born on 1 October 1970 in Soltau (Luneburg Heath). He grew up in Neuenkirchen and went to primary and grammar school in Soltau. His sports activities during that period were soccer and tennis. In 1988, he began his vocational training as an industrial mechanic with Blohm+Voss AG, which he successfully completed earlier than scheduled. In 1991, H. Glüß began to work in the ship repair shop of Blohm+Voss AG, while in this position he worked abroad for two and a half years.

He was subsequently awarded a scholarship for a Mechanical Engineering course at the University of Applied Science in Hamburg with the speciality power and work machines. While he was still at university, he was conscripted into the German armed forces in 1994. After his intermediate examination for his diploma in 1999, he started permanent employment with B+V Industrietechnik GmbH as Deputy Technical Supervisor in Steam Turbine Manufacturing. He continued his university course in parallel. H. Glüß was later appointed Technical Supervisor and Deputy Production Manager for Steam Turbine Manufacturing. In 2007, he moved to Leipzig where he acted as power plant manager for BKD-Delitzsch, a 20 MW biomass power plant.

In 2009, he came back to Hamburg and B+V Industries GmbH and became Production Manager for Ship Components. In February 2011, he joined GEA Tuchenhagen GmbH in Büchen, where he takes over Gerhard Meister as Head of Production.

Holger Glüß is married with a 7 year old son and lives in Neuenkirchen with his family. In his leisure time he is a family person and, apart from his dog, he also likes motor sports, the digital world of computers and enjoys good friendships.



New Vaccine Production with VESTA® Multiport

Forward thinking flexibility

New vaccine production fit today for future demands

It is not without reason that the planning and implementation of production lines for the pharmaceutical industry is regarded as the supreme discipline of plant engineering. The challenges when designing a plant are – to name just a few – to satisfy the most stringent of hygiene requirements, work with confined spaces and still provide ease of maintenance when designing the plant. Another key requirement is to provide for the smooth and easy implementation of future changes, such as new products or processes, without the need of major modifications. How plant owners, plant engineers and component suppliers can work closely together to come up with clever solutions which meet all these requirements is demonstrated by the new Baxter production facility for inactivated vaccines in Vienna.

Baxter, a global leading supplier of medical and pharmaceutical products, produces biotechnology-based drugs and vaccines at their Austrian locations in Orth on the Danube and Vienna. The research center in Vienna is the company's largest in the world. The majority of the pharmaceuticals produced in Austria are exported. To satisfy the ever-growing demand, the company built a new production facility for the production of vaccines in Vienna in 2009. zeta Biopharma GmbH, based in Tobelbad near Graz, Austria, was awarded the order for the complete formulation line. The specialist for biotechnological and pharmaceutical process technology was responsible for the overall engineering and implementation of the plant including the automation system. Special solutions for valve technology were supplied by GEA Tuchenhagen GmbH.

Flexibility in product formulation

The plant comprises functional units for product formulation, product filtration and units for supplying cooled product to the downstream syringe filling line. When designing the product formulation area, the highest priority was given to flexibility: the formulation system was not to be designed for once-defined procedures but permit new products or production sequences to be easily adopted. To meet this requirement, an entirely new formulation concept was developed. The process trolley and the media panel now form the centerpiece of the new product formulation system, where weighing and metering of all formulation ingredients are carried out. The process trolley supplies all the necessary components, which are typically delivered in disposable bags. Up to 50 components can be made available at the same time, so that complex formulations can also be prepared in a single operation. The bags are connected via hoses to a central collecting pipe. Metering is controlled by the supervisory control system



The process trolley and the media panel form the centerpiece of the new product formulation line, where weighing and metering of all formulation components take place.

in accordance with the current formula; weighing stations allow accurate measuring, even of very small component volumes .

The central collecting pipe conveys the components to a filtration block with a sterile product filter and on to the media panel. The pipes from the formulation area and the pipes to the product tanks come together at this panel,

New Vaccine Production with VESTA® Multiport



The media panel forms the central interface between all pipes in the formulation area and the pipes to the product tanks, it also accommodates all CIP and SIP connections.

which also accommodates all CIP and SIP connections; the relevant pipe routes are enabled by swing bend panels. Bringing all pipes together at the media panel enables various functions to be carried out simultaneously without any problems. Production can continue in one area while cleaning is running in another. Both processes are reliably separated from each other, the correct position of all swing bends is constantly monitored by the supervisory control system.

Sterile valves with bellows preferred

With the VESTA® series designed by GEA Tuchenhausen, a new sterile valve technology is used for the first time in this plant. Baxter, as the owner of the plant, selected these valves mainly because of the straightforward valve design and the ease of maintenance they provide. The valves are based on seat valve technology with PTFE bellows, which ensures hermetic sealing of the process chamber against the outside areas and is thus suitable for sterile applications. The bellows is sealed against the valve housing by a patented sealing system: a sealing lip integrated in the bellows. The geometry of the valve parts has been designed so that they are centrally aligned automatically during assembly. A metallic stop prevents damage to the sealing lip as a result of excessive compression.

Another special characteristic of this system is that apart from the bellows and the valve housing no other parts come in contact with the product so that potential prob-

lems with elastomers are reliably excluded. The special design of the valve housings is free from any dead space and – in contrast to the frequently used diaphragm valves – is self-draining in almost all installation positions.

To perform maintenance, just the groove nut which connects the actuator and the valve body needs to be released. The actuator can then be removed together with the bellows. The bellows can be replaced in next to no time. No tools are required.

Agitator tank for the finished product

The finished formulations are made available for filling in cooled tanks with an integrated magnetic agitator of the zeta bio-M series. Two tank sizes are used. Each of



Instead of the classic, central tank-bottom valve, three tank-bottom valves of the VESTA® series were installed, two of them laterally at the cup-shaped tank wall, another centrally at the bottom.

New Vaccine Production with VESTA® Multiport

the tanks is installed in a separate room, which permits one tank to be filled with product, while the filling line is supplied from the second tank and cleaning is running in the third. These processes are reliably separated from one another. The tanks are mobile so that they can be placed in the immediate vicinity of the filling line when the product is required for filling.

The tanks have been designed so that the product can still be reliably cooled and agitated when the tank level is rather low. To allow for small minimum volumes, both the tank geometry and the filling/emptying concepts have been modified. All tanks have a cup-shaped cavity at the bottom. Instead of the classic, single tank-bottom valve at the central outlet, three tank-bottom valves of the VESTA® series were provided, two of them fitted laterally to the tank wall, another centrally at the bottom. The two lateral valves are used for filling and emptying the tank and are connected to two supply lines each; the product is discharged via the bottom valve. This means that each tank has five docking points, enabling fast and flexible product handling.

All tank-bottom valves allow CIP/SIP independently from the tank. Due to the lateral installation position, natural draining of the valves is impeded. GEA Tuchenhagen has therefore modified the valves to suit this special application. The pipe connections to the valve housing were shortened and slightly inclined, so that full draining of residues can be ensured.

Ring distribution system instead of diaphragm valve blocks

To distribute the flow of media to the relevant sections of the plant, ring distribution systems of the VESTA® series are used. In these systems the incoming flow of liquid is guided through a ring channel. Up to 12 valves can be integrated on this ring to distribute the media. The use



The multiport ring distribution systems of the VESTA® series are free from any dead space and are characterized by their compact design.

New Vaccine Production with VESTA® Multiport

of special bellows designs in the ring valves ensures that the distribution system is free from dead space and is self-draining. The ring design of the distribution system constantly keeps the liquid in motion. Dead ends, where the medium stagnates – as they can exist in distributor blocks using diaphragm valves – are therefore avoided. Ring distributors also permit considerably more compact designs as the valves are fitted directly to the ring channel and do not need to be arranged in series as on diaphragm valve blocks. Plant layouts can therefore be configured to need less floor space.

Another special feature of VESTA® valves: they can easily be used as control valves. The bottom side of the bellows is similar in shape to a control cone so that the valve can be used for flow control without any design modification. The only difference is that the actuator needs to be replaced by a positioner, which allows flow rate control at an accuracy of +/- 1 percent.

In the Vienna plant, the valves are used for compressed air supply control. Subsequent conversion of standard shut-off valves to control valves is also possible, should future changes in the process sequence require additional control functions.

3D planning

Due to the body design of VESTA® valves, there is a slight difference in height of the inlet and outlet ports, which needed to be taken into account when planning the pipe system. Furthermore, the available space in some areas was restricted. Especially for this kind of project conditions, planning the entire plant using a 3D model offered great advantages. This way it was possible to attend to important plant details, like ensuring that all pipes can drain naturally, before starting installation work. Easy access to all components for subsequent maintenance work was also taken into account at this stage.

Summary

Flexibility, ease of maintenance and operational reliability are key criteria in a pharmaceutical production plant, but it is not easy to meet all of these criteria in practice at the same time. The example of Baxter's new vaccine production facility in Vienna shows that the cooperation of plant

owner, plant engineers and component suppliers can result in a plant which meets all those needs.

Authors:

Beatrix Spannbauer, Project Manager at Baxter, Vienna
David Haidinger, Project Manager at zeta Biopharma, Tobelbad

Jens Bartsch, Pharmaceuticals & Health Care Sales Manager at GEA Tuchenhausen



For more information about our VESTA® Sterile Valves see:

WEB

www.tuchenhausen.com/Components/Valves/Sterile-Valves-Series

Brochures

- VESTA® Sterile Valves (649e)
- VESTA® Multiport (652e)

To request brochures please contact: juergen.r.henke@geagroup.com

SMW Validation Sensor at Tucher Brewery

State-of-the art CIP validation using SMW 100 for tank cleaning at the Tucher brewery in Fürth

When building the new Tucher brewery, absolute priority was given to safety in the brewing process in conjunction with a resource-efficient plant layout.

Consequently, VARIPURE Orbital Cleaners made by GEA Tuchenhausen, in combination with the SMW 100 CIP validation sensor, were selected for cleaning. The fermentation tanks to be cleaned have a capacity of 2,400 hl, with a diameter of 4.1 m and an overall height of 22 m.

In contrast to conventional systems, the compact head of



the SMW 100 contains the complete evaluation electronics and software and, compared with other products, the unit is considerably more cost-efficient.

The patented sensor continuously monitors the function of the orbital cleaners in the tanks. During cleaning, a continuous signal is sent to the control system; a signal interruption would immediately indicate that a malfunction has occurred.

Mr. Rammelmeier, Head of Quality Management at Tucher, commented: "Using VARIPURE Orbital Cleaners has helped us to reduce our cleaning times significantly. The entire system has proven effective, especially with respect to top fermenting beer vessels."

Function of the VARIPURE SMW 100 sensor:

This sensor and the operating method are unique. There are no comparable systems on the market; other systems either register the pressure of the jet or detect the noise in the tank.

1. Due to its physical design, the pressure sensor can only register jets that hit the sensor directly, which does not work for a rotating jet cleaner. The sensor only registers jets discontinuously, if at all. It is therefore impossible to accurately monitor the flow patterns of the jets or nozzles!
2. The background noise can only be used to detect whether cleaning liquid is running, not whether the cleaner is turning or the jet flow patterns are correct or even blocked!

A special process enables the SMW 100 to monitor the operation of the cleaner during an integration period of approximately 20 seconds. If no jet passes the sensor during this period, the sensor's output signal switches off and the sensor signals that the cleaner is stationary. Another function is made possible by signal change-over in the sensor. Each jet that is registered is signalled by setting the sensor output, so that each jet can be detected by downstream electronics (optional). This allows the cleaning pattern, and thus the entire cleaning process, to be monitored. Alternatively, it is also possible to detect a blocked nozzle. All in all, the SMW 100 system provides us with an intelligent detection technology, which thus far has not existed in this form.



Rotating cleaners VARIPURE

Extended product range of VARIPURE rotating cleaners:

Turbo SSB 40, Turbo SSB 125, Clipdisc 100, Clipdisc 150



Turbo SSB 40



Turbo SSB 125



Clipdisc 100/150

Turbo SSB 40 and Turbo SSB 125

Advantages:

- Slow, constant rotation
- Ball bearing free-increased service life
- Economic flow rates
- High efficiency fan jets
- FDA conform and ATEX exempt
- SIP through the nozzle possible
- Preferred mounting position: vertical down

Technical Data:

- Working pressure 2 – 5 bar / 2 - 6 bar
- Cleaning diameter up to 3 m / up to 8.5 m
- Flow rate 2.1 – 3.7 m³/h / 12.0 – 24.5 m³/h
- Spray pattern 360°
- Operating temperature 95 °C max.
- Ambient temperature / SIP 140 °C max. 30 min
- Insertion Ø 38 mm min. / Ø 70 mm min.
- Materials: Stainless Steel 316L (1.4404) with P-PTFE or C-PTFE
- Pipe connection Turbo SSB 40
3/8" BSP female, optional Pin Fix for 1/2" OD tube (12.7 mm outer diameter)
- Pipe connection Turbo SSB 125
1 1/4" BSP female, optional Pin Fix for 1 1/2" OD tube (28.1 mm outer diameter)

Clipdisc 100 / Clipdisc 150

Advantages:

- Ultra hygienic Design
- Ball Bearing Free-Increased Service Life
- Low Maintenance
- Quick effective wash
- FDA conform
- SIP through the nozzle possible
- Preferred mounting position: any

Technical Data:

- Working pressure 2 – 4 bar
- Cleaning diameter 4.3 m / 4.9 m
- Flow rate 6 – 14.7 m³/h
- Spray pattern 360°
- Operating temperature 95 °C max.
- Ambient temperature / SIP 140 °C max., 30 min
- Insertion Ø 70 / 85 mm min.
- Materials: Stainless Steel 316 (1.4401), 316L (1.4404), PVDF
- Pipe connection: Pin Fix for 1" OD tube (25.4x1.6)



For more information about our VARIPURE cleaning program see:

WEB

www.tuchenhagen.com/components/cleaning-product-recovery

Brochures:

- VARIPURE Orbital Cleaners (612e)
- VARIPURE Rotating Cleaner (613e)
- VARIPURE Static Cleaners (635e)

To request brochures please contact: juergen.r.henke@geagroup.com

GEA Tuchenhagen®-VARIFLOW Centrifugal Pumps

GEA Tuchenhagen products meet the growing demand for environmentally compatible components. Our basis for knowing this comes from being a future-oriented company and having product concepts committed to economic efficiency, sustainability and service-orientation.

Economically efficient

The current generation of GEA Tuchenhagen®-VARIFLOW pumps provide users with considerable cost savings. Modern GEA Tuchenhagen components provide special advantages that enable superior economic performance and help the user to gain operative advantages at reduced costs.

Sensibly rated high-efficiency motors in every dimension needed are available to cover the typical requirements of the markets. These motors enable that energy consumption is kept as low as possible, meaning a positive impact on your profitability.

Carefully designed flow paths, free from dead corners, enable optimum utilization of the conveying energy. The product is conveyed evenly and gently, resulting in a higher product quality, which provides the user with

improved processing options and distribution potentials. The cleaning requirement is considerably reduced as far as time, water and resources are concerned, with a positive impact on production planning and cost accounting.

Sustainable

Lower consumption of energy, water and chemicals means less load on environment and climate. For GEA Tuchenhagen users, the future success of their business, and the continuing acceptance of their production site, these issues will become more and more important.

On many markets, ecological criteria and the quality seals introduced for them increasingly determine retail assortment planning and what consumers will buy.

Users of GEA Tuchenhagen products will not only be at an advantage due to production processes which have proven to be environmentally friendly but also as a result of their maximum hygiene and care when processing their products.

This helps users to fulfil their own commitment to sustainable working methods – the best way towards a secure future!

Economical

- High product quality
- Reduced consumption of energy, water and cleaning media
- Saves time in maintenance and cleaning

Sustainable

- Individual engineering support
- Life cycle cost calculations
- Minor production interruptions
- Tailor made service concepts



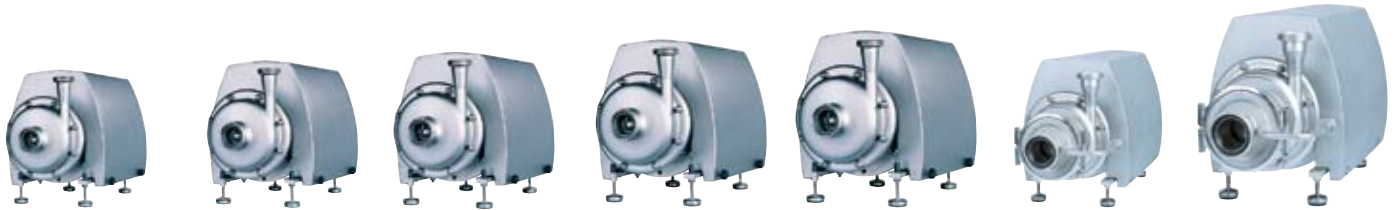
GEA Tuchenhagen®-VARIFLOW Centrifugal Pumps

Program Overview



		non self-priming				
		TP 1020	TP 1540	TP 2030	TP 2050	TP 2575
2-pole, 50 Hz	max. flow rate [m³/h]	20	35	36	36	40
	max. pump head [m]	24	42	36	60	85
	Motor rating kW, 2-pole	1,1 - 5,5	3,0 - 15,0	1,5 - 11,0	3,0 - 15,0	5,5 - 30,0
4-pole, 50 Hz	max. flow rate [m³/h]	10	19	19	19	20
	max. pump head [m]	6	11	9	15	21
	Motor rating kW, 4-pole	0,75 - 3,0	0,75 - 3,0	0,75 - 5,5	0,75 - 4,0	3,0 - 7,5
2-pole, 60 Hz	max. flow rate [m³/h]	24	44	44	42	48
	max. pump head [m]	34	62	52	85	130
	Motor rating kW, 2-pole	1,25 - 6,3	3,6 - 17	1,8 - 12,5	3,6 - 17	6,3 - 34,5
4-pole, 60 Hz	max. flow rate [m³/h]	11	22	23	21	22
	max. pump head [m]	8	15,5	13	21	31
	Motor rating kW, 4-pole	0,9 - 3,6	0,9 - 3,6	0,9 - 6,3	0,9 - 4,5	3,6 - 8,6
Impeller diameter		80 - 130	130 - 180	110 - 160	160 - 210	200 - 250
min. NPSH (2,900 min ⁻¹)		1,0m	1,0m	1,0m	1,0m	1,0m
max. viscosity mPas		1,000	1,000	1,000	1,000	1,000

GEA Tuchenhagen®-VARIFLOW Centrifugal Pumps



non self-priming					self-priming	
TP 3050	TP 5060	TP 7060	TP 8080	TP 16040	TPS 2030	TPS 3050
75	75	110	120	210	32	55
65	75	74	90	49	37	64
3,0 - 22,0	5,5 - 30,0	7,5 - 30,0	11,0 - 37,0	11,0 - 45	2,2 - 11,0	3,0 - 22,0
36	40	55	65	100	n.a.	n.a.
16	17	19	23	12	n.a.	n.a.
0,75 - 7,5	2,2 - 7,5	2,2 - 7,5	4,0 - 7,5	3,0 - 7,5	n.a.	n.a.
85	80	120	125	240	36	69
95	110	105	130	70	52	95
3,6 - 25,0	6,3 - 25,0	11,0 - 34,5	17 - 42,5	17 - 45,0	2,5 - 12,5	3,6 - 25,0
42	45	65	75	120	n.a.	n.a.
24	24	27	34	17	n.a.	n.a.
0,9 - 8,6	2,5 - 8,6	3,6 - 8,6	4,5 - 8,6	3,6 - 8,6	n.a.	n.a.
140 - 210	175 - 225	175 - 225	180 - 250	160 - 200	110 - 160	140 - 210
0,8m	0,9m	1,0m	1,2m	3,8m	0,8m	0,8m
1,000	1,000	1,000	1,000	1,000	500	500

GEA Tuchenhagen®-VARIFLOW Centrifugal Pumps

Service-oriented

Plant designers and engineering companies appreciate the benefits offered by GEA Tuchenhagen: they not only profit from a range of highly efficient products but also use the individually tailored engineering support available from GEA Tuchenhagen.

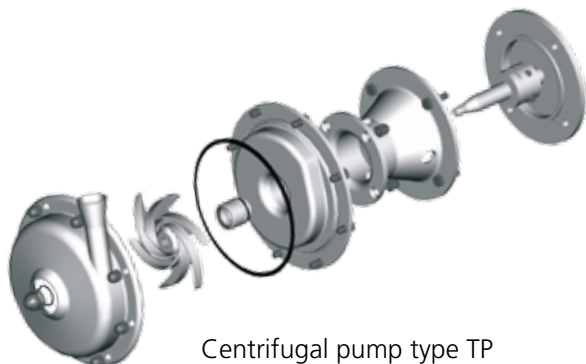
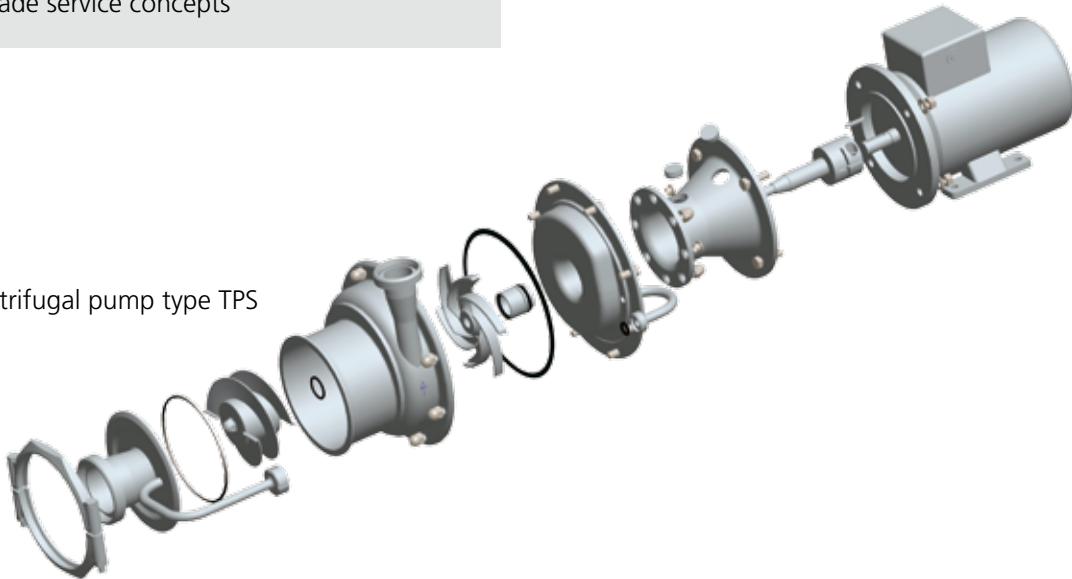
Maintenance service programs, which protect your investment, enable necessary – and individually tailored to your requirements – service work on GEA Tuchenhagen components to be carried out with only minor interruptions in production processes.



Service-orientated

- Individual engineering support
- Life cycle cost calculations
- Minor production interruptions
- Tailor made service concepts

Centrifugal pump type TPS



Centrifugal pump type TP



For more information about our GEA Tuchenhagen® - VARIFLOW Pumps see:

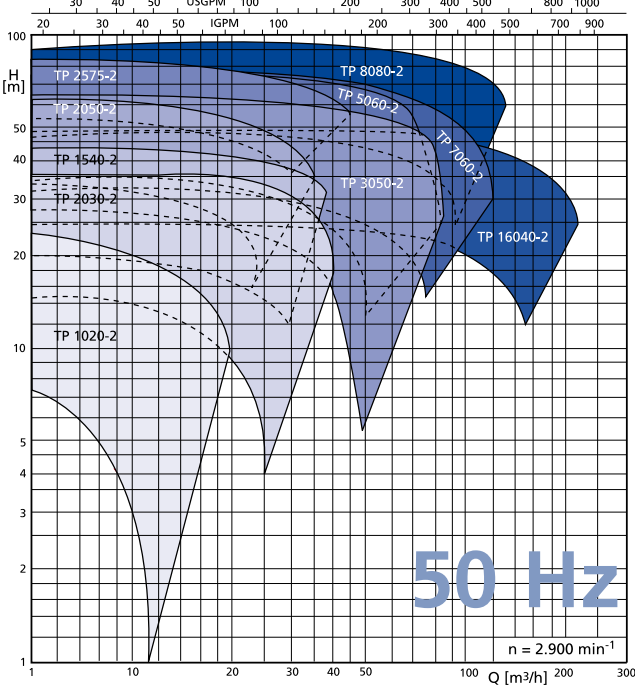
WEB
www.tuchenhagen.com/Components/Pumps

Brochures
• GEA Tuchenhagen® - VARIFLOW Centrifugal Pumps (626e)

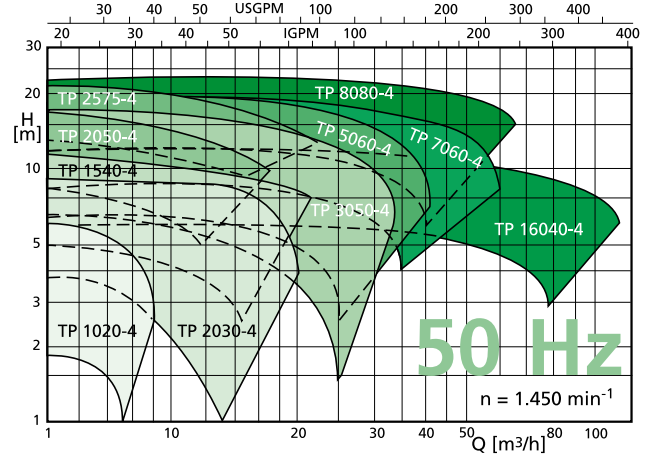
To request brochures please contact: juergen.r.henke@geagroup.com

GEA Tuchenhagen®-VARIFLOW Centrifugal Pumps

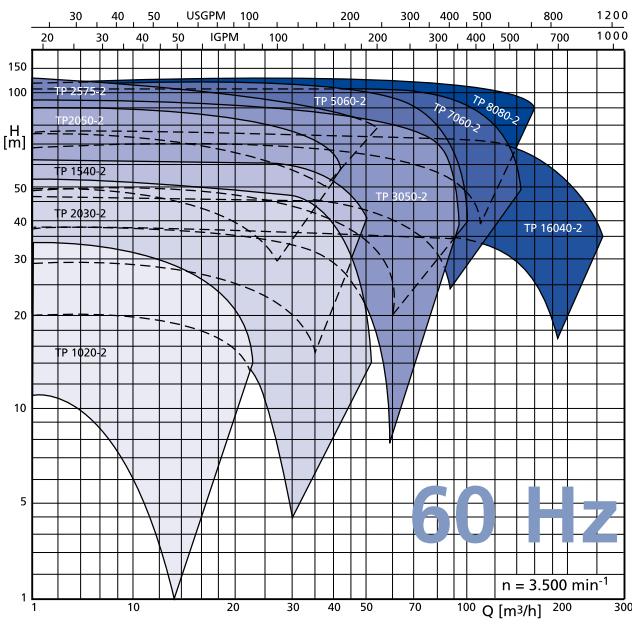
Pump performance curves type TP, n = 2.900 min⁻¹



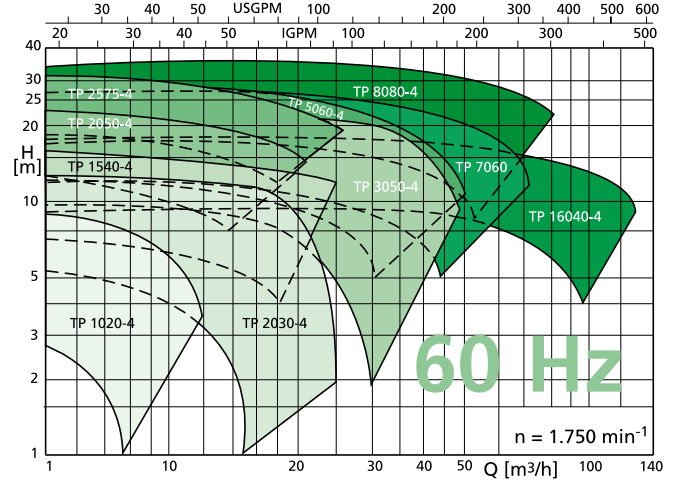
Pump performance curves type TP, n = 1.450 min⁻¹



Pump performance curves type TP, n = 3.500 min⁻¹

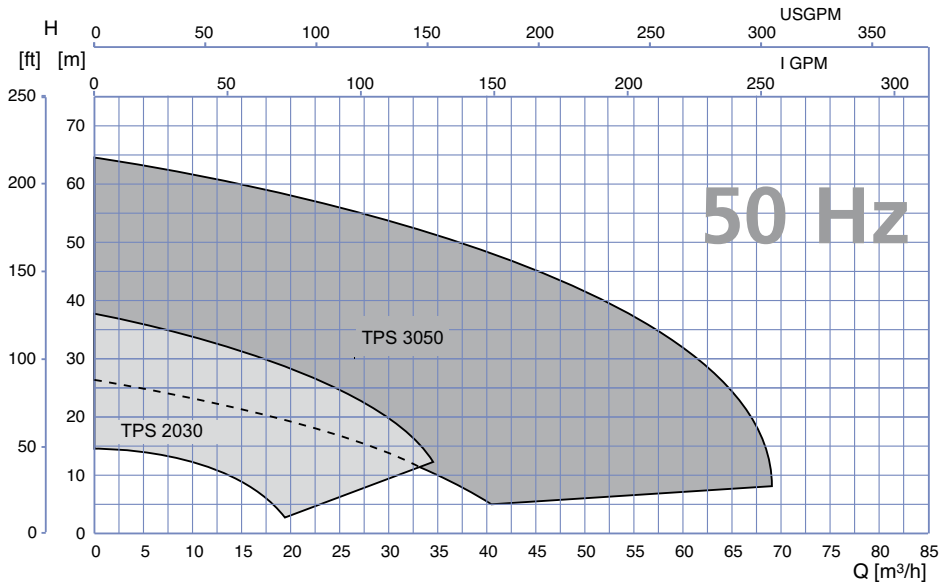


Pump performance curves type TP, n = 1.750 min⁻¹

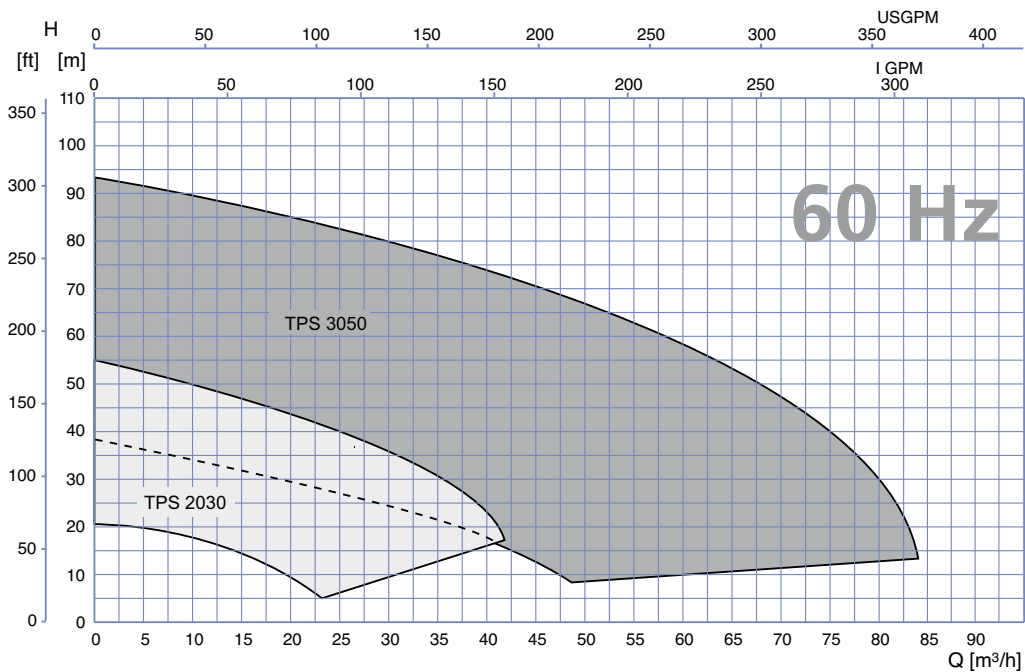


GEA Tuchenhagen®-VARIFLOW Centrifugal Pumps

Pump performance curves type TPS, n = 2.900 min⁻¹



Pump performance curves type TPS, n = 3.500 min⁻¹



Independent institutes have proven the cleaning ability for media conveying in hygienic processes.



VARICOVER® Product Recovery Systems in China

Product Recovery Systems in the Chinese Personal Care Sector

A successful cooperation between GEA Tuchenhagen China and GEA Process Engineering China

Through 2010 and 2011 GEA Process Engineering China Limited and GEA Tuchenhagen China have installed 10 product recovery systems for a large multi-national personal care product manufacturer who produces hair and skin care products at their central China facility.

Nine of the 10 product recovery systems have been retrofitted to existing shampoo and conditioner product lines which were installed, in the past 10 years, without product recovery capability.

The client had two main reasons for installation of product recovery systems.

- Reduce finished product losses.
- Gain faster product changeovers on finished product fillinglines.

Faster product changeovers were achieved by using hot process water to propel the pig from the launch station at the finished product storage tanks, to the recovery station mounted directly above the finished product filler. After all the finished product has pushed through to the filler, the pig is docked at the recovery station for a short time, allowing the hot process water to flush out the finished product pipe. Finally, the pig is returned to the launch station using filtered compressed air, leaving a dry finished product pipe ready for use.

The main challenge for retrofitting the product recovery systems was how to integrate the new product recovery equipment into multiple different control systems – for the product mixing systems and finished product fillers – that were already running at full capacity and had limited spare capacity for the additional equipment. The solution was to develop a standardized product recovery system, each with its own small stand-alone PLC control system, which could be comprehensively tested prior to installation. The Mixer – Product Recovery – Filler control system

interface signals are based on traditional relay based volt free signals, enabling the product recovery system to interface with almost any control system with a minimum of changes to those existing systems.

GEA Process Engineering China Limited is seeing a growing awareness of the huge advantages of using product recovery systems amongst China based Personal Care clients. Many clients are requesting product recovery systems be supplied as part of their investment in any new process plant, as well as an increasing number of clients who are examining the possibility of retrofitting product recovery systems to existing process plant.

The growing number of successfully installed product recovery systems into the plants of our international customers in China, will continue to be realized by the close cooperation between GEA Process Engineering China and GEA Tuchenhagen China.



For more information about our VARICOVER® Product Recovery System see:

WEB

www.tuchenhagen.com/Components/Cleaning-Product-Recovery

Brochures

- VARICOVER® Product Recovery System (622e)

To request brochures please contact: juergen.r.henke@geagroup.com

VARICOVER® Product Recovery Systems

Using VARICOVER® Product Recovery Systems ... you regain valuable product from your pipe system and thus optimize the economic efficiency of your production plant.

Residual products are expelled from the pipes and returned into the product flow by pigging. No more than a thin residual film remains in the pipe system that can easily be removed by subsequent cleaning (CIP). This technique also reduces the waste water load drastically.

Advantages using Product Recovery Systems:

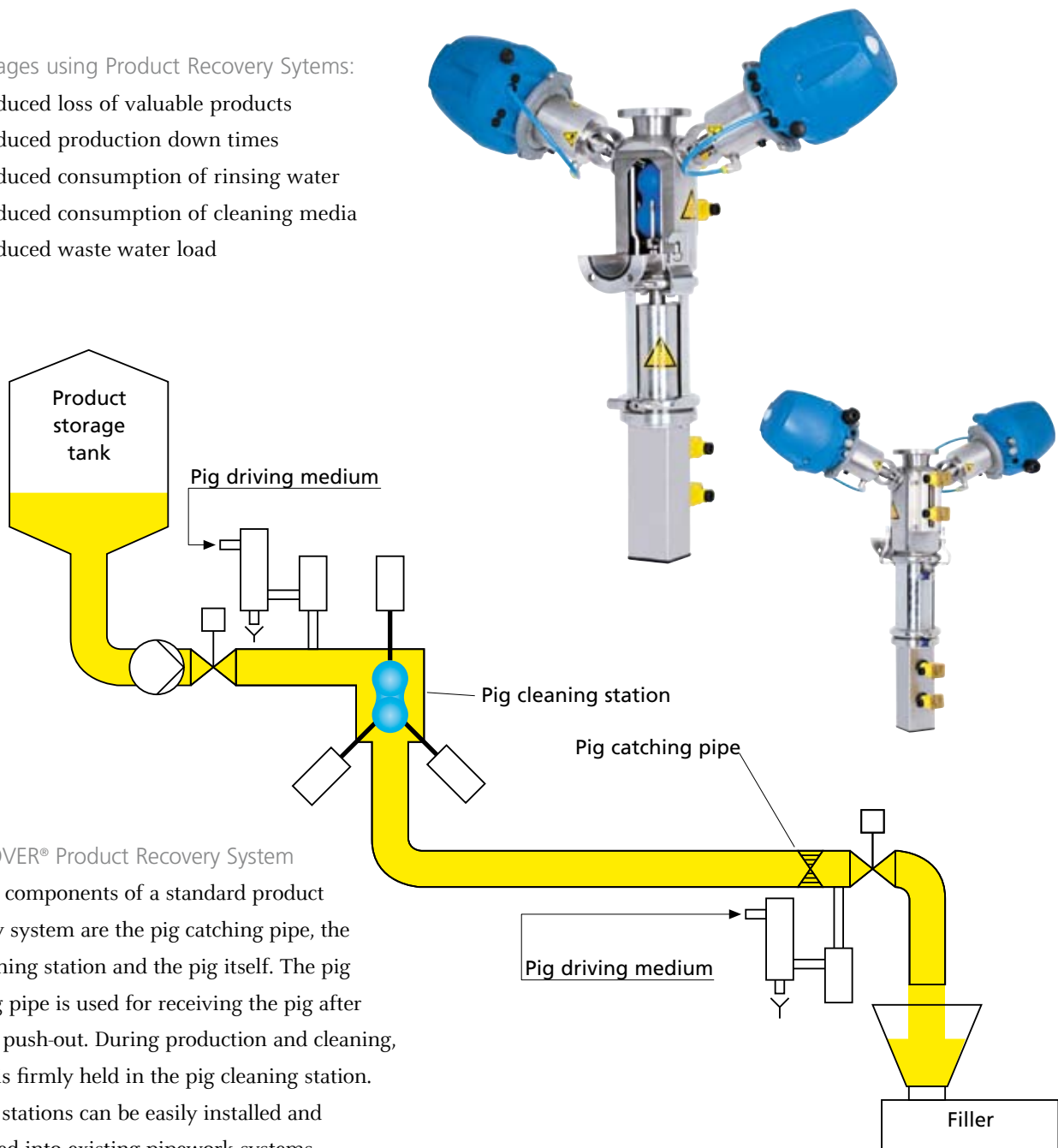
- Reduced loss of valuable products
- Reduced production down times
- Reduced consumption of rinsing water
- Reduced consumption of cleaning media
- Reduced waste water load

Applications

Product push-outs

Product recovery systems are used whenever viscous products are expelled from pipe systems without the risk of intermixing with other media.

This is especially required for high quality products in industries from food and beverages through to pharmaceuticals and cosmetics.



VARICOVER® Product Recovery System

The key components of a standard product recovery system are the pig catching pipe, the pig cleaning station and the pig itself. The pig catching pipe is used for receiving the pig after product push-out. During production and cleaning, the pig is firmly held in the pig cleaning station. The pig stations can be easily installed and integrated into existing pipework systems.

Mixproof 24/7 PMO Valve® in USA

GEA Tuchenhagen Innovation in the US Market

Continuing on its success penetrating the US Dairy market with its mixproof 24/7 PMO Valve® 4 years ago, GEA Tuchenhagen US also introduced its 24/7 PMO Tank Valve in 2010, the first mixproof tank valve to be authorized for application in US dairies under the PMO regulations. The valve can be mounted and is drainable in either the horizontal or upside-down positions, making it ideal for use in simplifying vessel pipework.

A particularly unique and innovative application for the new valve involves its use on cheese vats. Tuchenhagen has recently received a large order to fit the 24/7 PMO Tank Valves directly on to 18 new vats being manufactured in Wisconsin. The valves are connected directly onto the vats for the milk fill, curd out, whey pre-draw and CIP return functions, thereby greatly reducing the complexity of vat piping. Because the valve is a tank style, large pieces of curd can pass easily through the valve without damage, thereby increasing cheese quality and reducing cheese fines. In addition, because the mixproof function is now authorized for the valve by the FDA, cheese room productivity is greatly increased.

The 24/7 PMO and 24/7 PMO Tank Valve developments are typical of the innovation which has allowed GEA Tuchenhagen to grow revenue threefold since 2004, when it turned its market focus to the sales and service of Tuchenhagen components and manifolds exclusively.

Critical to that growth has been the US dairy sector – which prior to 2007 was the smallest sector for Tuchenhagen in the US – and is now by far the largest, with the largest growth potential for the future.

In line with this growth, two new sales coordinators have been added to our head office in Portland, Maine. Our new staff will replace Brecon Haworth, who has been promoted to Product Manager Cleaning Technology in the US, and Dave Quattrucci, who has been promoted to Internal Service Manager beginning November 2011.



For more information about our 24/7 PMO Valves® see:

WEB

[www.tuchenhagen.us/Industries/Dairy/Mixproof Valves](http://www.tuchenhagen.us/Industries/Dairy/Mixproof%20Valves)

Training Courses & Forums

Talk to and learning from each other

In the modern seminar rooms of our GEA Tuchenhausen Innovation Center we hold about 20 seminars and technical component workshops for our customers every year. Apart from technical information, participants also gain valuable impressions of GEA Tuchenhausen, our staff and, of course, of our valve production facilities here in Büchen. You will find an overview of all seminar dates and training course contents in our “Training Courses and Forums” catalogue, published once a year, or on the Internet at www.tuchenhausen.com in the “Service & Training” section.



The next events at a glance:

26 - 28 September	Components in practical application *)	English
28 - 30 September	Practical valve and pump training course *)	English

*) These two training courses are timed so that they can be combined.

Keeping on top of things

To be able to respond quickly to market changes, it is essential to keep informed about market developments, trends, product or process innovations and also about changes in regulatory requirements, etc. – ideally first hand. This is why we give our customers the opportunity in our forums to talk about experiences and market trends with other experts. In contrast to the highly specialized technical training courses, the forums' main focus is placed on market trends and on requirements customers are currently placing on technical processes. We are supported by renowned international experts from industry and science. When selecting our speakers we attach great importance to technical expertise and practice-oriented topics which encourage fruitful discussions. The participants of the forums have the opportunity to make valuable contacts with colleagues

from similar and dissimilar industries, discuss expert questions with their peers and learn from the experience gained by others. And whether it's the charming medieval town of Lüneburg or a BBQ followed by a soccer match, an interesting social program will complement the events and create a special atmosphere which encourages the exchange of experiences. In all our events, our top priority is the person with all his/her knowledge and professional expertise.



Training Courses & Forums

The division of the seminars into three subject areas, introduced last year, has proven successful and will therefore be continued this year. Training courses will be offered in the following three categories: basic technical knowledge, application-oriented component know-how and hands-on training.

Our training course program reflects our focus on quality, up-to-date and interesting topics, and a clear structure.

Components & Application

Location: GEA Tuchenhagen GmbH

Factory II

Berliner Str. 25, 21514 Buechen, Germany

Day I: Monday, September 26, 2011

Room TIC Training

08:30 – 08:35	Welcome	
08:35 – 12:30	VARIVENT® Philosophy: Features and Benefits	Bastian Tolle
12:30 – 13:00	Lunch Break	
13:00 – 14:00	Continuing VARIVENT® Philosophy: Features and Benefits	Bastian Tolle
14:00 – 16:00	Aseptic Valves - VESTA® and STERICOM®	Soenke Burmester

Day II: Tuesday, September 27, 2011

Room TIC Training

08:30 – 11:00	Cleaning Device	Falko Fliessbach
12:30 – 13:00	Lunch Break	
13:00 – 16:00	GEA Tuchenhagen®-VARIFLOW Centrifugal and Rotary Lobe Pumps	Helge Schmidt

Day III: Wednesday, September 28, 2011

Room TIC Training

08:30 – 11:00	Safety and Special Valves	Karsten Becker
11:00 – 12:30	Factory Tour	
12:30 – 13:00	Lunch Break	
13:00	Open Questions and Farewell	Annekathrin Bibow

Training Courses & Forums

Practical Valve & Pump Training

Location: GEA Tuchenhagen GmbH

Factory II

Berliner Str. 25, 21514 Buechen, Germany

Day I: Wednesday, September 28, 2011

TIC Room Hamburg

10:50 – 11:00	Welcome
11:00 – 12:30	Factory Tour
12:30 – 13:00	Lunch Break
13:30 – 14:30	Valve Training - Introduction
14:30 – 16:30	Sterile Valves

Thorsten Hankel

Thorsten Hankel

Day II: Thursday, September 29, 2011

TIC Room Hamburg

09:00 – 16:00	Practical Valve Training
12:30 - 13:00	Lunch Break Canteen

Thorsten Hankel

Day III: Friday, September 30, 2011

TIC Room Hamburg

09:00 – 10:00	T.VIS® Control Modules
10:00 – 11:30	Practical Pump Training TP and TPS Pumps
11:30	Open Questions and Farewell

Heiko Stender

Norbert Lichtner / Helge Schmidt

Helge Schmidt / Annekathrin Bibow

Please do not forget your safety shoes!

Have we piqued your interest? Would you like to know more about our forums and training course programs?

Please contact Annekathrin Bibow by phone or email: +49 4155 49 2421, tuchenhagen.training@geagroup.com



For more information about our Seminars & Forums Program see:

WEB

www.tuchenhagen.com/Quality-Service-Training/Training-Courses-Forums-2011

Brochure

- Training Courses and Forums 2011

To request brochures please contact: juergen.r.henke@geagroup.com



Excellence

Passion

Integrity

Responsibility

GEA-versity

GEA Group is a global mechanical engineering company with multi-billion euro sales and operations in more than 50 countries. Founded in 1881 the company is one of the largest providers of innovative equipment and process technology. GEA Group is listed in the STOXX Europe 600 Index.



GEA Mechanical Equipment

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