



Pure energy and cost savings with Gates Power Transmission solutions

WASTEWATER TREATMENT



Wastewater treatment, an essential ecosystem service

Safe treatment of our wastewater and its return to the natural environment is a key part of the water cycle. Wastewater treatment is essential. Downtime in wastewater treatment is not considered an option. Imagine a system breakdown in your works causing billions of gallons of untreated wastewater being discharged directly to the environment... a case of pollution which clearly could have been avoided. Not to mention the time-consuming and costly intervention of the maintenance personnel to get the system up and running again.

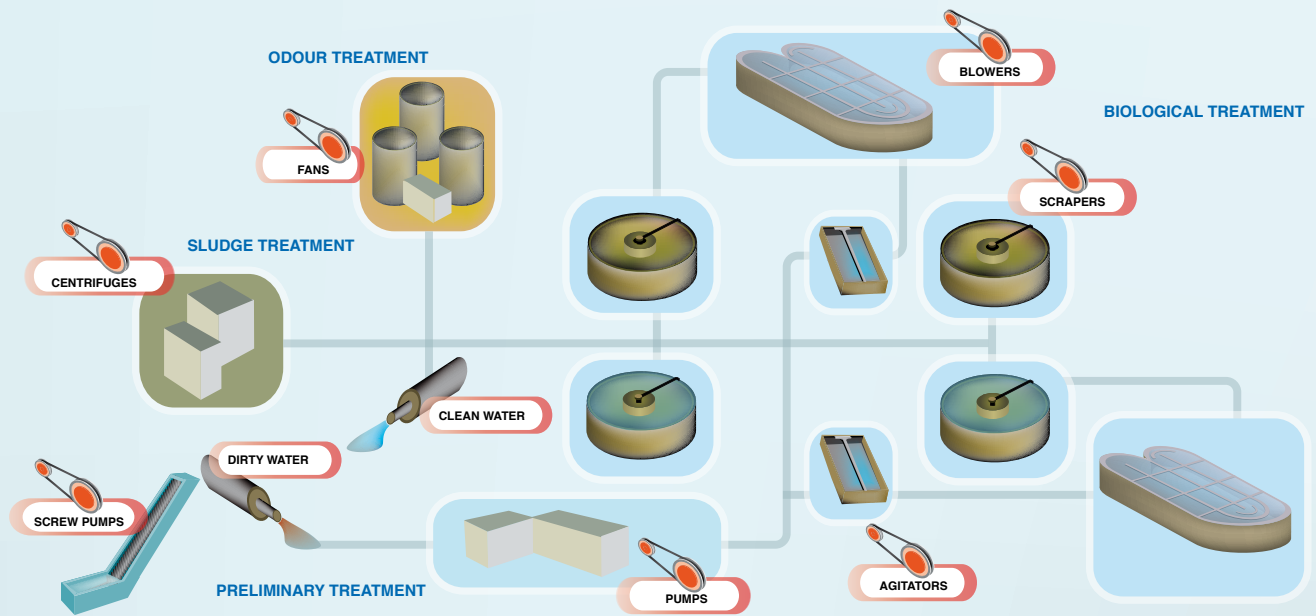
Power consumption in wastewater treatment works is enormous. Dozens of applications need to be powered 24 hours/day, 7 days/week and 365 days/year. Are you sure transmissions in your works attain the highest possible efficiency...?

One way to prevent downtime and to maximise efficiency is the use of high-quality Gates drive systems. Gates drives can play an essential role in treating wastewater and in saving energy and money.



Working on water quality

A typical wastewater treatment works comprises two phases of treatment – preliminary physical treatment and biological treatment. As you can see on the sketch, a wastewater treatment works is equipped with several drives powering the pumps, blowers, fans, etc.

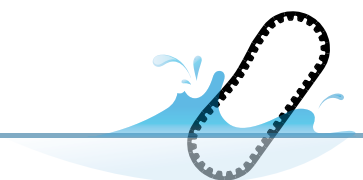


Sewage undergoes preliminary treatment to make it suitable for the main treatment processes. This includes screening to remove paper, wood and other large debris and filtering to remove sand, oil and grease.

After preliminary treatment the sewage flows into large tanks in which several phases of biological treatment take place. The heavier organic material that sinks to the tank floor is swept by scrapers and subsequently pumped as sludge to a storage tank ready for final treatment. In the liquid element a blend of bacteria provide natural purification. In order to do so they need oxygen dissolved in the water by air blowers installed in the tanks.

Wastewater treatment also means preserving the quality of the air. During the collection and treatment of sewage malodorous substances and unpleasant smells are produced, for which specific odour abatement equipment such as odour control fans can be installed.

For each and every one of the above mentioned processes and applications, Gates offers you the belt drive system providing the best performance and the best value.



Gates, your energy and cost saving partner in the water industry



Across Europe Gates works with numerous water companies in many locations. In the demanding conditions and harsh environments of wastewater treatment, Gates premium quality V-belts and synchronous belts offer many advantages compared to roller chains. They provide a long, reliable and trouble-free service life with significantly reduced downtime and virtually no maintenance when installed according to the manufacturer's recommendations.





Quad-Power® II

Raw edge, moulded notch, narrow section V-belts

- Tough tensile members resist fatigue and shock loads
- Moulded notch construction improving flexibility, reducing bending stress and providing improved performance
- Narrower drives through fewer belts reducing total drive cost
- Ideal for blowers, fans, pumps, centrifuges



Predator®

Wrapped, narrow section single or multiple V-belts

- Extreme robustness
- High load carrying capability
- Unparalleled shock and stretch resistance
- Double fabric cover offering extraordinary abrasion and wear resistance
- Chloroprene rubber compounds providing superb oil and heat resistance
- Non-rubber surfaced cover provides momentary slippage without damaging the belt
- Ideal for agitators, screw pumps, scrapers



Poly Chain® GT2

Polyurethane synchronous belts and pulleys

- Uniquely formulated polyurethane resistant to chemicals and contaminants
- Aramid tensile cords providing extreme power carrying capacity and flex fatigue life
- High-efficiency positive drives
- Low internal losses
- No slipping
- Ideal for agitators, screw pumps, scrapers



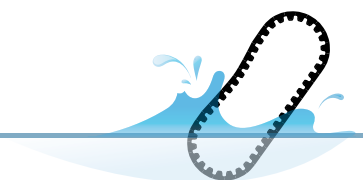
PowerGrip® GT3

Rubber synchronous belts

- Technically advanced compound with fibreglass tensile cords, elastomeric teeth and backing and nylon facing
- Helically wound tensile member giving enormous strength, flex life and elongation resistance
- Low friction nylon facing protecting the tooth surface against wear
- Ideal for blowers, fans, pumps, centrifuges, scrapers

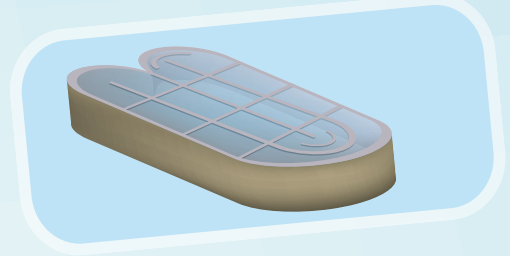
Where traditional roller chains don't meet the challenge, Gates top performing V-belts and synchronous belts offer the solution!

- Clean
- No lubrication
- No re-tensioning
- Virtually maintenance-free
- Energy saving
- Cost saving
- Long, reliable and trouble-free service life



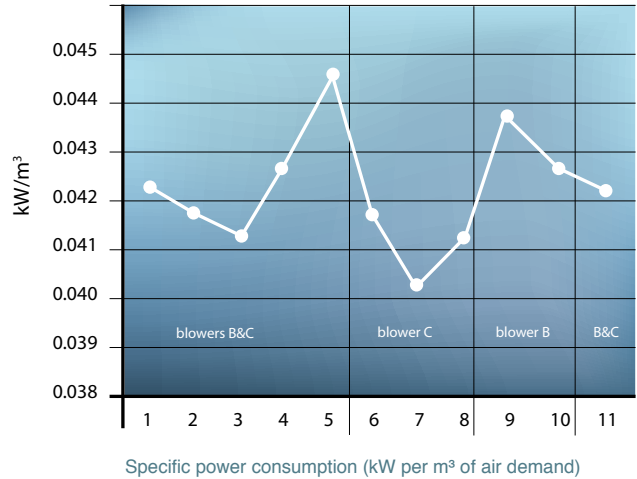
Case Study 1

Blowers equipped with Gates Poly Chain® GT2 synchronous drive systems



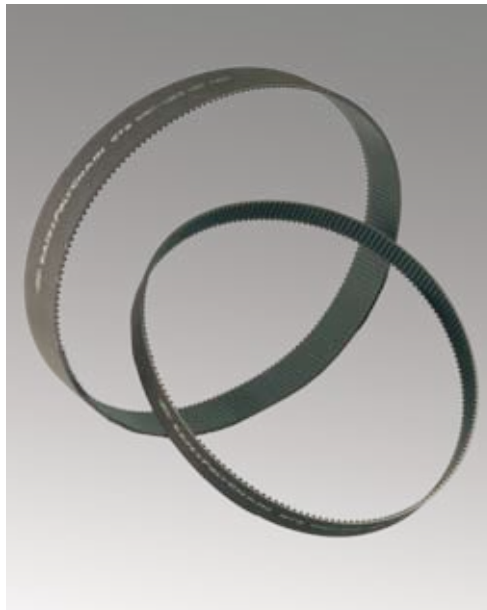
One of the air blowers originally driven by a traditional V-belt has been equipped with a Gates Poly Chain® GT2 drive belt to conduct a comparative test. With the specific power consumption by blowers, the specific power savings due to the new belt were calculated. It was found that the power consumption was reduced by 0.00201 kW/m³ due to the belt replacement in one blower only.

The following figure clearly shows that when blower C (equipped with Poly Chain® GT2) is running alone, the power consumption is minimum.



Facts and figures

Energy savings due to new belt	0.00201 kW/m ³ air
Average air flow	6,152 m ³ /hr
Running hours per year	8,760 hrs
Total energy savings	108,322 kWh per year
Average power cost	0.067 €/kWh
Total cost savings	7,257 € per year



Case Study 2

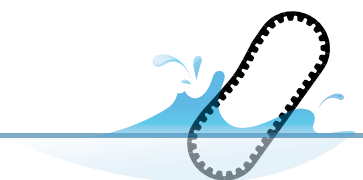
Sludge circulation pumps equipped with Gates PowerGrip® GT3 synchronous belts



The traditional V-belts used on the sludge circulation pumps had a life expectancy of one month on average. This life span was no longer considered acceptable. For this kind of application Gates recommended to use a PowerGrip® GT3 belt, one of the most powerful belts in the product range with the objective to increase the reliability of this essential process step and to increase the durability of the drive. A tailor-made drive design with Gates PowerGrip® GT3 belts was developed. The life expectancy of PowerGrip® GT3 belts is over 25,000 hours (2 ½ years) but was set on 2 years in this particular case due to the harsh conditions.

When comparing the PowerGrip® GT3 belt with the traditional belt we see that by simply using an energy-efficient belt the total cost saving amounts to 4,599 € a year.

Facts and figures	
Annual energy savings	1,386 €
Annual reduction in usage	1,113 €
Annual reduction in maintenance	2,100 €
Annual cost savings	4,599 €
Total savings over lifetime of belt	9,198 €



Your application, our solutions



A Tomkins Company

The Driving Force in Power Transmission

Erembodegem, Belgium

Tl: (32) 53 76 28 41

Fx: (32) 53 76 26 09

Louvres, France

Tl: (33) 1 34 47 41 45

Fx: (33) 1 34 72 60 54

Aachen, Germany

Tl: (49) 241 5108 226

Fx: (49) 241 5108 297

Milano, Italy

Tl: (39) 02 662 16 222

Fx: (39) 02 662 21 851

Moscow, Russia

Tl: (7) 495 933 83 78

Fx: (7) 495 648 92 72

www.gates.com/europe/pti
ptiindustrial@gates.com

Our experience in power transmission goes back to 1911. Since then we have developed a full line of industrial belt products and drive systems, which are known for their quality, reliability and innovative character and are built to meet or exceed international specifications. That is why we now have the right product for every industry and every application. Regarding environmental protection, governed by the Kyoto protocol, all our industrial sites have been awarded ISO 9001, ISO 14001 and OHSAS 18001.

Behind our leading industrial products is an entire company of professionals, armed with solutions. Whether driven by people, equipment or technology, Gates provides a wide range of services to optimise belt drive performance and deliver the best value to customers in return for their investment in Gates' products.

To maximise the service life of your drive systems, contact Gates and together we will find the best solution by

- identifying problem drive applications and developing a programme to increase their reliability
- evaluating current belt drive efficiencies using Gates DesignFlex® Pro™ and Cost Saving Calculation Tool
- determining ways to reduce maintenance costs
- recommending longer-lasting products that will enhance productivity and improve equipment reliability
- calculating energy savings gained by replacing problem drives with energy-efficient ones

In short, we do our utmost to optimise all drives in your wastewater treatment process!

Your distributor:



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Every effort has been made to ensure the accuracy and comprehensiveness of the information given in this brochure. However, Gates cannot be held responsible if its products are used in special or exceptional circumstances without prior consultation with and clearance from a Gates representative.