



ITT



The art of mixing.
The science in a range of technologies.

The art and science behind Flygt mixers and agitators

Engineered for life

The art of efficiency. The science of bulk flow and thrust.

Have you ever wondered how to be as effective as possible when you are almost always concerned over how to achieve problem free processes and trouble free operations? Not to mention escalating governmental and environmental pressures to conserve energy and optimize operations? Fact is, the intensive energy usage in treatment facilities makes achieving operational efficiency a real challenge. This is why you should get to know the art and science that makes Flygt mixers and agitators.

Maximum reliability at minimum costs.

Ultimately it has all to do with capitalizing on the science behind optimal bulk flow and thrust to achieve the best possible life cycle costs. You want to create the best conditions to achieve adequate bulk flow in your tank. To achieve this, you need a mixing or agitation function designed to take into consideration mixer layout as well as thrust.

This is where you can count on over 50 years of ITT's mixing experience and hands-on knowledge of various applications and design to support you. We pioneered the use of thrust as the main performance parameter, now established by the ISO 21630:2007 standard. Today, we meticulously engineer each installation to capitalize on the tank's natural hydraulic characteristics.

What does it all mean for you?

It means reliable and economical operations that translate into absolute peace of mind. You have a highly competent partner by your side all the way, helping you to make the right decisions every time and anytime: people who are engineers and technicians with the right skill sets and knowledge. You can also rely on specially developed tools and Computational Fluid Dynamics to help you determine the right technology, mixer size and layout to meet your particular needs.

Flygt mixers and agitators are systematically tested for thrust and comply with the ISO 21630:2007 standard for submersible mixers of all sizes. Our mixing technologies include:

- Testing and recording mixer performance in terms of thrust.
- Understanding the mixing needs and determining the thrust required to generate the bulk flow that best meets these needs.
- Determining the layout of adequate mixers and agitators to generate the required bulk flow and secure reliable operations.

FLYGT

SY4850

MAIN APPLICATION: DENITRIFICATION

WATER TREATMENT

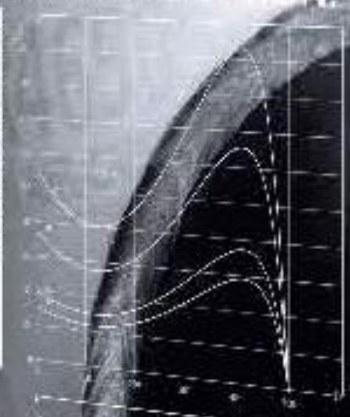




SR4650

MAIN APPLICATION: CON...

TORQUE SPEED CHART



CURRENT-SPEED CHART

The art of reliability. The science behind the smallest detail.

Customer satisfaction is at the heart of every aspect of our business. Right from the very beginning, our customers have been a vital part of the R&D that goes into the Flygt range of mixers and agitators.

Over the years, we have been listening to your needs and developing our technologies accordingly, which is why our banana propeller, N-technology, class H motors, and Active Seal™ are all such proven successes. Today, with over 200,000 mixers installed and operating within all kinds of applications around the world, we stand out as the leading partner offering a complete range of technologies that guarantee low life cycle costs.

Step by step, piece by piece.

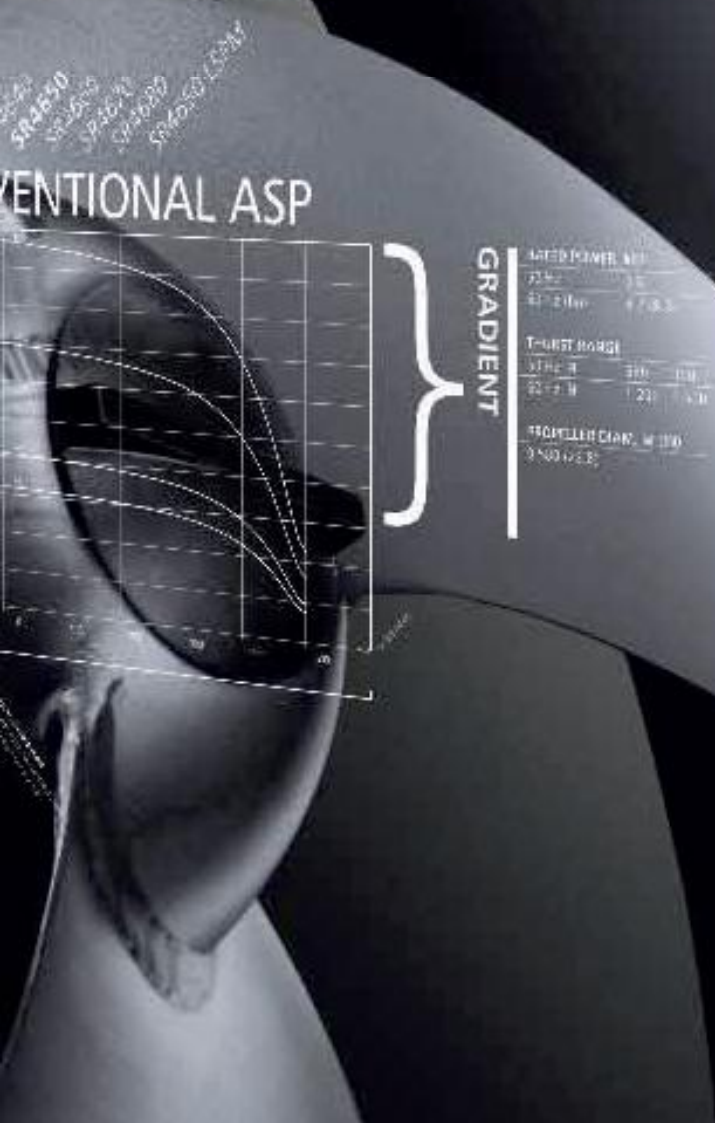
It is a science to set the standard on the art of mixing. This entails extending the total cost aspect to considering factors like flexibility, versatility, longevity and simplicity. It demands expertise around factors like your process design, the tank shape and dimensions, the content to be

mixed with regard to its viscosity, density and the like, as well as the operational demands on the application.

What does it all mean for you?

It means "good mixing" with virtually no downtime. And it means capitalizing on the tank conditions in your facility to achieve maximum results with minimum resources. Plus there is a whole mix of other benefits for you:

- Reliable operations and peace of mind.
- Solutions can be designed to fit any tank shape and dimensions.
- Installations are rapid and simple and require minimum maintenance.
- The need for manual work within the tank is greatly reduced thereby keeping downtime as well as safety concerns to the absolute minimum.
- Operating expenses along with the time and effort spent on maintenance are substantially reduced.



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The art of mixing. The science in a range of technologies.

You want the precise, right technology for your mixing requirement. At the same time, there are many factors to consider in the decision making process. We understand the art of mixing, which is why we suggest you talk to us, and together we will identify the complexities within your mixing application in order to capitalize on the possibilities available to you.

For example, both a submersible mixer and a top entry agitator can be ideal solutions in an anoxic or a sludge tank. And, a long narrow tank may require a large number of mixers. These are just some of the considerations that go into developing a wealth of parameters that ensure optimum mixing performance by selecting the right mixer.

We have a broad range of mixers and agitators featuring a span of technologies to ensure that you have nothing but the best possible choice for your specific needs. Most importantly each and every type of mixer and agitator is intelligently built with standardized materials and components and a modular design to facilitate customization.

What does it all mean for you?

It means you can choose correctly because you have the possibility of making well-informed and intelligent decisions. It also means that you are never alone in your selection process, but have the possibility of working together with some of the best in the business to achieve results. And, it means you have the assurance that your decisions are based on extensive experience in combination with specially developed and validated Computational Fluid Dynamics.

A guide to the best possible mixing solution for your needs.

		Submersible low speed, 4400 series	Submersible compact, 4600 series	Jet mixer (dry installed), 4700 series	Hydro ejector (submersed), 4700 series	Top entry agitator, 4800 series
Liquid	Wastewater	•••	•••	•••	•••	•••
	Thick sludge (> 4%)	-	•••	••	••	•••
	Abrasive or corrosive fluid	•••	•••	•	••	•••
Tank	Horizontal flow, flat tank	•••	•••	•••	•••	-
	Vertical flow, tall tank	-	•	•	-	•••
	Sealed tank	•	•	•••	-	••
	Low liquid level (< 1 m)	-	•	•••	•••	-
Economy	Energy efficient	•••	••	•	•	•••
	Lean installation	••	•••	••	•••	-
	Easy service	••	••	•••	•	•••
	Durability	•••	••	••	••	•••
Other	Motor type	integrated	integrated	integrated	integrated	standard

••• excellent •• good • average - typically not recommended
 Exceptions apply. Each case must be considered individually.

Top entry agitators – convenient and efficient.

Flygt top entry agitators are the logical choice for deep tank mixing involving all types of fluids, including high DS fibrous sludge. Engineered for energy efficiency, hygienic handling and ease of installation and service, these agitators combine dry-installed drives with submersible shaft and impellers for:

- Activated sludge treatment such as conventional ASP or sequencing batch reactor
- Digester mixing
- Sludge storage mixing

To effectively fine-tune your anaerobic, anoxic and digester processes for a range of tank volumes, shapes and sizes, top entry agitators incorporate these outstanding features:

Solid construction

Every component is built to withstand tens of thousands of hours of continuous operation. Parallel shaft geared motors combined with rigid drive shaft and specially designed impellers contribute to long lasting operations.

Outstanding impeller design

Regardless of the impeller you choose, you get exceptional thrust and high bulk flow along with excellent energy efficiency. The Flygt banana-blade impeller with its backswept design is engineered to be self-cleaning and ensure clog-free operation, even in the presence of fibrous materials.



Tailored to your needs

The top entry agitator portfolio comprises three models that can be tailored to your process needs. We'll work with you to achieve the right configuration for your needs based on impeller type, number, size, shaft and layout.

Extraordinary accessories

Leveling flange with gas seal

Aligns motor housing with the shaft to eliminate the risk of increased shaft load and gas leakage.

Rotating shaft stabilizer

Prevents shaft run-out by securely affixing the shaft end to the tank bottom with a tight swivel coupling assembly.

4800 series		4850	4860	4870	Advantages of Flygt top-entry agitators
Installed electric power	50 Hz, kW	2.2-7.5	1.5-4.0	5.5-15	
	60 Hz, kW (hp)	2.6-9.0 (3.5-12.2)	1.8-4.8 (2.5-6.5)	6.6-18 (9.0-24.5)	
Impeller speed	50 Hz, rpm	18-44	10-24	12-23	
	60 Hz, rpm	22-59	12-29	14-28	
Thrust, max, N		6,000	6,000	13,500	
Impeller diam, m (in)		1.5 (59)-2.5 (98)	1.5 (59)-3.0 (118)	2.0 (79)-4.0 (157)	