



mixing & heat transfer

OptiFoil[®], the newest design of GlasLock blades from De Dietrich Process Systems, combines the advantages of HydroFoil blades and Trapezoidal blades for optimized mixing.

The hydrofoil profile improves on the pumping effect given by the standard pitch blade turbine impellers of the GlasLock[®] agitation system. The bends and twists of its construction are specifically adapted to crystallization and suspension processes.

Trapezoidal blades have been designed to mix very low product volumes and facilitate the final emptying of the reactor by reducing the gap between the blades and the bottom of the reactor.

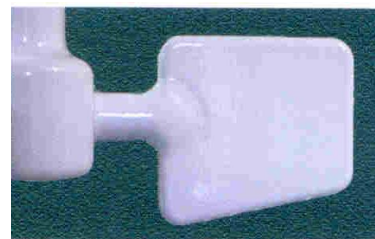
OptiFoil takes the features of these two designs and brings to the market a solution that ensures a high axial flow for suspension processes and also facilitates the operation of minimum volumes. The pitch angle of these blades gives a smoother contact with the product than the vertical trapezoidal blades, and is specifically recommended to avoid the alteration of fragile crystals.

OptiFoil is ideally suited for reactors involving homogenization and suspension, as well as heat transfer, crystallization, and dispersion. Its axial/radial flow is advisable for virtually every process. OptiFoil will also mix higher viscosity liquids than standard flat blades.

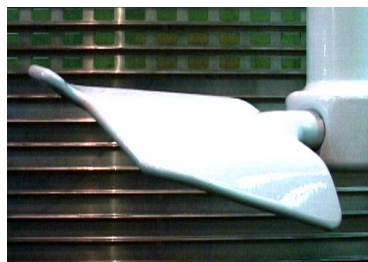
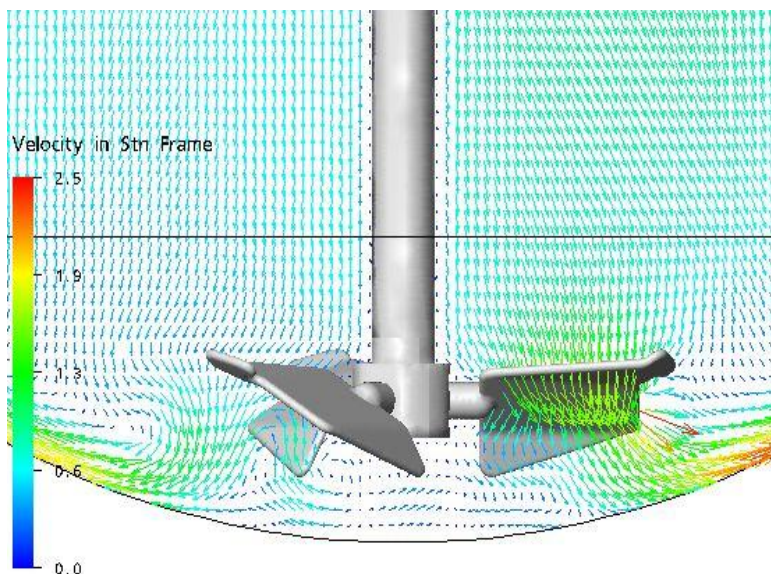
Built specifically for use in glass-lined steel vessels (SA, GL, and some CTJ models), OptiFoil blades are available in one-piece or GlasLock construction and can be made in a variety of sizes to match your vessel size and process. The blades can also be retrofitted into existing GlasLock agitator shafts, updating current equipment to state-of-the-art technology.



HydroFoil



Trapezoidal



OptiFoil Blades

Benefits

- Low level mixing with high axial flow
- Facilitates emptying of reactor without damaging fragile crystals
- Improved suspension
- Strong flow at reactor bottom



OPTIFOIL® BLADES

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The GlasLock System: Basic Selection Table

Selection Criteria	Pitch Blade Turbine 30°	Pitch Blade Turbine 45°	Pitch Blade Turbine 60°	Pitch Blade Turbine 90°	HydroFoil	Rushton Turbine	Trapezoidal Blade	Breaker Bar	ViscoFoil	OptiFoil
Design										
Flow Pattern	●	○	○	□	●	□	○	□	○	○
Flow Regime	●	○	○	●	○	●	○	○	□	○
Max. Viscosity (cP)	4,000	8,000	10,000	12,000	3,000	3,000	12,000	70,000	120,000	15,000
Homogenization	-	+	++	+	++	-	+	++	++	++
Suspension	-	+	++	++	++	-	++	+	+	+++
Liquid/Liquid Dispersion	-	+	+	++	+	++	++	-	-	++
Gas/Liquid Dispersion	-	-	+	+++	+	++	+++	-	-	++
Heat transfer	-	+	++	++	++	+	++	++	+++	+++
Crystallization	++	++	+	-	++	-	-	++	++	+++
d/T	0.41 to 0.44	0.41 to 0.44	0.41 to 0.44	0.41 to 0.44	0.43 to 0.45	0.3 to 0.4	0.35 to 0.4	0.6 to 0.75	0.6 to 0.85	0.45 to 0.55

Key: Flow Pattern

- Axial
- Axial / Radial
- Radial

Flow Regime

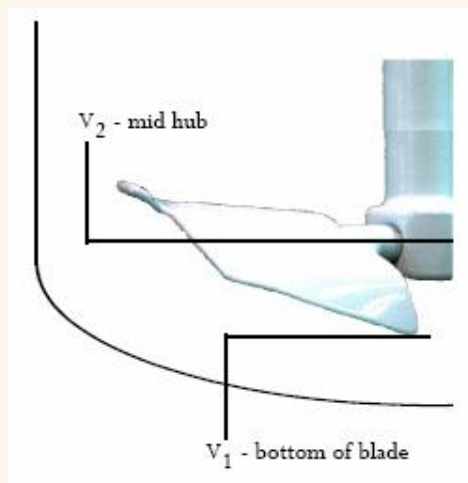
- Turbulent
- Turbulent / Laminar
- Laminar

Suitability

- +++ Recommended
- ++ Good
- + Acceptable
- Not advisable

The following chart lists the minimum mixing volume that OptiFoil can accommodate in a range of vessel sizes at the designated liquid levels:

Size (gal)	Minimum Mixing Volume (gal)	
	V ₁	V ₂
500	3.4	23.8
1,000	6.3	41.2
2,000	24.8	94.3
4,000	19.5	133.1



244 SHEFFIELD STREET
MOUNTAINSIDE NJ 07092
FAX 908-889-4960

908-317-2585
WWW.DDPSINC.COM
EMAIL SALES@DDPSINC.COM

9110 FORSYTH PARK DRIVE
CHARLOTTE NC 28273
FAX 908-889 4960

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