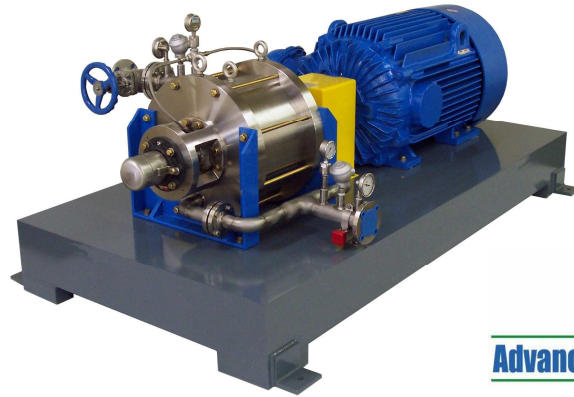


The ShockWave Power™ Reactor

by Hydro Dynamics, Inc.



Advanced Biofuel Solutions

The Next Generation Reactor For The Biodiesel Industry™

The Problem

Making high quality biodiesel from multiple feedstocks while consistently meeting the ASTM Spec. for Total (Bound) Glycerin.


The Solution

The ShockWave Power™ Reactor

The ShockWave Power™ Reactor harnesses cavitation to transesterify vegetable or animal fats in **seconds**. The process intensity drives the reaction further to completion than with conventional reactors in a fraction of the time. Whether in batch or continuous systems, less reaction time can lead to less saponification or emulsification, potentially allowing you to use a variety of feedstocks with broader range of free fatty acid concentrations. **The technology is proven with multiple operating installations.**

The Data

Actual production Data on Poultry Fat



	Result	ASTM Spec.	EN Spec.
Ester Content %	99.5	*	96.5 Min
Monoglycerides %	0.114	*	0.8 Max
Acid Number mgKOH/g	0.04	0.5 Max	0.5 Max
Total Glycerides %	0.026	0.24 Max	0.25 Max

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The Benefits

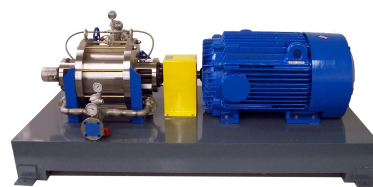
- Bound Glycerin Less Than 0.05% In Biodiesel Achievable With Two-Stage System
- Dramatically Reduced Reaction Time Measured In Seconds For Continuous And Minutes For Batch Systems
- Provides Greater Flexibility To Run Lower Priced Feedstocks
- Small Footprint
- Improved Yield With Lower Quality Feedstocks
- Expand Capacity And Improve Quality With Easy Retrofit For Existing Operations
- Batch Or Continuous Systems Available Up To 150+ Million Gallons Of Annual Throughput

The Product Line

The ShockWave Power™ Reactor has an elegantly simple and robust design proven through years of commercial operation in the chemical, petroleum, and food industries. The robust stainless steel construction, easy to use control system, small footprint, and quiet operation make the SPR an unparalleled biodiesel reactor.

Model	Approx. Throughput Flowrate (gpm)	Approx. Throughput Annual Cap (MM gal/yr)	Approx. Draw (hp)	Approx. Footprint (ft.)
SPR BD 150	350	150	600	6.0 x 11.0
SPR BD 100	200	100	400	6.0 x 11.0
SPR BD 75	150	75	300	4.0 x 7.5
SPR BD 50	115	50	200	4.0 x 7.5
SPR BD 35	75	30	120	4.0 x 7.5
SPR BD 25	50	25	100	3.0 x 6.5
SPR BD 15	30	15	60	3.0 x 6.5
SPR BD 7	15	7	30	2.5 x 5.0
SPR BD 3	5	3	12	2.0 x 4.3
SPR BD 1	2	1	4	2.0 x 4.0

Based on oil/methanol throughput and assume 90% uptime continuous operation



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