



# THE SHOCKWAVE POWER™ REACTOR

by Hydro Dynamics, Inc.



*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's effectiveness in biodiesel production is proven through years of use and multiple installations in operation.**

## 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



### The Benefits:

- <0.05% Bound Glycerin Achievable In Two-Stage System
- Reduces Reaction Time To Seconds For Continuous Systems and Minutes For Batch Systems
- Provides Greater Flexibility To Run Lower Priced Feedstocks
- Small Footprint For Any Capacity
- Improves Yield With Lower Quality Feedstocks
- Easy Retrofit To Expand Capacity And Improve Quality
- Systems Available Up To 150+ Million Gallons Per Year Of 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 Capacity 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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