

SKIMMER COMPARISON DATA SHEET

	DIP	DRUM/ DISK	ROPE MOP	WEIR	POROUS BELT	BRUSH
Throughput Efficiency (TE)	80-99%	20-50%*	10-40%*	10-50%*	50-80%	30-50%
Oil Recovery Efficiency (ORE)	99%	50-80%	50-80%	5-30%	30-70%	50-80%
Advancing Speed	0-3 knots	0 knots**	0 knots**	0 knots**	1 knot	0 knots
Oil Recovery Rate (ORR)	HIGH	LOW	LOW	MEDIUM	MEDIUM	LOW
Sensitivity to Oil Type	NONE	HIGH	HIGH	NONE	HIGH	HIGH
Sensitivity to Debris	NONE	HIGH	LOW	MEDIUM	MEDIUM	HIGH
Sensitivity to Slick Thickness	NONE	HIGH	HIGH	HIGH	MEDIUM	HIGH
Sensitivity to Waves	LOW	HIGH	LOW	HIGH	MEDIUM	MEDIUM
Complexity of Machinery	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH
Ease of Field Repair	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW
Reliability	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	MEDIUM
Operational Ease	HIGH	HIGH	HIGH	MEDIUM	MEDIUM	MEDIUM
Deployment Ease	HIGH	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM
Maintenance Required	LOW	MEDIUM	HIGH	LOW	HIGH	HIGH

The above table is only a general guide. The ratings shown are taken from testing, customer's general comments and spill experiences with oil recovery equipment. Actual test data is available for JBF DIP Skimmers, from the US Coast Guard, US Navy, University of New Hampshire, Environment Canada, American Petroleum Institute and US-EPA. Only independent test data should be used to compare a particular skimmer to JBF skimmers. Fully investigate all "claimed" ratings by a particular manufacturer, if there is no test data, to back it up. In certain, (possibly ideal) conditions, all skimmer types could theoretically perform equally. Also, consider that each skimmer type may have a particular spill condition, in which it operates the best. Most importantly, you must consider the real world requirements and your own conditions, in comparing how a particular skimmer will perform versus another.

DEFINITIONS:

Throughput Efficiency - Amount of Oil collected versus Oil encountered, in percentage. How much oil is "missed" by the skimmer? (*=dependent on performance of containment boom deployed with skimmer to allow advancement)

Oil Recovery Efficiency - Amount of Oil in recovered product versus water, in percentage. As tested in real world conditions of 1 to 10mm of oil, NOT 4 inches.

Advancing Speed - realistic, usable speed at which skimmer can advance through spill and still maintain high recovery efficiency. Also relates to sensitivity to current. (**=speed dependent on performance of associated containment boom)

Oil Recovery Rate - Overall rate of collection of pure oil, with all conditions being the same. $ORR = \text{Encounter Rate} \times TE \times ORE$

Sensitivity to Oil Type - The variation in performance of the skimmer with different types and viscosities of oil. Many skimmers use adsorption to collect the oil, which causes wide variations in performance from a refined product to heavy crude.

Sensitivity to Debris - Does the skimmer require a debris-free area in order to work? Will debris force a halt to the operations? Secondly, if the skimmer can work with debris present, can it be handled easily during operation, or does it slow down operations.

Sensitivity to Slick Thickness - Does performance drop drastically as the oil thickness decreases. Thick spills are always easier to pick up. Many skimmers cannot pick up sheens and will even leave a sheen behind during recovery

Sensitivity to Waves - Does the skimmer require a calm, flat surface to operate at its claimed performance levels? From calm conditions to rough water, does the skimmer's performance drop drastically, in either TE or ORE?

Complexity of Machinery - A measurement of the design complexity. This will relate to ease of operation, repair and general maintenance.

Ease of Field Repair - Measure of reparability of skimmer during a spill recovery operation. Can it be repaired and put back into service quickly or will it be removed from the clean up operations completely?

Reliability - Measure, from experience, of reliability of the skimmer, both during operation and its initial reliability when pulled from its storage/standby status.

Shipping/Transport Requirements - Measure of difficulty and complexity of the skimmer when going between oil recovery operations and transport. Is a large amount of disassembly and reassembly required?

Operational Ease - Simplicity of operations. Are large amounts of training required for operation? Can an "untrained" person learn operation at the spill site, quickly?

Deployment Ease - Complexity of deployment of skimmer. One person or 10? Is a crane or other additional equipment required? Time from storage to actual oil collection in a spill? 10 minutes or 2 hours or 10 hours? (NOTE: VOSS skimmers should be compared separately from integrated skimming vessels.)

Maintenance Required - Amount of general maintenance required. Both during normal operation and during storage.

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