

'The Komara™ Mini System - a lightweight portable oil skimmer for diesel, crudes and emulsions'

What are the key features and benefits of this system?

- The whole system, including the powerpack, is man portable (within EU manual handling recommendations) making it ideal for emergency response to inaccessible areas.
- The skimmer discs operate smoothly even at very low speeds, giving more than 98% oil pick-up, which effectively eliminates the need for costly separation or disposal of dirty water.
- The disc scrapers are manufactured from a specially designed flexible polymer, which precisely follows the contour of the disc and ensures that even the lightest oils are recovered with high efficiency.
- The pump rating is **10m³/hr** and the system oil recovery rate is **6.4m³/hr** as independently witnessed by Lloyds.
- The positive displacement transfer pump floats within 1m of the skimmer head. This reduces suction requirement, enabling higher volumes of higher viscosity contaminants to be recovered and discharged.
- The diesel powerpack incorporates safety features to ensure that it is safe in oil spill situations.
- The Komara™ Mini has been deployed around the world and proven to offer extremely high reliability with very low maintenance.

www.vikoma.com



88 Place Road
Cowes
Isle of Wight
PO31 7AE
United Kingdom

VIKOMA UK HQ:

Tel: +44 (0)1983 200560
Fax: +44 (0)1983 200561
email: sales@vikoma.com

VIKOMA RUSSIA & FSU:

Tel: +7 495 741 4817
Fax: +7 495 741 4818
email: moscow@vikoma.com

VIKOMA MIDDLE EAST:

Tel: +971 508 214979
Fax: +971 255 27818
email: emirates@vikoma.com

VIKOMA NORDIC:

Tel: +46 (0)31 744 3554/55
Fax: +46 (0)31 223 556
email: nordic@vikoma.com

VIKOMA ASIA PACIFIC:

Tel: +65 6890 6093
Fax: +65 6890 6092
email: asiapacific@vikoma.com



KM/B/3.02

As Vikoma has an ongoing development program, we reserve the right to amend the information contained in this brochure without prior notice. All quoted dimensions and quantities are nominal. If equipment is required for operation in Zoned areas, please contact Vikoma International Ltd



THE KOMARA™ MINI SYSTEM

A highly versatile, lightweight, hand portable oil skimming system.



Vikoma

Technology for a Cleaner Environment

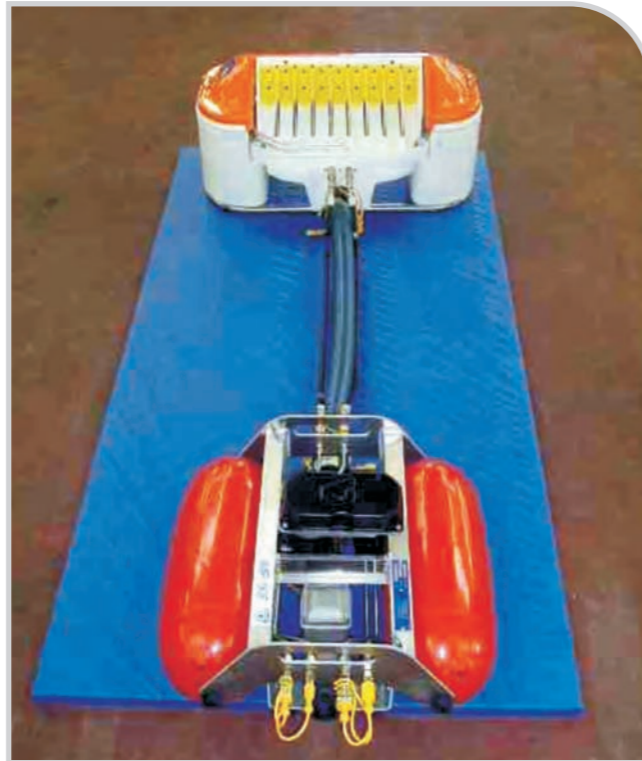
THE KOMARA™ MINI SYSTEM

What is it? - The Komara™ Mini skimmer system is a self-contained, lightweight oil recovery system, specifically designed to be carried by hand into inaccessible areas to recover a wide range of oils from water. The Mini system includes an oleophilic disc skimmer, a unique, two-part, portable diesel powerpack, a floating transfer pump and all the associated hoses and connectors. The system will operate in most environments, including very shallow waters, and will recover in excess of 98% oil, as witnessed by independent Lloyds assessors.

Where is it used? - Due to its compact size, the Komara™ Mini can be used in almost all inland and shoreline areas including ports and harbours, waste oil pits, beach operations, inland water ways, ponds, lakes, marshes, mangroves and any similar environment where oils are required to be removed from water.

The Komara™ Mini system is successfully employed in locations all around the globe by emergency response organisations, Coast Guards, Fire Brigades and Port Authorities.

How does it work? - The Komara™ Mini system uses oleophilic discs to draw oil into the skimmer. Oil adheres to the surface of the discs as they rotate through the water and is then removed by scrapers mounted on both sides of each disc. The oil is collected in a sump and is drawn to the transfer pump, floating just 1m away from the skimmer head. The close proximity of the pump enables efficient transfer of oil away from the skimmer head thereby dealing effectively with even the heaviest oils.



SKIMMER & TRANSFER PUMP CONNECTED

The innovative disc skimmer technology is proven to be the most effective method for separating oil from water – with more than 98% oil in the volume recovered. By contrast, brush skimmers typically “have a recovery efficiency of 50% in diesel”*. This leaves responders with an additional costly problem of secondary separation and then disposal of large quantities of oily water.

The Komara™ Mini system is driven by a unique powerpack which breaks down into two parts, enabling the whole system to be carried by hand to remote or difficult access sites. The engine incorporates two important safety features; a spark arrestor to prevent sparks from the exhaust creating an ignition source and an engine overspeed shutdown valve to protect the engine from overspeeding and causing personal injury.

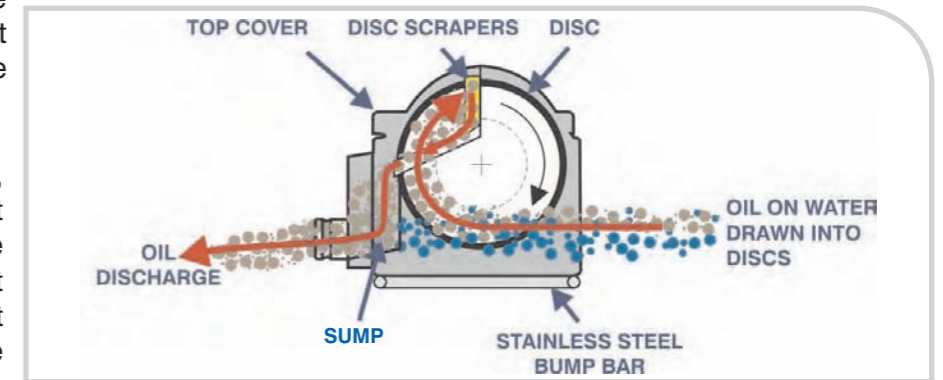
*Source: World Catalogue of Oil Spill Response Products, 8th Edition 2004/2005

Which oils will it recover? - The Komara™ Mini system will recover a wide range of oils, from light diesels to heavy contaminants. The oleophilic disc design ensures that the free water pick-up when separating light oils is very low and the positive displacement pump ensures that even heavy hydrocarbons can be recovered effectively.

Who can operate it? - All items, including the unique, split powerpack, within the system are designed to allow for 1 or 2 man lift and conform to current EU weight recommendations. All controls are clearly laid out and simple to understand.



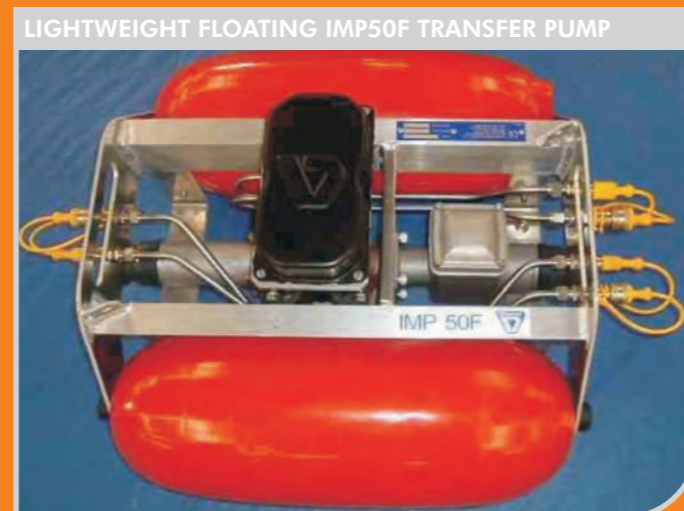
MINI SKIMMER DISC BANK



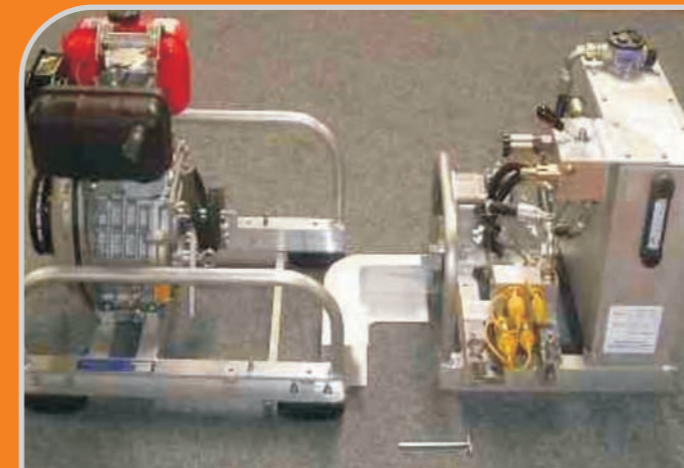
KOMARA™ MINI SKIMMER OIL FLOW DIAGRAM



MAN PORTABLE, LIGHT WEIGHT MINI SKIMMER



LIGHTWEIGHT FLOATING IMP50F TRANSFER PUMP

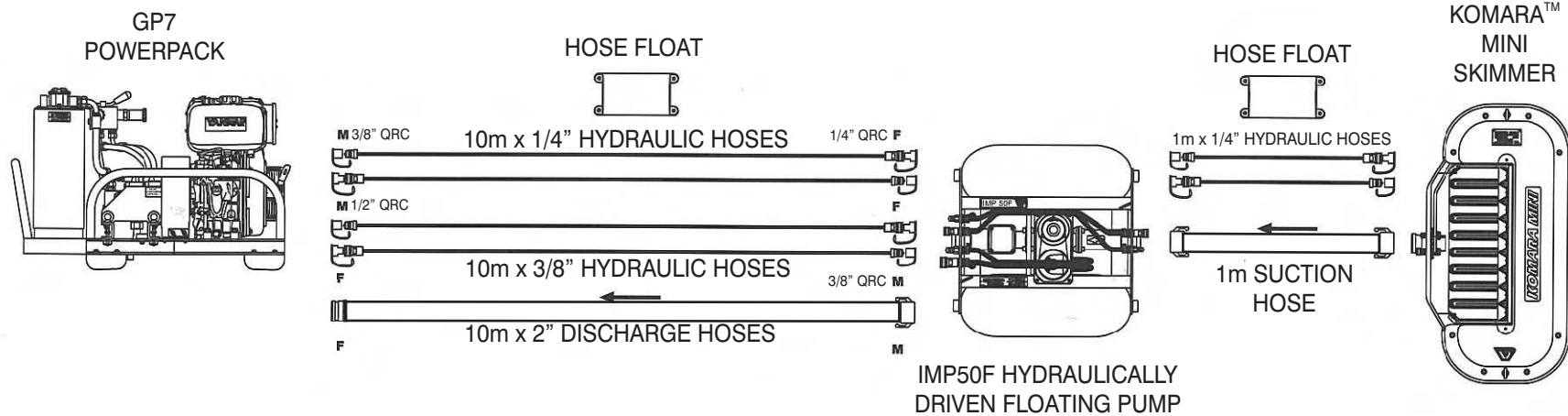


POWERPACK SEPARATES INTO EASILY PORTABLE PARTS



MINI SKIMMER HEAD WITH IMP50F FLOATING PUMP

KOMARA™ MINI SYSTEM LAYOUT



			<p>DO NOT MODIFY MANUALLY</p>	MATERIAL SEE LISTINGS	SCALE NTS	UNLESS OTHERWISE STATED 1 DO NOT SCALE 2 REMOVE SURF & DIMS TOLER 3 DIMENSIONS BY MILLIMETRES 4 DIMS RECEIVED WITH 10% SUR 5 3RD ANGLE PROJECTION	VIKOMA® INTERNATIONAL LIMITED			
					DRAWN PK		DATE 211106	TITLE KOMARA™ MINI SYSTEM LAYOUT	DRG. No. KM/SL/3.01	
ISSUE	DATE	CHANGE No.			CHANGE		PRINT CHK'D NP	TOLERANCE GENERAL ± 0.2 Holes ± 0.1 ANGLES ± 0.5		

THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF VIKOMA® INTERNATIONAL LTD. AND MUST NOT BE REPRODUCED IN ANY MEDIA WITHOUT THE EXPRESS WRITTEN PERMISSION OF VIKOMA® INTERNATIONAL LIMITED.



COPY

Office: **Southampton**

Date: **06 September 2006**

This certificate is issued to **VIKOMA INTERNATIONAL LIMITED** to certify that at their request the undersigned Surveyor attended their premises at **Cowes, Isle of Wight**, on the 4th and 5th September 2006 for the purpose of witnessing oil recovery trials on the Komara Mini Oil Skimmer, IMP50 pump and GP7 power pack.


Tests were conducted to determine the time taken for the equipment to recover and discharge the oil, identified as Total ZS220.

The test involved the recovery of oil into a calibrated container, via a 1m length of 50mm diameter flexible suction hose and a 3m length of 50mm diameter discharge hose. At the start of the test the depth of oil on top of the water was approximately 108mm.

Test Results

Test Number	Recovery Time (seconds)	Recovered Volume (litres)	Calculated Recovery (m ³ /hr)	Free Water Content	Oil Temperature (celcius)	Oil Viscosity (cSt)
1	82	80	3.5	<2%	20	950
2	63	100	5.7	<2%	20	950
3	59	100	6.1	<2%	20	950
4	56	100	6.4	<2%	20	950

Oil viscosity was estimated from data sheets at the relevant oil test temperature.


D.G. COLLINS
Surveyor to Lloyd's Register

NOTICE: This certificate is subject to the terms and conditions overleaf, which form part of this certificate.

FORM 1124 (05/96)

Lloyd's Register of Shipping, registered office: 71 Fenchurch Street, London EC3M 4BS



VIKOMA INTERNATIONAL LTD

88 Place Road, Cowes, Isle of Wight, PO31 7AE. United Kingdom

Tel: +44 (0)1983 200560

Fax: +44 (0)1983 200561

email: sales@vikoma.com

www.vikoma.com



As Vikoma has an ongoing development program, we reserve the right to amend the information contained in this leaflet without prior notice.
All quoted dimensions and quantities are nominal. If equipment is required for operation in Zoned areas, please contact Vikoma International Ltd