



DUTCH INNOVATION
in combating oil pollution

SWEEPING ARM

Offshore oil recovery system



Complete set of Koseq oil spill recovery equipment: Koseq sweeping arm, dedicated handling crane and diesel driven, Zone II suited diesel driven hydraulic power pack.

Sweeping arm specifications:

Available lengths:	10 – 12 – 15 meter
Total weight:	5000 kg (15 meter long)
Preservation:	Four layer offshore coating
Skimmer type:	Weir or brush
Skimmer pump type:	Submersible screw centrifugal pump.
Skimmer pump capacity:	360 m ³ /hr
Wind force:	Max. 7 Beaufort



Koseq delivers a complete set of equipment. Besides the rigid sweeping arms the system consists of dedicated sweeping arm handling cranes and hydraulic power packs. These power packs can be electrical or diesel driven, and can be executed for "normal" use, or for use in Zone II areas.

The sweeping arm system can optionally be executed with:

- Radio remote control
- Weir skimmer sensor

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Introduction

Offshore oil spills are often difficult to combat. Large quantities of heavy oil are released, in severe weather circumstances. This is where the Koseq rigid sweeping arm is at its best.

During several major oil spills the Koseq rigid sweeping proved to be the most effective tool to recover large quantities of oil in a short time.

The Koseq rigid sweeping arms are pulled alongside a vessel. Instead of containing an oil spill first with a boom and then skim the oil off the water surface, a vessel equipped with Koseq sweeping arms recovers the oil dynamically in one go, like a lawn mower. The system can be deployed in minutes with minimal crew, without the help of any supporting vessels.



Analysis of Vessel Oil Recovery Performance						
Vessels	On Site Arrival (Days after incident)	Recovery Period (Days)	Sweeping Arms	Vessel Storage Capacity (m³)	Recovered Oil/Water Emulsion (m³)	Oil/Water Recovery Rate (m³/ Day)
RIJNDELTA	6	~24	●	3,548	7,032	285.7
ARCA	10	~31	●	1,060	5,498	174.5
NEUWERK	9	~27	●	1,000	1,600	58
FAR SCOUT / BOA SIV*	17	42		1,000	1,228	29.2
GUNNAR SEIDEN-FADEN	21	~38		310	500	13
NORMAN DRAUPNE / BAMSE*	40	~25		798	285	11.2
UNION BEAVER	13	19		300	102	5.4
BRITISH SHIELD** & SEFTON SUPPORTER	20	~31		3,835	99	3.1
AQUA CHIARA	22	38		1,084	48	1.3
TITO	22	38		290	48	1.3
AILLETTE	3	45		500	600	?
ALCYON	15	44		500	150	?
Fishing Vessels***	-	-		35,523	-	-



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Keeping in mind that the transport of oil products over water was growing rapidly, and with that the chance of a large oil spill, the development of the rigid sweeping arm started over 40 years ago. The idea was to develop a tool that could recover large quantities of oil from the surface of the sea in a short time.

In 1968 the first steps were taken and a cooperation was established between Rijkswaterstaat (part of the Dutch Ministry of Infrastructure and the Environment), TNO and Van der Sluijs & Kampers (later known as Doseq, and now as Koseq), resulting in the design and construction of the rigid sweeping arm.

The rigid sweeping arm became the major tool for Rijkswaterstaat and other European Coast Guards to combat offshore oil pollution.

Over the years several large oil spills at sea have occurred, like the Sea Empress in 1996, the Erika in 1999 and the Prestige in 2002. During these spills the effectiveness of the rigid sweeping arm was proven, resulting in a worldwide breakthrough of this system.

That the Rigid Sweeping Arms are indeed the best tool recover large quantities of oil in offshore conditions was proven during the Prestige oil spill near Spain, November 2002. Several oil spill recovery vessels from all over Europe assisted in recovering the oil. The table on the left is made by EMSA (European Maritime Safety Agency) and shows how much oil was recovered per vessel per day that it was on site. The vessels equipped with Koseq sweeping arms performed far better than any other vessel.

Nowadays, over 70 vessels are equipped with Koseq sweeping arms.

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