



November 2, 2010

**HOLLOSEP<sup>®</sup> Reverse Osmosis Membrane Module  
Adopted for Use in One of the Largest Seawater Desalination  
Plants in the Middle East**

Toyobo's reverse osmosis membrane module HOLLOSEP<sup>®</sup> for producing freshwater from seawater has been adopted for use in a large-scale seawater desalination plant to be built in the Jeddah area of Saudi Arabia on the Red Sea coast. The plant will be named the Jeddah Reverse Osmosis Plant No. 3, and it will have a capacity of 260,000m<sup>3</sup> of freshwater per day.

**1. Adopted for Use in One of the Largest Seawater Desalination Plants in the Middle East Being Built in the Jeddah Region**

- (a) This plant was commissioned by Saudi Arabia's Saline Water Conversion Corporation to a consortium led principally by Doosan Heavy Industries & Construction, a Korean plant engineering company, and is scheduled to go into operation in March 2013.
- (b) The desalination capability of this plant will be the largest among plants using reverse osmosis membrane modules that are located in the Middle East. The HOLLOSEP<sup>®</sup> modules at this plant will produce 260,000m<sup>3</sup> of freshwater per day from seawater.
- (c) The existing Plant No. 1 has been in operation using HOLLOSEP<sup>®</sup> modules since 1989 and the Plant No. 2 since 1994. Combined with the Plant No. 3 and the Jeddah RO Plant, total production capacity will rise to 370,000m<sup>3</sup> per day.
- (d) The reverse osmosis membrane module of the plant requires durability and stability in its operation, and the high evaluation of the delivery and high performance track record of HOLLOSEP<sup>®</sup> modules at other sites in Saudi Arabia was a determining factor behind this decision.

## 2. Features of HOLLOSEP®

- (a) HOLLOSEP® modules employ cellulose triacetate hollow fiber membranes that provide superior resistance to chlorine, which is injected in the water to prevent the growth of microorganisms and algae. These modules have demonstrated excellent operating performance at many plants in Japan and around the world.
- (b) HOLLOSEP® modules have been adopted for use in the world's largest seawater desalination plants located in Saudi Arabia: namely, the Shuqaiq Plant (with a capacity of 240,000m<sup>3</sup> per day), the Rabigh Plant (220,000m<sup>3</sup> per day) and the Yanbu Plant (130,000m<sup>3</sup> per day). In the Middle East, where there is a strong need for desalinated water, HOLLOSEP® modules boast a greater-than-50% share of the market for seawater desalination modules.

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**[Supplement]****Major Seawater Desalination Plants Employing HOLLOWSEP® Modules**

<b>Plant Name (Country)</b>	<b>Plant Size</b>	<b>Start-up Date</b>
Jeddah RO3 (Saudi Arabia)	260,000 m <sup>3</sup> /day	2013
Shuqaiq-II (Saudi Arabia)	240,000 m <sup>3</sup> /day	2010
Rabigh (Saudi Arabia)	218,000 m <sup>3</sup> /day	2008
Yanbu (Saudi Arabia)	128,000 m <sup>3</sup> /day	1998
Jubail (Saudi Arabia)	66,700 m <sup>3</sup> /day	2007
Jeddah RO1 (Saudi Arabia)	56,800 m <sup>3</sup> /day	1989
Jeddah RO2 (Saudi Arabia)	56,800 m <sup>3</sup> /day	1994
MARAFIQ- Yanbu (Saudi Arabia)	50,400 m <sup>3</sup> /day	2005
Fukuoka (Japan)	50,000 m <sup>3</sup> /day	2005
Ad Dur (Bahrain)	45,500 m <sup>3</sup> /day	2005
Florida (USA)	11,400 m <sup>3</sup> /day	2005
Tanjun-Jati B (Indonesia)	10,800 m <sup>3</sup> /day	2005