# CASE STUDY

Sociedad Estatal de Aguas de la Cuenca del Segura
The Desalination plant of Valdelentisco


Figure 1. The Desalination Plan of Valdelentisco (Murcia-Spain).

## Desalination Plant - 2008

The desalination plant of Valdelentisco was officially opened in January 2008; it is located on the left of the Rambla de Valdelentisco between Mazarrón and Cartagena (Murcia). With a current production capacity of 27 hm3/year expandable to 70 hm3/year in the future, this plant has become one of the largest facilities of its kind in the world, allowing the supply to a section of the "Comunidad Autónoma de Murcia" through the Commonwealth of Channels of the Taibilla, and as irrigation and urban supply for tourist-residential uses in the Campo de Cartagena

The design, construction and maintenance was awarded by the Sociedad Estatal de Aguas de la Cuenca del Segura (acuaSegura) in 2004 to a joint venture of companies formed by Ferrovial-Agroman, S.A. and Cadagua, S.A., with its responsibility of INYPSA providing technical assistance for project management.

The total investment was (apx) 76.4 million euros, financed by the European Union + European Regional Development Fund.

## Seawater Intake-Pumping Station

For the seawater intake it was projected an open intake, constructed in such a way that minimizes the risk of variations in raw water quality that may affect both the process and the quality of water produced (underwater intake)

From the seawater Intake, (sump PS) seawater is pumped the Intake Tower up to the Desalination Plant.


Figure 2. Seawater Intake PS.

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## Intake Pumping Chamber: Submersible Solutions

Intake chamber was equipped with eight (8 = 7+1R) Indar submersible volute pumps BF-40-40-B1 + MF-315-6/355 in Duplex Material driving a total flow of 3,500 l/s (12,600 m3/h)


Figure 3. Four (4) pumps ready to be installed.

Figure 4. Intake Chamber // Submersible Pumps.

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Two (2) of the pumps (one (1) per line) were projected with variable speed to absorb all the potential possibilities of demand in the plant.

From this intake chamber, the seawater goes to the desalination plant.

The pumps are of radial type, with a base, an elbow and a lifting system that allows removing the equipment without the need for an operator to enter the sump.

The Submersible electropump sets, consist of a single-stage centrifugal pump, and an electric motor that share a single shaft.

Figure 5. Discharge Piping.

Figure 6. Pumping Chamber

| Pump | Motor | Flow (l/s) | Head (m) | Motor Output (kW) | Voltage (V) | Discharge Diameter (mm) |
|---|---|---|---|---|---|---|
| BF-40-40-B1 | MF-315-6/355 | 500 | 45 | 355 | 660 | 400 |

INDAR submersible pump sets for seawater intake (open sump) were a technically and environmentally friendly alternative due to the efficient use of water.

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