How a cement plant gets off the ground

Peter Krüger, Vice President, FLSmidth
FLS Industries Capital Market Day, 18 January 2005
Limestone quarry
Limestone loading
Limestone Crusher
EV Hammer Impact Crusher
CHO Circular Homogenising storages
Longitudinal raw material store
Raw material handling & storage
Blending and storage silo, CF
ATOX coal mill
Anti pollution equipment
SLC-D

Cimsa Mersin, Turkey
The Rotax-2 rotary kiln
Kiln hood
Control room
SF - CROSS BAR COOLER
UMS Ball Mill
OK vertical roller mill
Packing equipment

Lifting table

Rotary packer
Cement packing
Pneumatic ship unloader
Financial, legal and commercial conditions
Performance warranties and conditions
Logistic information
Technical specifications
Cost price estimates
Equipment list
Flow sheet
Plot plan, Proposal drawings
Process design
Mass flow

Quotation
Negotiations and modifications
Contract award

Approximately 3 months
3 - 9 months

Contract draft
Sales pricing
# 2 x 5,000 tpd Plant

<table>
<thead>
<tr>
<th>Category</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Equipment</td>
<td>27,510 ton</td>
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<tr>
<td>Electrical Equipment</td>
<td>2,830 ton</td>
</tr>
</tbody>
</table>

### Turnkey Activities

- Site levelling: 25,000 m³
- Internal roads and squares: 127,000 m²
- Excavation: 150,000 m³
- Concrete: 140,000 m³
- Formwork: 310,000 m²
- Reinforcement: 17,000 ton

### Structural Steel

- Buildings: 9,000 ton
- Storages: 1,500 ton
- Conveyor bridges: 2,400 ton
- Other: 3,800 ton

### Cladding Steel

- Masonry walls: 13,000 m²

- Cladding steel: 72,000 m²
# Cost-distribution for a Cement Plant

<table>
<thead>
<tr>
<th></th>
<th>Typical</th>
<th>UK</th>
<th>Egypt</th>
<th>Algeria</th>
<th>Indonesia</th>
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</thead>
<tbody>
<tr>
<td>1 Machinery &amp; Equipment</td>
<td>40</td>
<td>36</td>
<td>49</td>
<td>26</td>
<td>42</td>
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<tr>
<td>2 Shipping</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>9</td>
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<tr>
<td>3 Civil Works incl. Steel Structures</td>
<td>35</td>
<td>38</td>
<td>30</td>
<td>47</td>
<td>29</td>
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<tr>
<td>4 M+E Erection Works</td>
<td>15</td>
<td>20</td>
<td>10</td>
<td>11</td>
<td>12</td>
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<tr>
<td>5 Supervision/Site Expenses</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>10</td>
<td>3</td>
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<tr>
<td>6 Miscellaneous</td>
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<tr>
<td><strong>Total</strong></td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
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</table>
Total Installed Cost
(Country specific)

![Graph showing total installed cost vs. capacity (MTPD)]

- **LOW COST**
- **NORMAL COST**
- **RECENT JOBS**

US$/MTPY vs. Capacity (MTPD)