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Subsidiaries

Austria
Steyregg
Tel +43 732 641111-0
Fax +43 732 641111-33
office@stahlcranes.at

China
Shanghai
Tel +86 21 62572211
Fax +86 21 62541907
victor.low@stahlcranes.cn

France
Paris
Tel +33 1 39985060
Fax +33 1 34111818
info@stahlcranes.fr

Great Britain
Birmingham
Tel +44 121 7676414
Fax +44 121 7676490
info@stahlcranes.co.uk

India
Chennai
Tel +91 44 43523955
Fax +91 44 43523957
anand@stahlcranes.in

Italy
S. Colombano
Tel +39 0185 358391
Fax +39 0185 358219
info@stahlcranes.it

Netherlands
Haarlem
Tel +31 23 5125-220
Fax +31 23 5125-223
info@stahlcranes.nl

Portugal
Lisbon
Tel +351 21 44471-61
Fax +351 21 44471-69
ferrometal@ferrometal.pt

Singapore
Singapore
Tel +65 6271-2220
Fax +65 6377-1555
sales@stahlcranes.sg

Spain
Madrid
Tel +34 91 4840865
Fax +34 91 4905143
info@stahlcranes.es

Switzerland
Däniken
Tel +41 62 82513-80
Fax +41 62 82513-81
info@stahlcranes.ch

United Arab Emirates
Dubai
Tel +971 4 8053700
Fax +971 4 8053701
info@stahlcranes.ae

USA
Charleston, SC
Tel +1 843 767-1951
Fax +1 843 767-4366
sales@stahlcranes.us

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STAHL CraneSystems _ Crane technology made to measure >>>



Off-standard hoist for power station

Elsam Kraft A/S, Esbjerg/Denmark

Participating companies Fisia Babcock, Elsam Engineering A/S, STAHL CraneSystems GmbH _ **Scope of supply** SH 6025-20 2/2-2 L5 wire rope hoist with monorail trolley _ **S.W.L.** 2,500 kg _ **Height of lift** 75 m _ **Hoisting speed** 3.3/20 m/min _ **Duty cycle** 20/65 % DC _ **Equipment** off-standard rope drive with true vertical lift, electronic motor management, overload sensor in gear, motor temperature control

→ www.stahlcranes.com

STAHL CraneSystems GmbH, Daimlerstr. 6, 74653 Künzelsau, Germany
Tel +49 7940 128-0, Fax +49 7940 55665, marketing@stahlcranes.com

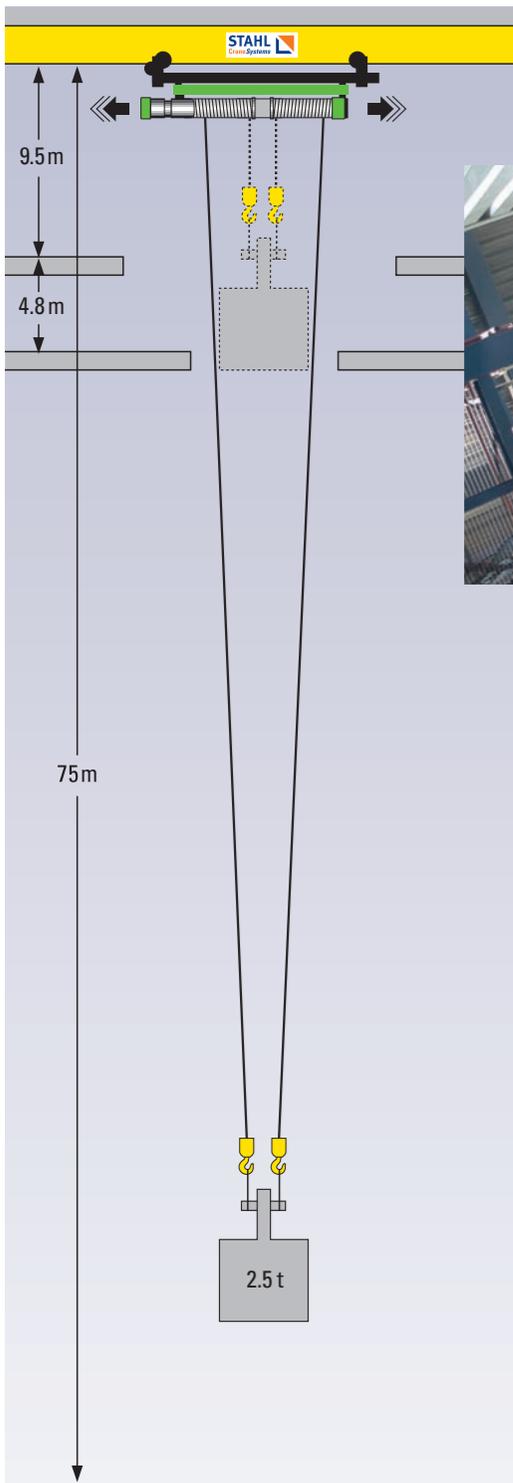
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Lifting technology | Drive technology | Control technology

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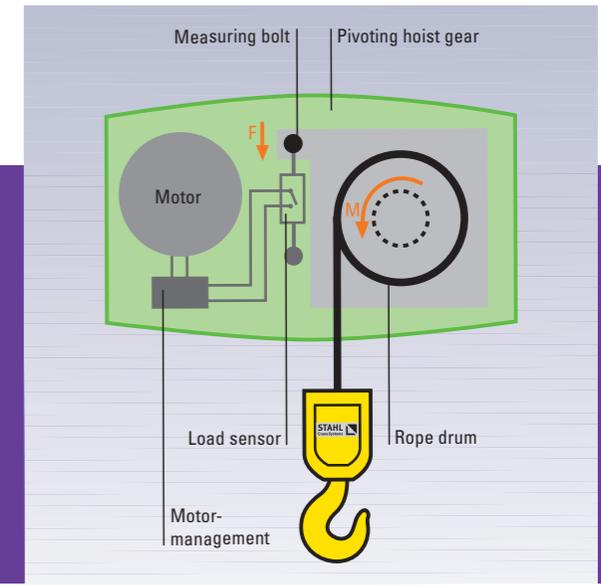




Safe transportation over 65 m height thanks to dual rope design.

Cast metal rope guides permit stable guidance of the ropes and minimise wear.

Standard overload cut-off even without rope suspension thanks to floating gear.



Constantly rising global energy requirements and new statutory regulations are the main impetus for business in modern power station technology – a challenge for manufacturers: they must design power generating plants that are reliable and environment-friendly. In addition, low investment costs and a high degree of economic efficiency are required.

Starting point Fisia Babcock Environment GmbH in Gummersbach provides all engineering services relating to the construction of refuse incineration and flue gas filtering plants. Fisia Babcock's know-how and a long list of international references make it ideally suited to assuming a leading role in the global market for such plants. In 2003 Fisia received the order to supply a new flue gas denitrification plant (DeNOx) in Esbjerg (Denmark). The technical concept was drawn up in collaboration with Elsam Engineering A/S acting as consultants to the power station operators Elsam Kraft A/S. The turnkey installation was to be supplied complete with the necessary hoisting technology.

Specifications A total of 84 catalytic converters are installed on two levels in the denitrification plant. The individual elements of the catalytic converters are transported from ground level to a height of 60.7 m or 65.5 m. The hoist required is used for the initial installation and subsequently for replacing the catalytic converters, the weights to be transported ranging up to 2,500 kg. Only installation ports with the relatively restricted dimensions of 1.2 x 3.5 m are available for transporting the 0.97 x 1.98 m catalytic converter cages safely over the various levels of the building. In view of the

lateral clearance on the narrow side of a mere 115 mm, the task of lifting the catalytic converters proved difficult: Fisia Babcock's initial concept planned a simple hoist. That the load would swing and possibly twist was realised to be a disadvantage of this solution.

Realisation In view of the problems for transporting the catalytic converters during installation imposed by the system, an electric wire rope hoist was considered. »Off the peg« electric wire hoists however are limited as regards their useful hook height and have the disadvantage that the load hook moves horizontally as the rope unwinds from the drum: this effect makes positioning more difficult if the load is to be lifted and lowered through restricted openings.

Thus a cost-effective solution was sought on the basis of an electric wire rope hoist which had to surmount the great height of lift without load swing and without horizontal movement of the hook – a challenging task. A concept was developed utilising standardised components from STAHL CraneSystems extensive series range and presented to the customer. Fisia Babcock recognised the many technical and cost advantages of STAHL CraneSystems quotation and placed the order with them for the well thought-out system solution: An electric wire rope hoist with

monorail trolley is suspended from the bottom flange of a runway. The 2,500 kg S.W.L. hoist can travel above the installation ports and pick up the catalytic converters at ground level, hoist them up and set them down on the platforms at the side of the ports at heights of up to 65 m.

A dual rope version was chosen to prevent collisions during the hoisting process. The dual rope design avoids inconvenient lateral hook travel during the hoisting procedure, in addition the influence of rope torsion on the load is greatly reduced: overall an extremely stable and swing-free position of the load during the hoisting procedure is achieved although it has no lateral guide. The drive technology is dimensioned with reserves of power for the great height of lift of 65 m and the ambient temperature of +60 °C: the motor must on no account fail due to overheating during the hoisting cycle. Thus a high motor duty cycle and fast hoisting speed were decisive selection criteria.

Result The whole project was carried through by STAHL CraneSystems, from the hoist concept to supply right up to installation and commissioning. The SH60 wire rope hoist, installed and in service since autumn 2004, has in the meantime proven its practical suitability in everyday operation.