



**SIEMAG  
TECBERG**



**TECHNICAL INFORMATION**

# SHAFT-HOISTING INSTALLATION

(IBERPOTASH S.A., CABANASAS MINE, SURIA, SPAIN)

## TECHNICAL INFORMATION

# SKIP-HOISTING INSTALLATION

SIEMAG TECBERG supplied to Iberpotash S.A. the equipment for the Shaft N° 3 of the Cabanasas Mine consisting of a modern skip hoisting installation designed for an annual capacity of 3.2 million tons of potash salt.

Reconstruction of Shaft N° 3 started in March 2002 while, in parallel to these works, Shaft N° 2 was repaired on the weekends. The new hoisting system for Shaft N° 3 was installed and commissioned during the first half of 2003.

The hoisting installation built by SIEMAG TECBERG has some specific technical features to meet the conditions prevailing in the mine. Without major interruption of the production through shaft N° 2, no production increase was possible without a major shut-down. The existing ventilation shaft N° 3, however, has a clear diameter of 4.5 m only and a rather problematic ground, which only allowed to install a single-compartment skip-hoisting

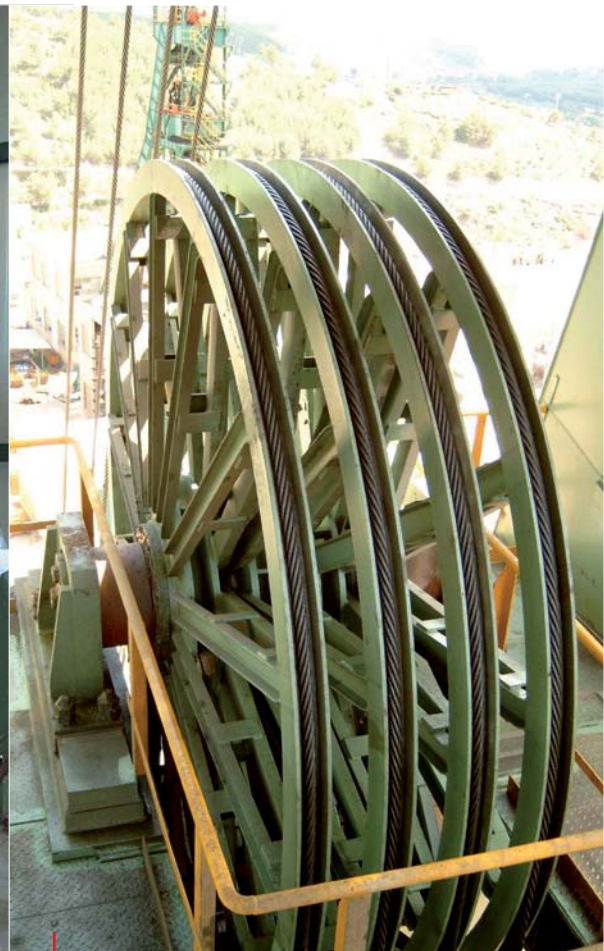
installation. Rope guidance was selected in order to meet the short realisation time required. The skip was sized for a payload of 30 t at a hoisting speed of 16.5 m/s, designed to hoist the required production of 570 t/h from a depth of -680 m. Special measures were taken to cope with the high volume of upcast air in the shaft.

The complete plant is designed for hoisting material which is very sensitive to „caking“. For this reason, the underground loading installation was equipped with a measuring belt in order to ensure the precalculated loading of the skip within the preset time. The swing-out type skip with the maximum cross section was designed to guarantee easy and complete unloading.

The headframe is a three-post structure with suspended guide frame. This type of construction allowed to minimize the expenditure required for adapting the existing shaft collar to the new hoisting equipment.



4-Rope Koepe Winder

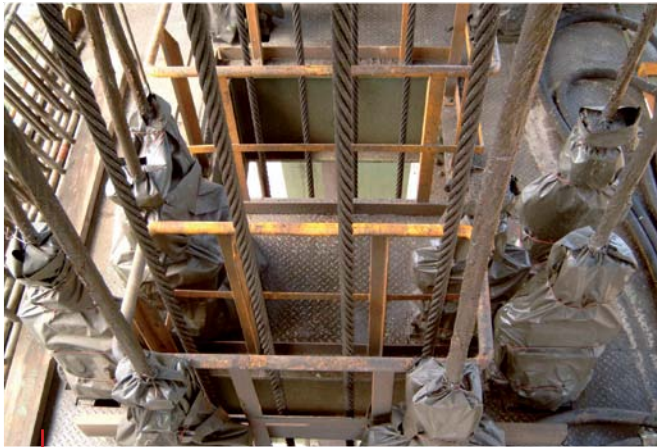


Head Sheaves with Internal Roller Bearings

In accordance with the latest state of the art, the rope sheaves are individually fitted with roller bearings and thus need very little maintenance.

The core of the SIEMAG TECBERG hoisting installation is the four-rope winder with an integrated motor. This type of construction has proven its top quality and exceptional reliability in our customers' mines all over the world. The winder, diameter 4.2 m, accommodates a 3,100 kW motor; its highly compact and solid construction provides maximum stability against motor air gap variations which, in conventional hoisting installations, have already caused shutdowns and considerable production losses.

The SIEMAG TECBERG Project Management team, who has proven its competence and reliability in many projects worldwide, guaranteed that the customer would receive an efficient hoisting installation within the agreed time schedule. SIEMAG TECBERG executed this shaft hoisting project, including the reconstruction of the existing shafts, as a turnkey solution to the full satisfaction of the customer, who realised the production increase with minimum own expenditure.



Guide Rope-Suspension



Unloading Mechanism



Hoisting Installation



Unloading Station

**TECHNICAL DATA (METRIC DIMENSIONS)**

Type of Hoisting	Production
Shaft Capacity	10,000 t/Day
Conveyances	Skip and Counterweight
Hoisting Distance	710 m
Payload	30 t
Hoisting Speed	16.5 m/s
Type of Winder	KW / 4200 / IM
Drum Diameter	4.2 m
RMS Power	3,100 kW
Winder Speed	75 rpm
Suspended Rope Load	780 kN

Number of Ropes/ Conveyance	4
Rope Diameter	42 mm
Rope Mass	6.76 kg/m
Rope Breaking Load	1,420 kN
Type of Brake	Disc Brake, 2 Discs
Number of Brake Posts	4
Number and Type of Brake Calipers	8 BE 100
Type of Brake Control	ST2
Type of Emergency Braking	Pressure-Controlled Brake



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