TECHNICAL INFORMATION

DISC BRAKE SYSTEMS FOR WINDERS
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SIEMAG TECBERG disc brakes for winders and winches are built in modular design. They are suited for various applications and can be upgraded to improved characteristics.

The brake systems consist of the following components:

- brake posts with brake units
- hydraulic system
- electrical brake control.

The components keyed to the particular winder guarantee safe braking during normal operation as well as during emergency braking taking always into consideration the relevant regulations. The initiation of the braking force is monitored in order to preserve the hoisting equipment and to avoid rope slip in case of Koepe winders.

All elements related to safety are installed in duplicate which means that the hydraulic safety circuit is redundant.
Bremsständer mit BE 100-Bremszangen

The retardation is realized under constant braking force which is calculated on the basis of the specific plant data. The necessary residual pressure is generated by a pressure accumulator until the winder stops.

<table>
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<tr>
<th>TYPE</th>
<th>OPERATION</th>
<th>BRAKE CHARACTERISTIC</th>
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<tbody>
<tr>
<td>ST1</td>
<td>v &lt; 4 m/s</td>
<td>constant brake force</td>
</tr>
<tr>
<td>ST2</td>
<td>v &gt; 4 m/s</td>
<td>constant brake force</td>
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Independent of load and load direction, the preset braking retardation will be maintained. The required braking force is electronically controlled by means of a pressure servo-valve. With the ST N+1 this is done by at least two independent closed-loop controls. As an option, one additional closed-loop control may be integrated as a reserve. The SB 1 has an active closed-loop control and a passive one which is activated if a fault is detected in the active one.
DESCRIPTION

The brake supports which are adapted to the winder are fitted with brake elements BE 100, BE 125, or BE 200. The braking force is generated by pre-tensioned cup springs and hydraulically lifted. Spring pressure and air gap are easily re-adjustable. Brake lining wear as well as spring breakage are monitored and signalled.

Hydraulic pumps, control block, valves and control units are combined in the hydraulic unit. The piping consists of steel pipes with a large cross section. The electrical brake control with electronic devices is an independent system not interfering with any other control of the hoisting plant. It is completely wired and housed in dustproof switch cubicles. Control and monitoring of the system are done by redundant PLCs. The clearly defined interfaces with the winder control are fitted with plug-in contacts.

The complete disc brake system, including piping, is assembled in the workshop for performance tests. Thus trouble-free commissioning at site and reliable operation are guaranteed.
INTEGRATION OF THE WINDER BRAKE SYSTEM

DISK BRAKE SYSTEM

A  Winder with brake posts
B  Hydraulic unit
C  Electrical brake control
D  Control desk
E  Electrical winder control

CHARACTERISTICS

▪ Modular design ST1, ST2, ST3, ST N, ST N+1, SB 1
▪ Brake elements with asbestos-free linings
▪ Hydraulic control unit composed of a modular system
▪ Electrical and electronic brake control
▪ Combined service and safety brake
▪ Redundant safety braking circuits
▪ Designed as brakes with constant braking force or constant braking retardation
▪ All disc brake systems approved by German Mining Authorities

Workshop assembly of brake posts equipped with BE 100 brake calipers (example)