LIFTINSTITUUT

PRODUCTS
RvA C 087

# EC TYPE-EXAMINATION CERTIFICATE

Acting under the Warenwetbesluit liften issued by Liftinstituut B.V.
identification number Notified Body 0400,
commissioned by Decision no. A&G/W&P/03 56126 of October 15th, 2003

| | | |
|---|---|---|
| Certificate nr. | : | NL 10-400-1002-131-05 Revision nr.: 1.0 |
| Description of the product | : | "Rope Brake", certified as stopping element of ascending car overspeed protection and unintended car movement protection |
| Trademark, type | : | "Rope Brake", Models SB 330 / SB 331 |
| Name and address of the manufacturer and certificate holder | : | Bode Components GmbH<br>Eichsfelder Straße 29<br>D 40595 Düsseldorf<br>Germany |
| Certificate issued based on the following requirements | : | Lifts Directive 95/16/EC<br>EN 81-1:1998+A3:2009 |
| Test laboratory | : | Zentrum der Förder- und Aufzugstechnik Roßwein<br>Test report from June 27, 1993 |
| Date and number of the laboratory report | : | See report |
| Date of EC type-examination | : | July 2010 – January 2011 |
| Annexes with this certificate | : | Report belonging to the EC type examination certificate no.: NL 10-400-1002-131-05 rev. 1.0 |
| Additional remarks | : | Ascending Safety Device:<br>Allowable braking force range 21167 – 33868 N<br>Max. nominal rope speed 8.7 m/s<br>Max. tripping rope speed 10.0 m/s<br>Unintended Car Movement protection:<br>Response time braking elements 100 ms<br>Speed and distances to be calculated |
| Conclusion | : | The safety components meets the requirements of the Lifts Directive 95/16/EC taking into account the additional remarks mentioned above. |

Issued in Amsterdam
Date of issue :
January 21, 2011

LIFTINSTITUUT B.V.
Ir. V.M.A. Barendregt
Senior Officer Certification & Technology

LIFTINSTITUUT B.V.
Drs. B. Mulder
Director Certification & Inspection International

# Report EC type-examination

| | | |
|---|---|---|
| Report belonging to EC type-examination certificate no. | : | NL 10-400-1002-131-05 |
| Concerns | : | Lift safety component |
| Date of issue of original certificate | : | January 21, 2011 |
| No. and date of revision of certificate | : | 1.0, January 21, 2011 |
| No. and date of revision of report | : | 1.0, January 21, 2011 |
| Revision xx concerns | : | Editorial update |
| Requirements | : | Lifts Directive 95/16/EC<br>Standards: EN 81-1:1998+A3:2009 |
| Project no. | : | P100095-02 |

## 1. General specifications

| | | |
|---|---|---|
| Name and address manufacturer | : | Bode Components GmbH<br>Eichsfelder Strasse 29<br>D 40595 Düsseldorf<br>Germany |
| Description of safety component | : | Rope Brake, certified as stopping element of ascending car overspeed protection and unintended car movement protection |
| Type | : | SB 330 / SB 331 |
| Laboratory | : | Zentrum der Förder- und Aufzugstechnik Roßwein |
| Data of examination | : | July 2010 – January 2011 |
| Examination performed by | : | R.E. Kaspersma / P.J. Schaareman |

## 2. Description safety component

The Rope Brake is a device used to grab the suspension ropes to stop the lift in the event of a mechanical or electrical failure. It is activated if a lift overspeeds in the up direction or also if the elevator leaves the floor uncontrolled with the doors opened. The Rope Brake is build up by two braking elements which are compressed to each other with the suspension ropes in between. In the event of detecting overspeed or uncontrolled movement (e.g. with a safety switch on the speed limiter system) a signal to the control unit is given and the rope brake closes. This takes place in the event of overspeed in both directions. The detection means is a safety device according clause 14.1.2 of EN 81-1/2:1998 + A3:2009.



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The rope brake closes with compressed air and is opened with spring force. In the event of a power failure, the rope brake closes. The rope brake can remain closed for some time, minimal 4 hours, due to the accumulator on the compressor (minimal 25 liter). When the power is restored, the rope brake opens automatically.

If there is a pressure loss in the pneumatic system, the impending trip is ended and the lift is shut down at the current floor. The lift is automatically ready for operation when the minimum operating pressure has reached 5.5 bar.

Within a period of 24 hours, a function test of the rope brake system is performed. This test is scheduled by the control unit during the time when the lift system is not in use. If a fault occurs during this test, the lift system is also shut down.

The rope brake design is an independent device and assures protection even when traction is lost and/or slipping of the ropes occurs.

Additional the Rope Brake can be equipped with a detection system, SMC14, which monitors the movement of the car while the lift is stopped at a landing. This module SMC14 needs to have an EC type examination certificate for the detection of uncontrolled movement as required by the standard EN 81-1/2:1998 + A3:2009

## 3. Examinations and tests

The EC type examination of the Bode Components Rope Brake existed from assessing the technical file and laboratory test reports supplied by Bode.
Electrical and mechanical tests were performed at several sites and accredited laboratories. Liftinstituut recognizes the tests and results.
For the extension to apply the Rope Brake as stopping element of the unintended car movement protection (UCMP), additional type examination was executed from July up to January 2011. Tests and verifications were done to confirm the fulfillment of the relevant requirements of EN 81-1:1998+A3:2009 clause 9.11 and F.8 and to determine the necessary interface parameters to able the rope brakes to be selected as stopping element in the UCMP means.
These activities were witnessed and filed by Liftinstituut representatives.

Compliance with the Directive EMC 2004/108/EC is not examined by Liftinstituut and therefore excluded from this EC-type examination.

 


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## 4. Results

The specifications for the Rope Brake to be used as stopping element of ascending car overspeed protection (ACOP) are:

- Achievable braking force on the suspension ropes during operation of the brake in upward direction : 21167 – 33868 N
- Maximum nominal rope speed : 8.7 m/s
- Maximum tripping rope speed : 10.0 m/s
- Only steel ropes suitable for traction lifts can be used. When ropes are lubricated it has to be considered that the braking force can be reduced with 30%. This needs to be considered in the final design of the lift.
- The allowed amount of ropes is depending the size of the brake. All ropes must be lined centered within the brake pad. The rope diameter allowed is based on the available free space with the brake pads. The ropes are not allowed to touch the brake pads during normal run.

The additional tests, in line with Annex F.8 of EN 81-1:1998 + A3:2009, done for the Rope Brake to be used as stopping element of unintended car movement protection (UCMP) resulted in the following conclusions:
- the results achieved as ACOP before can be used for UCMP application
- the braking force showed to be constant and reliable
- the delay time to take into account for the Rope Brake is 100 msec.
- deceleration and braking distance can be based on calculation

After the final examination the component and the technical file were found in accordance with the requirements.

## 5. Conditions

On the EC type-examination certificate the following conditions apply:

- Because the Rope Brake acts only as the stopping element for the ascending car overspeed and/or uncontrolled car movement protection means, a detection means shall be provided complying with the relevant clauses of chapter 9.9 and/or 9.11.
- A switch shall detect when the Rope Brake is activated, (the detection switch according 14.1.2 on e.g. the overspeed governor fulfills already the monitoring of the safety component according 9.10.5 resp. 9.11.8
- Because the pressure on the brake pads is achieved by air pressure and not by compressed springs the following additional requirements apply:




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- The pressure vessel must have sufficient volume to be able to operate the brake 3 times without refill at minimal pressure (5 bar) and maximum travel of the plunger.
- The pressure in the vessel will not exceed 8 bar and not fall below 6 bar. The pressure at the cylinder shall be at least 5 bar. By going below the minimum limit (5.5 bar), the lift shall be stopped and shut down.
- Because the force of the brake is not mechanical forced available, all force applying elements in the system (pressure switch, valve, air supply) shall be tested on proper operation every 24h by activating the brake when the lift is at standstill. When a fault is detected (no de-activation valve, not switching pressure switch, 5 bar pressure is not checked, brake disc stuck) the lift shall also be kept stopped.

- The adjustment of the pressure switch is sealed
- The pneumatic valve shall be switched off directly by the overspeed governor safety switch or by two independent means related to this safety switch.
- Appropriate measures shall be taken in the machine room to recognize if and by which cause the safety device is activated.
  Remark. Failure of the drive system (e.g. gear failure) cannot be recognized by the control. A corresponding signal on the control board is sufficient for identification.

Specific conditions for uncontrolled car movement protection:

- Calculations and proper tests shall be made to confirm that the maximum distances according 9.11.5 of EN 81-1 + A3 are not exceeded
- Calculations shall be made to confirm that the maximum retardation according 9.11.6 of EN 81-1 + A3 are not exceeded
- When the means has been activated its release shall require the intervention of a competent person
- The installer/manufacturer of the lift needs to determine the test-speed and relevant parameters for the final acceptance test

Notes:

- In the system the pressure can be adjusted to min. 5 bar and max. 8 bar. The braking force stated before is related to the pressure in the system, minimal pressure 5 bar (21167 N) and maximum pressure 8 bar (33868 N) on the pressure cylinder, dry ropes and prepared brake pads (ropes have run in the brake pad, the brake pads can be considered sufficiently "run in" after a braking distance of 1m of the ropes in the activated brake).
  The effect of the pressure and the state of the lubrication on the braking force (braking force is directly related to pressure) shall be considered. The braking force for each lift must be chosen in such a way that deceleration in upward direction does not exceed 1 $g_n$.
- The EC type examination of the brake considers only the relevant requirements of braking means related to EN 81-1, chapter 9.10 (ACOP) and 9.11 (UCMP). Possible other additional functions or options of the Rope Brake were no part of this examination.



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- Installation, mounting and adjustment manuals shall be supplied with the components or made available in another way.

## 6. Conclusions

Based upon the results of the EC type-examination Liftinstituut B.V. issues an EC type-examination certificate for the Bode Components GmbH Rope Brake SB 330 / SB 331. The EC type-examination certificate is only valid for products which are in conformity with the same specifications as the type certified product. Products deviating of these specifications need additional examination by Liftinstituut B.V. in order to determine whether a new EC type-examination certificate is necessary. Additional examination shall be requested by the certificate holder.
The EC type-examination certificate is issued based on the requirements that are valid at the date of issue. The manufacturer shall request from Liftinstituut B.V. the review of the validity of the EC-type examination certificate, taking into account the changes in the requirements or changes in the state of the art of the product, every 5 years.

## 7. CE marking and EC Declaration of conformity

Every safety component placed on the market by Bode Components GmbH, type designation SB 330 / SB 331, that is in complete conformity with the examined type must be provided with a CE marking according to annex III of the Directive under consideration whether conformity with eventually other applicable Directives is proven. Also every safety component must be accompanied by an EC declaration of conformity according to annex II of the Directive in which the name, address and identification number of the Notified Body that carried out the EC type-examination (Liftinstituut B.V.) must be included as well as the number of the EC type-examination certificate.

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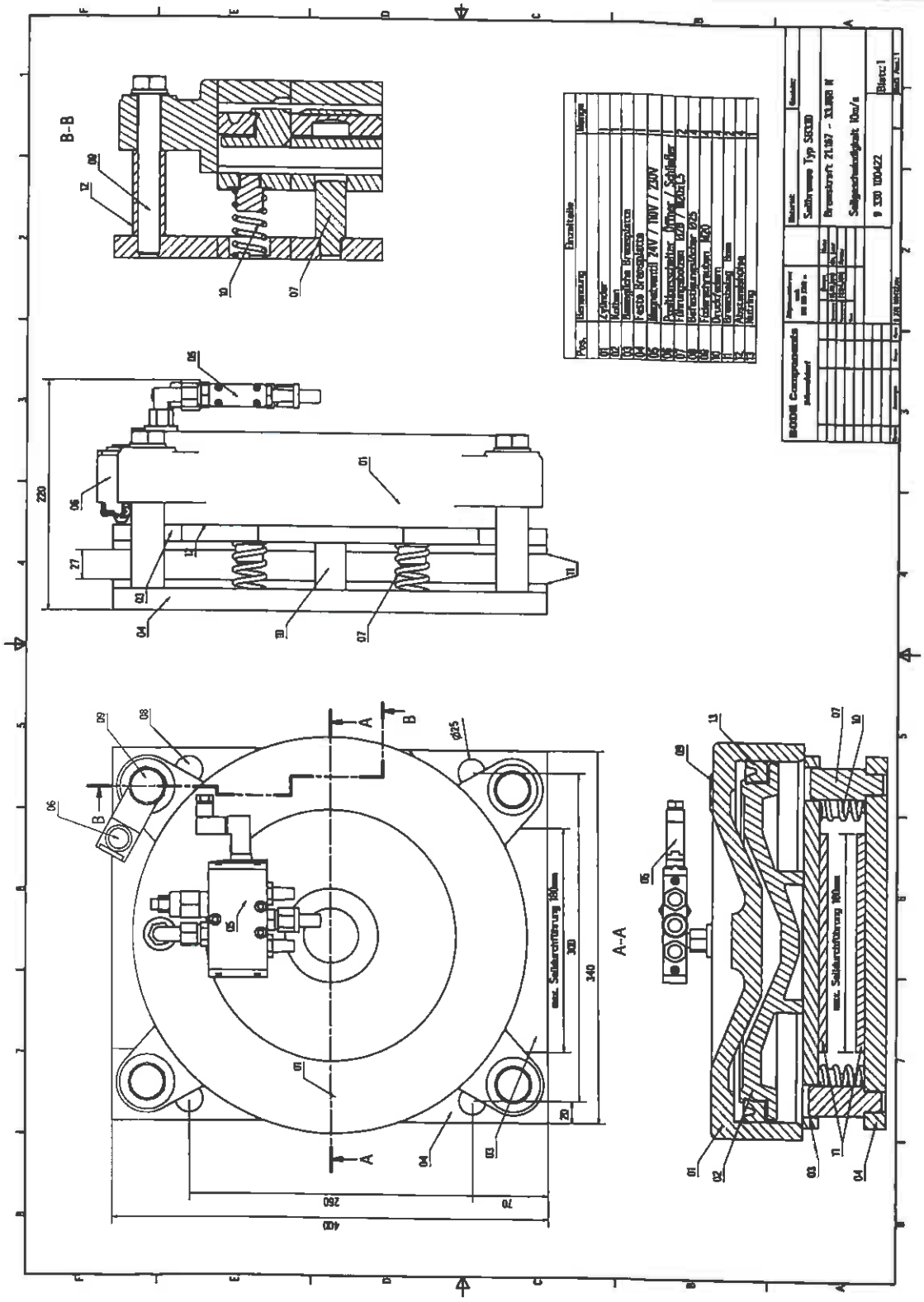
# Annexes

## Annex 1a : Identification drawing Bode Rope Brake SB 330





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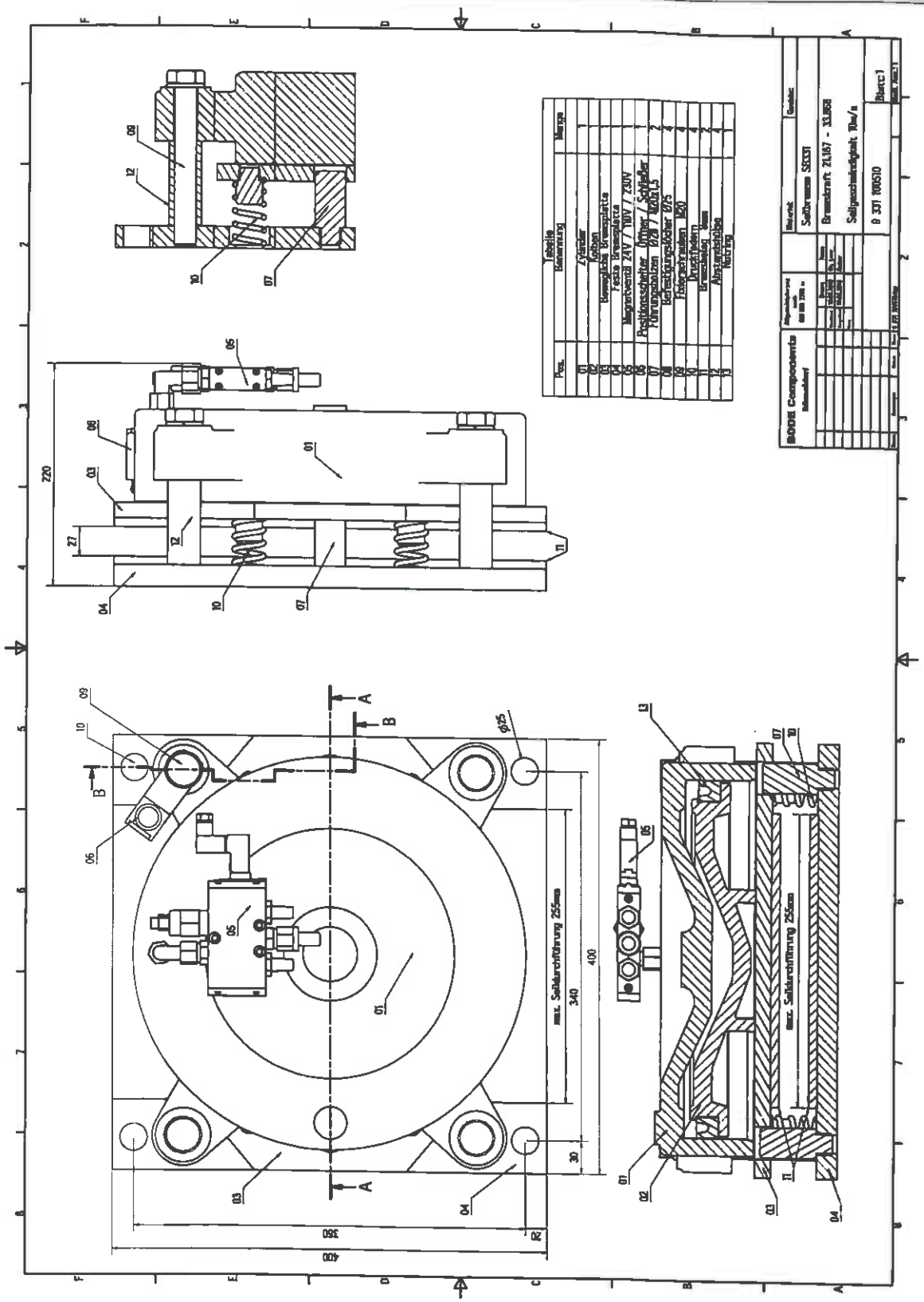
## Annex 1b : Identification drawing Bode Rope Brake SB 331





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## Annex 2 : Overview of revisions of certificate and report

### REVISIONS OF CERTIFICATE

| Rev.: | Date | Summary of revision |
|---|---|---|
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### REVISIONS OF REPORT, BELONGING TO THE CERTIFICATE

| Rev.: | Date | Summary of revision |
|---|---|---|
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