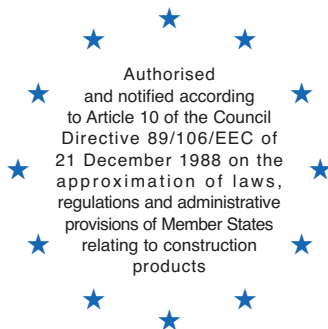


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Member of EOTA

European technical approval

ETA-11/0453

(English translation, the original version is in German)

Handelsbezeichnung
Trade name

mageba Hublager RESTON®POT LIFT-CONTROL

Zulassungsinhaber
Holder of approval

**mageba SA
Solistrasse 68
CH- 8180 Bülach
Switzerland**

Zulassungsgegenstand
und Verwendungszweck

Hublager (Topflager der Typen TA, TE, TF), das insbesondere für Höhenanpassungen des Lagers zum Ausgleich vertikaler Bewegungen geeignet ist
Lift control pot bearing (pot bearing types TA, TE, TF), particularly suitable to adjust height of the bearing in order to compensate vertical movements

*Generic type and use
of construction product*

Geltungsdauer vom
Validity from
bis zum
to

07.12.2011

06.12.2016

Herstellwerk
Manufacturing plant

Auflistung der Herstellwerke festgelegt in der technischen Dokumentation
Comprehensive list of manufacturing plants laid down in technical documentation

Diese Europäische technische
Zulassung umfasst

12 Seiten einschließlich 2 Anhänge A

*This European technical approval
contains*

12 pages including 2 Annexes A



II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1 Definition of product and intended use

1.1 Definition of product

The mageba Hublager RESTON®POT LIFT-CONTROL is a lift control pot bearing, types TA, TE, TF. It consists of components according to EN 1337-5 and additional components including an hardening injection material made of a special polymer and injection tool(s) with backflow preventer. The subject of this ETA is the complete bearing kit.

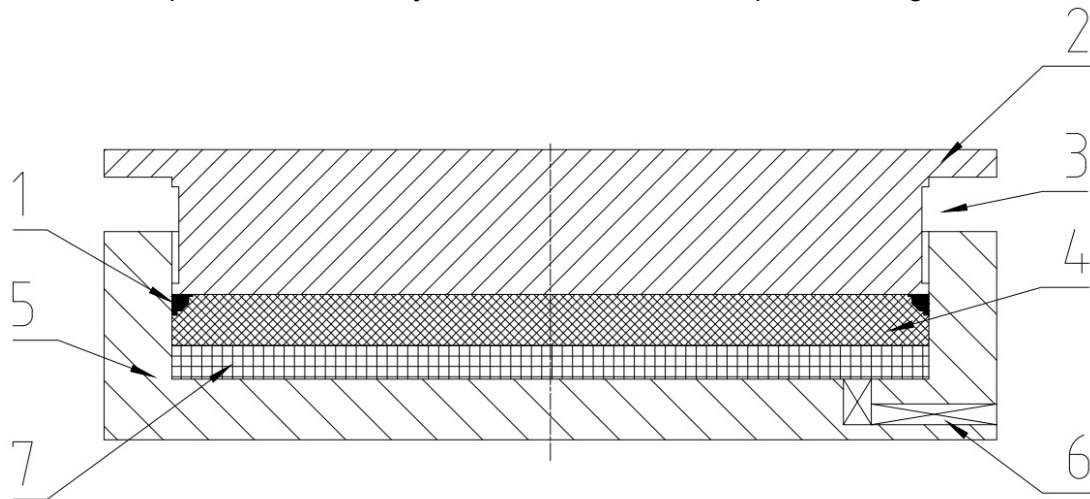


Figure 1: Components of the mageba Hublager RESTON®POT LIFT-CONTROL

Key

- 1 Internal seal
- 2 Piston
- 3 External seal
- 4 Elastomeric pad
- 5 Pot
- 6 Injection tool
- 7 Hardening injection material

Functional principle of the mageba Hublager RESTON®POT LIFT-CONTROL:

An elastomeric pad (4), made of natural rubber according to EN 1337-5, is placed in a steel pot (5), and a steel piston (2) is placed on top. The elasticity of the elastomeric pad enables rotational movements of the piston (2) about any horizontal axis. The internal POM seal (1) prevents the extrusion of the elastomeric pad (4) under pressure and/or rotation and, in combination with the elastomeric pad, the extrusion of the additional injection material during and after the lifting process as well.

Depending on whether it is a fixed, guided sliding or free sliding bearing, the mageba Hublager RESTON®POT LIFT-CONTROL can accommodate horizontal forces and movements (longitudinal and/or transverse) as well as vertical loads.

For the lifting of the mageba Hublager RESTON®POT LIFT-CONTROL an additional hardening injection material (7), made of silicon caoutchouc, is forced through the injection tool(s) (6), situated in the bottom of the pot, under the elastomeric pad by means of a pump. The elastomeric pad (4) together with the piston (2) is raised until the desired height and/or pressure is achieved. The injection tool (6) contains a backflow preventer which prevents the injection material (7) from leaking out during and after hardening.

The components and materials which constitute the mageba Hublager RESTON®POT LIFT-CONTROL are specified in clause 2.1 and in Annex A in this ETA.

1.2 Intended use

The mageba Hublager RESTON®POT LIFT-CONTROL is to be used for the intended use according to EN 1337-5.

Vertical movements can be compensated or induced in a simple and safe manner through the lifting action of the bearing. Furthermore, adjustment of the height of the bearings by means of lifting up can be used in order to level/balance the concerned forces on the bearings. In particular, the following applications are relevant for lift control bearings:

- structures located in areas prone to settlement;
- oil-rigs;
- airports;
- etc.

Lift control pot bearings are especially suitable for the use in bridges that, due to their geometry, cannot be provided with lifting jack positions.

For the values of maximum rotations, stated thereafter, the conditions given in EN 1337-5, figure 2, apply.

The maximum rotation angle α_{dmax} before and after the lifting process for the use of the mageba Hublager RESTON®POT LIFT-CONTROL due to permanent and variable actions is given by 0,03 rad.

The maximum rotation angle α_1 during the lifting process due to permanent loads shall not exceed 0,0275 rad.

The maximum range of rotation angles $\Delta\alpha_2$ due to extreme positions of variable loads during the lifting process shall not exceed 0,005 rad.

The mageba Hublager RESTON®POT LIFT-CONTROL applies for operating temperatures between -40 °C and $+50\text{ °C}$ as stated in EN 1337-5, clause 1, whereas for the use in combination with a sliding element operating temperatures between -35 °C and $+48\text{ °C}$ according to EN 1337-2 apply.

The provisions made in this European technical approval are based on an assumed intended working life of the lift control bearing kit for the intended use of 10 to 25 years when installed in the works, provided that the kit is subject to appropriate installation, use and maintenance (see clauses 4.2 and 5.2 in this ETA). 10 to 25 years are related to the equivalent approach in EN 1337-5 with reference to category 2 in EN 1990, table 2.1.

The indications given on the working life cannot be interpreted as a guarantee given by the producer or the approval body, but are to be regarded only as a means for choosing the appropriate product in relation to the expected, economically reasonable working life of the works.

2 Characteristics of product and methods of verification

2.1 Characteristics of product

2.1.1 General

If aspects are not specified in detail in this ETA, EN 1337-5 applies.

The mageba Hublager RESTON®POT LIFT-CONTROL can be lifted several times, whereas the maximum allowable lifting height and maximum allowable number of lifting processes, both depending on the design of the product, are to be declared by the manufacturer in the CE marking as stated in clause 3.3 in this ETA.

The mageba Hublager RESTON®POT LIFT-CONTROL may be equipped with an additional load measuring device, if this load measuring device does not influence the performance of the kit regarding the requirements according to EN 1337-5 and according to this ETA.

2.1.2 Components

2.1.2.1 Pot

For the pot EN 1337-5 applies. The bottom of the pot is equipped with additional injection tools as defined in clause 2.1.2.8 in this ETA.

For the design requirements EN 1337-5 applies, whereas the maximum declared lifting height according to this ETA and the related position of the components of the assembled kit up to this maximum lifting height is relevant for the dimensioning of the pot at the ultimate limit state and the related position of the components of the assembled kit at this maximum lifting height.

For the surface roughness of the inner cylindrical surface of the pot in contact with the elastomer EN 1337-5, clause 7.4, applies for the complete height of the inner cylindrical surface of the pot. This is related to the assessment of proper functioning of the kit for the serviceability limit state, which includes every position of the components of the assembled kit up to its maximum lifting height as declared according to this ETA.

General information on the design of the pot, including the injection tools, is laid down in drawings given in Annex A of this ETA. Further details are laid down in technical documentation deposited with the approval body Österreichisches Institut für Bautechnik.

2.1.2.2 Piston

For the piston EN 1337-5 applies. For the design requirements EN 1337-5 applies, whereas for the dimensioning the positions of the components up to the maximum lifting height according to this ETA shall be considered.

2.1.2.3 External seal

The design and material for the external seal according to EN 1337-5, clause 7.6, is defined in the technical documentation deposited with the approval body Österreichisches Institut für Bautechnik.

2.1.2.4 Internal seal

For the internal seal a POM seal according to EN 1337-5, Annex A.2.2, is used.

2.1.2.5 Elastomeric pad

The used elastomeric pad, made of natural rubber and defined by its compound number H880006A, is in accordance with EN 1337-5.
Vertical and/or horizontal subdivision of the elastomeric pad in several parts is not allowed.

2.1.2.6 Lubricant

The silicon grease used as lubricant is identified by the requirements stated in EN 1337-2, clause 5.8.2, table 8, and meets the requirements according to EN 1337-5, clause 5. The lubricants to be used are deposited with the approval body Österreichisches Institut für Bautechnik

The lubricant shall be applied on the complete height of the inner surface of the pot as stated in EN 1337-5, clause 7.7.

2.2 Methods of verification

The assessment of the fitness of mageba Hublager RESTON®POT LIFT-CONTROL for the intended use was undertaken according to the CUAP (Common Understanding of Assessment Procedure) for “Lift Control Pot Bearing”, ETA request No 03.01/72, version February 2011.

3 Evaluation of conformity and CE marking

3.1 Attestation of conformity system

The system of attestation of conformity specified by the Commission Decision 2003/728/EC⁶ is system 1 according to Council Directive 89/106/EEC, Annex III, section 2 (i), without audit-testing of samples, and is detailed as follows:

(a) Tasks for the manufacturer

- (1) Factory production control
- (2) Further testing of samples taken at the factory by the manufacturer in accordance with a prescribed test plan

(b) Tasks for the approved body

- (3) Initial type-testing of the product
- (4) Initial inspection of factory and of factory production control
- (5) Continuous surveillance, assessment and approval of factory production control

3.2 Responsibilities

3.2.1 Tasks of the manufacturer

3.2.1.1 Factory production control

The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures. This production control system shall insure that the product is in conformity with this European technical approval.

The manufacturer shall use materials stated in the technical documentation⁷ of this European technical approval only.

In the framework of factory production control the manufacturer carries out controls in accordance with the control plan⁸ which is fixed with this European technical approval.

Details of the extent, nature and frequency of controls to be performed within the factory production control correspond to this control plan which is part of the technical documentation of this European technical approval.

The results of factory production control shall be recorded in checklists signed by the person responsible and are evaluated. The records shall be presented to the notified body involved in continuous surveillance. On request the records must be presented to the Österreichisches Institut für Bautechnik.

⁶ Official Journal of the European Communities N° L 262, 14.10.2003, p. 34

⁷ The technical documentation of this European technical approval has been deposited at the Österreichisches Institut für Bautechnik and, as far as relevant for the tasks of the approved body involved in the attestation of conformity procedure, is handed over to the approved body.

⁸ The control plan has been deposited at Österreichisches Institut für Bautechnik and is handed over only to the approved body involved in the attestation of conformity procedure.

3.2.1.2 Other tasks of manufacturer

3.2.1.2.1 Testing of samples taken at the factory

Testing of samples taken at the factory by the manufacturer as laid down in the control plan.

3.2.1.2.2 Declaration of conformity

If all the criteria of the conformity attestation are satisfied the manufacturer shall make a declaration of conformity.

3.2.2 Tasks of notified bodies

3.2.2.1 Initial type-testing of the product

For initial type-testing the results of the tests performed as part of the assessment for the European technical approval may be used unless there are changes in the manufacture production process or manufacturing plant. In such cases the necessary initial type-testing has to be agreed between the Österreichisches Institut für Bautechnik and the notified body involved.

3.2.2.2 Initial inspection of factory and of factory production control

The notified body shall ascertain that, in accordance with the control plan, the manufacturing plant, in particular personnel and equipment, and the factory production control are suitable to ensure a continuous and orderly manufacturing of the mageba Hublager RESTON®POT LIFT-CONTROL according to the specifications given in clause 2 and the Annex of the European technical approval.

3.2.2.3 Continuous surveillance, assessment and approval of factory production control

The notified body shall visit the factory at least twice a year for surveillance of the manufacturer.

It has to be verified that the system of factory production control and the specified manufacturing process are maintained taking into account the control plan.

Continuous surveillance and assessment of factory production control have to be performed according to the control plan.

The results of continuous surveillance shall be made available on demand by the notified body or the approval body Österreichisches Institut für Bautechnik. In cases where the provisions of the European technical approval and the control plan are no longer fulfilled, the certificate of conformity shall be withdrawn.

3.2.2.4 Certification

If all criteria for conformity attestation are fulfilled the notified body shall issue certification of conformity of the product.

3.3 CE marking

The letters "CE" shall correspond to the Council Directive 93/68/EEC. The CE conformity symbol shall be affixed on the lift control pot bearing (or when not possible it may be affixed on the accompanying label, the package or on the accompanying commercial documents).

