Authorised and notified according to Article 10 of the Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products

Österreichisches Institut für Bautechnik
Schenkenstrasse 4 | 1010 Vienna | Austria
T +43 1 533 65 50 | F +43 1 533 64 23
mail@oib.or.at | www.oib.or.at

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 *Generic type and use of construction product*	**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*
Geltungsdauer vom *Validity from* bis zum *to*	**21.06.2013** **20.06.2018**
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 *This European technical approval contains*	**12 Seiten einschließlich 2 Anhänge A** *12 pages including 2 Annexes A*
Diese Europäische technische Zulassung ersetzt This European technical approval replaces	**ETA-11/0453 mit Geltungsdauer vom 07.12.2011 bis zum 06.12.2016** *ETA-11/0453 with validity from 07.12.2011 to 06.12.2016*

I LEGAL BASES AND GENERAL CONDITIONS

1 This European technical approval is issued by the Österreichisches Institut für Bautechnik in accordance with:

- Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products[1], modified by the Council Directive 93/68/EEC of 22 July 1993[2];
- Wiener Bauprodukte- und Akkreditierungsgesetz – WBAG. LGBl. Nr. 30/1996, zuletzt geändert durch das Gesetz LGBl. für Wien Nr. 24/2008;
- Common Procedural Rules for Requesting, Preparing and the Granting of European technical approvals set out in the Annex of Commission Decision 94/23/EC[3];

2 The Österreichisches Institut für Bautechnik is authorised to check whether the provisions of this European technical approval are met. Checking may take place in the manufacturing plant(s). Nevertheless, the responsibility for the conformity of the products to the European technical approval and for their fitness for the intended use remains with the holder of the European technical approval.

3 This European technical approval is not to be transferred to manufacturers or agents of manufacturers other than those indicated on page 1, or manufacturing plants other than those laid down in the context of this European technical approval.

4 This European technical approval may be withdrawn by the Österreichisches Institut für Bautechnik, in particular after information by the Commission on the basis of Article 5 (1) of Council Directive 89/106/EEC.

5 Reproduction of this European technical approval including transmission by electronic means shall be in full. However, partial reproduction can be made with the written consent of the Österreichisches Institut für Bautechnik. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European technical approval.

6 The European technical approval is issued by the approval body in its official language. This version corresponds to the version circulated within EOTA. Translations into other languages have to be designated as such.

[1] Official Journal of the European Communities N° L 40, 11.2.1989, p. 12
[2] Official Journal of the European Communities N° L 220, 30.8.1993, p. 1
[3] Official Journal of the European Communities N° L 17, 20.1.1994, p. 34

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.

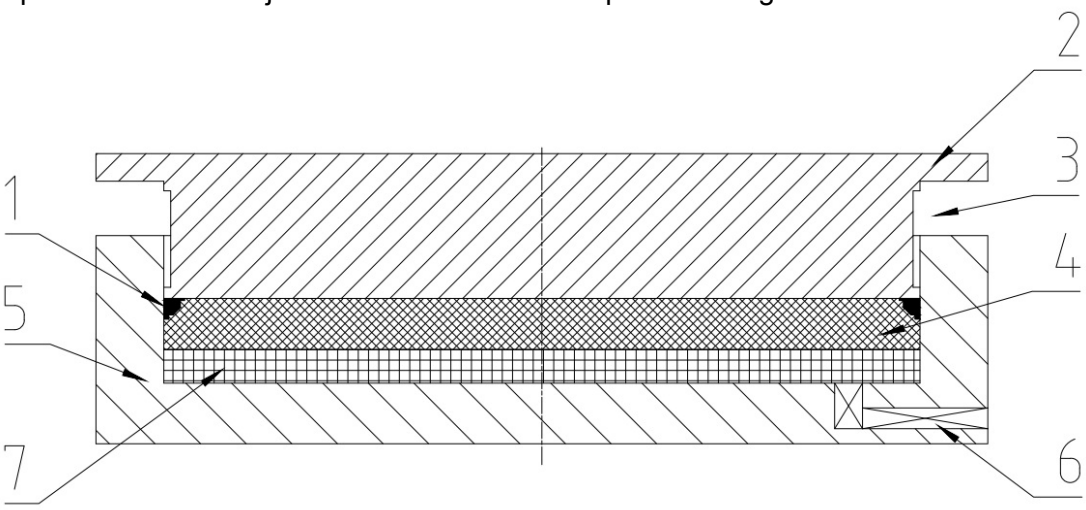


Figure 1: Components of the mageba Hublager RESTON®POT LIFT-CONTROL

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 °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 °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.

2.1.2.7 Additional hardening injection material

The additional hardening injection material for lifting of the mageba Hublager RESTON®POT LIFT-CONTROL is made of silicon caoutchouc and defined by its compound number IM 68. The material characteristics are confidential[4] and are deposited with the approval body Österreichisches Institut für Bautechnik. The ambient temperature for the injection of the hardening injection material is in the range of +5 °C up to +40 °C.

Details regarding the use of the hardening injection material for the lifting process are laid down in clause 4.2 in this ETA and in the injection manual.

2.1.2.8 Injection tool with backflow preventer

The injection tool is used for conveyance of the additional hardening injection material in the pot underneath the elastomeric pad. It consists of a channel in the bottom of the pot, equipped with a backflow preventer and a fitting for the connection of the lifting equipment.
The minimum number of injection tools, situated as detailed in figure 1 in this ETA, corresponds to the maximum number of lifting processes declared according to this ETA.
The material of the elements of the injection tool and its detailed design are laid down in the technical documentation deposited with the approval body Österreichisches Institut für Bautechnik.

2.1.2.9 Sliding elements

In case of design of the mageba Hublager RESTON®POT LIFT-CONTROL with sliding elements, for the sliding elements EN 1337-5 applies.

2.1.3 Assembled kit

2.1.3.1 Mechanical resistance and stability (ER 1)

For the assessment of the load bearing resistance 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 to be taken into account.
For the verification of the adjacent structural parts the maximum value of the restraint moment M_{emax}, defined in EN 1337-5, clause 6.1.3.1, before and after lifting the factors F_0 = 0,01, F_1 = 0,35 and F_2 = 4,69 apply.

2.1.3.2 Hygiene, health and environment (ER 3)

Release of dangerous substances
The kit complies with the provisions of Guidance Paper H[5]/EU data-base about dangerous substances. A declaration of conformity in this respect was made by the manufacturer.

In addition to the specific clauses relating to dangerous substances contained in this European technical approval, there may be other requirements applicable to the product falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

2.1.3.3 Durability

The assumed intended working life as stated in clause 1.2 requires regular maintenance as specified by the manufacturer in the maintenance instructions which follow every delivered mageba Hublager RESTON®POT LIFT-CONTROL (see clause 5.2 in this ETA).

[4] 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.

[5] Guidance Paper H: A harmonised approach relating to dangerous substances under the Construction Products Directive, edition September 2002

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/EC[6] 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 documentation[7] of this European technical approval only.

In the framework of factory production control the manufacturer carries out controls in accordance with the control plan[8] 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 1has 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).

The CE marking of the lift control pot bearing shall be accompanied by the following information:

- Identification number of the notified certification body
- Name and address or identifying mark of the producer
- Last two digits of the year in which the CE marking was affixed
- Number of the EC certificate of conformity
- Number of the European technical approval
- Indication to clarify the intended use
- Mandated characteristics for application of CE marking according to EN 1337-5, ZA.3
- Statement on the presence of dangerous substances, including concentration, if any
- Maximum allowable lifting height of the pot bearing
- Maximum allowable number of lifting processes

3.4 Identification of the kit

A permanent label of identification shall be provided with the lift control pot bearing. For the information contained on it EN 1337-1, clause 7.3, applies.

In addition, the following information shall be included:
- Number of the European technical approval
- Maximum allowable lifting height
- Maximum allowable number of lifting processes

4 Assumptions under which the fitness of the product for the intended use was favourably assessed

4.1 Manufacturing

The mageba Hublager RESTON®POT LIFT-CONTROL is manufactured in accordance with the provisions of this European technical approval, using the manufacturing process as identified in the inspection of the manufacturing plant by the approval body and laid down in the technical documentation and related manufacturer files. This includes the equipping of the pot with the injection tool(s).

The European technical approval is issued for mageba Hublager RESTON®POT LIFT-CONTROL on the basis of agreed data, deposited with the Österreichisches Institut für Bautechnik, which identifies mageba Hublager RESTON®POT LIFT-CONTROL that has been assessed and judged. Changes to mageba Hublager RESTON®POT LIFT-CONTROL production process, which could result in this deposited data being incorrect, shall be notified to the Österreichisches Institut für Bautechnik before the changes are introduced. The Österreichisches Institut für Bautechnik will decide whether or not such changes affect the European technical approval and consequently the validity of the CE marking on the basis of the European technical approval and if so whether further assessment/alterations to the European technical approval, shall be necessary.

4.2 Installation

In general EN 1337-11 applies.

In addition, for lifting of the mageba Hublager RESTON®POT LIFT-CONTROL the following conditions apply:

The possible range of ambient temperature for the lifting process is given in clause 2.1.2.7 in this ETA.

For each individual injection process a new injection tool has to be used. The individual requested lifting height can be achieved with a precision of ±0,2 mm. In order to provide exces-

sive lifting, the current mean value for the tilting gap S1, defined in EN 1337-5, clause 6.2.4, figure 8, shall be determined before lifting.

Lifting of the lift control pot bearing is to be conducted either by own staff of the manufacturer or by qualified experts. The ETA holder shall have the procedures and shall be organised to ensure a constant quality of the specialised equipment and shall have the resources to give to the installer (own staff of the manufacturing plant or other qualified staff) skilled advice concerning the lifting of the lift control pot bearing.

Personnel qualification
Execution of lifting of lift control pot bearing shall be under control of experienced key technical staff. They shall receive regular training. The training program shall correspond to the injection manual provided by the manufacturer.

The installation staff shall document lifting of lift control pot bearing in each individual case in order to ensure the full traceability. This includes documentation about proper functioning of the external seal after lifting. Relevant guidance for the content and the amount of the documentation is provided by the manufacturer to the installer and is part of the documentation laid down with the approval body issuing the ETA.

Injection equipment
An injection equipment shall be used as defined in the injection manual. For the measuring system of the lifting height and/or the operating pressure, a calibration protocol shall be provided. Calibration shall be conducted regularly, at least once a year. The uncertainty of the measuring system should not be more than ±0,2 mm for the lifting height measurement and not more than ±10 bar for the operating pressure measurement (if operating pressure measurement is needed).

Detailed guidance on injection is given in the injection manual which forms part of the technical documentation and will be provided to the installation staff for each individual project.

5 Recommendations for the manufacturer

5.1 Recommendations on packaging, transport and storage

EN 1337-11 applies.
For the injection material relevant information, given in technical documentation for this material, applies. The injection tool shall be protected during transport and storage against any kind of damage and debris.

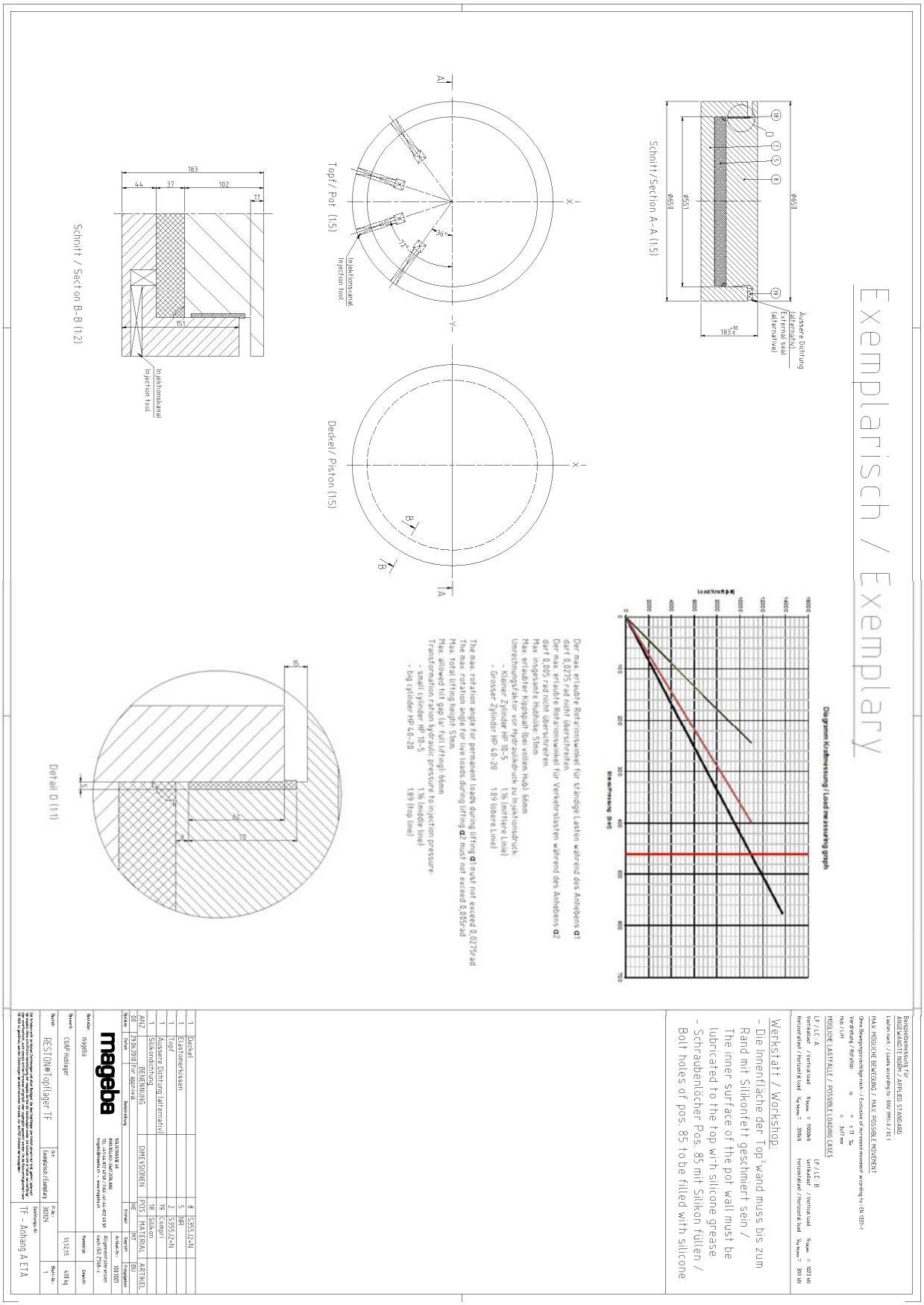
5.2 Recommendations on use, maintenance, repair

It is the responsibility of the manufacturer to ensure that each delivery contains proper information for the use of the mageba Hublager RESTON®POT LIFT-CONTROL including general guidance on the basis of this European technical approval. For in-service inspection the conditions given in EN 1337-5 apply.
The injection tool shall be protected during the intended use of the installed mageba Hublager RESTON®POT LIFT-CONTROL against any kind of damage and debris.

On behalf of Österreichisches Institut für Bautechnik

The original document is signed by:

Rainer Mikulits
Managing Director



Details regarding dimensions and related tolerances are laid down in technical documentation

mageba Hublager RESTON®POT LIFT-CONTROL	**Annex A.1** of European technical approval ETA-11/0453 Drawings

Reference documents

EN 1337-1: 2000 “Structural bearings - Part 1: General design rules”
EN 1337-2: 2004 “Structural bearings - Part 2: Sliding elements”
EN 1337-5: 2005 “Structural bearings - Part 5: Pot bearings”
EN 1337-11: 1997 “Structural bearings - Part 11: Transport, storage and installation”