METROPLAST

EKO 2000 Bi-Directional Safety Gear's Manual

FULL SECURITY IN THE ELEVATOR

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1. PRODUCT INTRODUCTION

EKO 2000 is a bidirectional brake that can perform braking in a safe way and in both directions of upstream and downstream through instantaneous safety gear buffered effect, powerful block and braking slides in the declared speed not exceeding 1 m/s up to (P + Q) =2000 Kg. It is a SAFE braking system that activates through the warning of the regulator in the events that the elevator cabinets exceeds the declared speed in upstream and downstream directions

2. BASIC SPECIFICATIONS

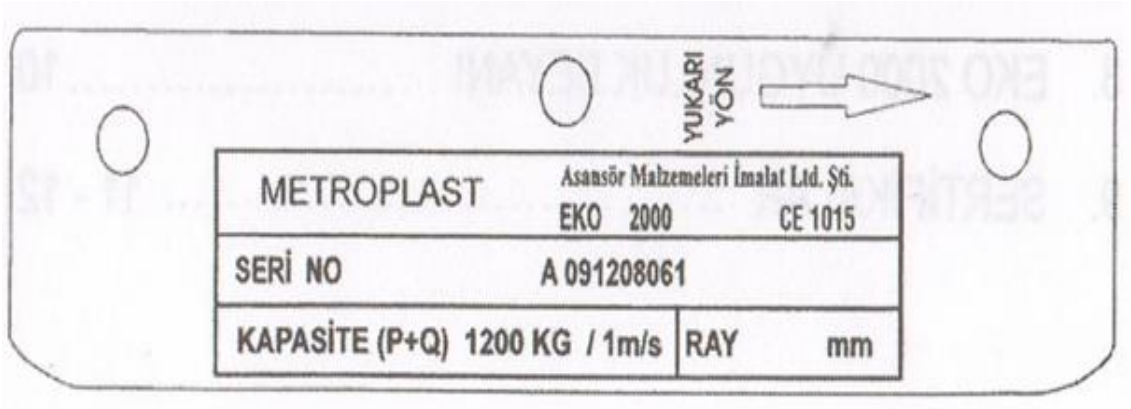
Provided that EKO 2000 bidirectional brake with instantaneous safety gear buffered effect is mounted properly;

- It does not switch to the involuntary braking position due to its mechanical structure.
- It can easily be recovered from braking by the help of a movement in contrary direction following the braking process.
- Brake blocks are mono blocks (single part). There exist no risks such as split and break up.
- During the braking process, the brake does not lead to an excessive deformation in itself and rails.

2.1 SELECTION OF RAIL TYPE

Buffering effect of EKO 2000 brakes is provided through buffering slides with circular drive inside the brake blocks. The values of (P + Q) are determined by the dimensions of pulley with circular drive. Friction values between the slides and rail vary depending on the hardness of materials. Changes in sliding distances depending on the characteristics of material differentiate buffering effect. In orders to be made, rail types that are intended to be used should be specified as “cold-drawn rail” or “treated rail”. Otherwise, “the cold-drawn rail”, which is generally applied, is accepted as rail type to be used and the order is accepted according to such rail type.

2.2. LABEL SAMPLE



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3. GENERAL RULES

Each EKO 2000 Braking set is arranged in accordance with the usage properties specified in its label. These features such as total weight (P + Q), the size of guide rail, rail type (cold-drawn or treated), CE number, serial number and usage direction are inscribed in impressed stamp type onto the cover panels on the brake blocks.
(Value of P + Q is Cabinet Weight + Declared Load.)

Brakes:

Brake of 1200 kg is used in the P + Q loads between 500 kg and 1200 kg.
Brake of 2000 kg is used in the P + Q loads between 1200 kg and 2000 kg.

Capacity curves should be taken into consideration for other speed applications under 1 m/s.

- **Our company cannot be held as responsible in terms of any application out of the aforementioned kg ranges!**

Serial Number:

In serial number on the brake;

Rail Features:	A cold drawn rail
	B treated rail,
Rail Size:	9 mm or 16 mm is specified next to the letter of rail feature.
Capacity:	The one starting with 12 is for the P + Q loads between 500 kg and 1200 kg.
	The one starting with 20 is for the P + Q loads between 1200 kg and 2000 kg.
Date of Production:	It is month and year when the production is made.

Brake Production Number: It continues starting from 1.

Example:

A09 12 08 06 1
A09: Cold-drawn and 9 mm rail thickness,
12: Capacity is between 500 kg and 1200 kg,
08: 8th month,
06: the year of 2006,
1: indicates that it is the brake with the number of 1.

Definitely Prohibited Applications:

a) To assemble bidirectional brake blocks having different serial numbers and use them together.
b) To apply a different rail from the one specified to be used in the label.
c) Not to mount in accordance with the upstream arrow.
d) During the mounting process, to apply different bidirectional brake sets from the featured ones specified in the protective plates of the bidirectional brake blocks.
e) To make any change in one of the components of the bidirectional brake.
f) To remove or loosen the bolts of the cover panels.
g) To mount EKO 200 brake blocks in way that its mechanical operation is prevented or expose them to foreign matters (such as excessive painting or lubricating).

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4. EKO 2000 BIDIRECTIONAL BRAKE MOUNT

METROPLAST ASANSÖR MALZEMELERİ İMALAT LİMİTED SİRKETİ is not responsible for any damage that may possibly occur provided that any of the aforementioned general rules is not observed.

Standards stipulate that the mounting process of bidirectional brake should be carried out in accordance with TS 10922 EN 81-1. Furthermore, it should be ensured that suspension to which the brake is to be connected and connection fittings should have sufficient resistances. Connection materials and the door of its location should be carried out by the cabinet manufacturer company in accordance with the Elevator Regulations and Machine Safety Regulations.

4.1 For the Mount of Brake to Suspension

During the mounting process, the holes of bidirectional brake should be fixed in a way that they centralize the axis of the guide spring and hanger angle bracket according to the dimensions and positions indicated in the bidirectional brake drawings. It is essential that the direction of the brake be taken into account while performing the said fixing process. It should be assembled in a way that the arrow head shows upstream.

It is necessary that the movement flanges to be connected to the pulley groups be in the same plane and horizontal. In other words, they should be in the same direction one another. Because equal movement distance is required for downstream and upstream braking.

After the bidirectional brake is properly placed and the pulley group is flexibly connected to the movement flange, it is necessary to check whether or not both pulley groups synchronously move according to the commands of the movement flange. The one making suspension is responsible for both that bidirectional brake is properly placed onto the suspension, and that the movement flange concordantly operates, and its adjustment controls. When the pulley cages are in ordinary movement, they should be in the center of brake block (in the center of ball). This position must be ensured through Suspension spring system.

4.2. Block Mount:

While bidirectional brake is being fixed onto the suspension, it is necessary that it be tightened by the help of 4 M12 bolts in the quality of 8.8 and a torque conforming to the standards (79. 09 NM)

4.3. Mount:

a) It should be paid special attention that firstly the center of the brake blocks comes to that of the guide spring during the mount in the shaft, this process is ensured through slot holes laterally opened onto the suspension. Provided that such kind of slots are not opened, the adjustment can be performed with the help of guide skates on the suspension by sliding the suspension to the right –left and forward – backward. It should be paid attention that tightening slides are in a distance to fully hold the rail paddle. Providing that the tightening slides do not fully hold the rail paddle, entrapment and sliding do not occur in desired conditions.

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b) Spaces between brake blocks and guide rail are adjusted. Distance of both blocks to the rails must be equal. Friction of brake blocks to guide rail is prevented.

c) It should be adjusted in way that there should be appropriate space between fore of the guide rail and middle point of the block. Such space is the operation gap of the elevator cabinet. It can be increased according to the condition of the cabinet, however it is necessary that all of the pulleys step on the rail during the braking process.

d) The number of braking pulley groups is 4. There exist 3 press pulleys, 2 slides (upper and lower) and 2 group cage panels and 1 drive shaft (curved shaft) in each pulley group.

e) Pulley groups should be adjusted in a way that they are on the same axis and synchronously form braking action. The adjustment operation should be carried out by the help of the nuts on the shafts on the brake blocks. In order to make the said adjustment properly, it is necessary that the brake blocks be taken to the braking position, and that upper points of the brake pulley groups in both sides squeeze the rail in the equal distance with the upper point of the brake block does be checked.

f) After the adjustments of braking twins blocks are performed, whether four pulley groups contact with the rail at the same time or not must definitely be controlled by manually forming braking action.

WARNING 1: It is necessary that the one performing the installation operation see that all the pulley groups move and reach the rail at the same time in the braking process that occurs after the movement handle to which the regulator is connected. Otherwise braking process might not happen or it might occur on a single block. Such kind of incident can lead to recovery of cabinet from braking or clamping in cabinet suspension.

WARNING 2: METROPLAST ASANSÖR MALZEMELERİ İMALAT LİMİTED SİRKETİ is not responsible for any damage that can possibly occur provided that one or a few of adjustment articles written above are not followed

5. USAGE AND INSTALLATION

Not following the instructions below might result in a value decrease and distance loss not conforming to the standards.

5.1- Guide Springs:

a) Guide springs to be used can be cold-drawn or treated ones. However, it is essential that the brake group be demanded and used according to the appropriate rail. In different rails, sliding distance cannot be in accordance with the property of the desired buffering. It is essential that guide springs be within the acceptable tolerance dimensions specified in the standard. The desired result might not be achieved in the rails having a hardness out of tolerance or surface ripples. Metroplast is given for the rails, values of which are in the scope of standard tolerance.

b) Bidirectional EKO 2000 brake is produced according to maximum (P + Q) =2000kg and to a speed of maximum 1 m/s. METROPLAST ASANSÖR MALZEMELERİ İMALAT LİMİTED SİRKETİ shall not be held responsible provided it is used out of the aforementioned conditions.

c) Clutching <holding> width should be 20 mm or over.

d) Provided that excessive deformation happens on the pulleys or rails after the testing process of the brake with buffering effect, it is necessary that such components be replaced.

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e) If a lubrication action is required, then this should be done with the oil specified by the guide rail manufacturer and in a way specified in the manual.

5.2 – Speed Control

During the operation, connection fittings and tension of the rope of speed control (regulator rope) should be in a size to carry a drawn strength of 300 N at least in the connection point of EKO 2000 brake mechanism handle. A drawn strength of 300 N at least or to the extent that it can beat the strengths of brake spring equipment should be formed in the rope during the operation of the regulator.

5.3- Replacement of Friction Components

Friction components, cabinet skates and parts of brake pulley cage can support four free fall upstream performance or four free fall downstream performance in an appropriate way with assessments in EU criteria. Metroplast brakes manufactured by using durable and qualified steel materials are substantial. Brake slides and rollers should be checked following four braking processes. In the event that deformation occurs in the body, slide and rollers, such parts must definitely be replaced. Yet, even if no braking process happens, brake materials should be checked in terms of security in controls made every three years. It is recommended that the slide parts be replaced following the use for a while on account of material fatigue and corrosion.

You can reach the procedure to be followed in such a case by making a contact with METROPLAST ASANSÖR MALZEMELERİ İMALAT LİMİTED SİRKETİ or its nearest dealer. Provided that you aim to establish a better control system, you can ask for the personnel responsible for the maintenance to keep a regular record regarding the performance of EKO 2000 brake. Serial number of EKO 2000 brake must definitely be written at the top of such record and the whole operation process must be observed.

Unless any change exceeding two fold of braking distance provided in the first testing during the installation, it is not required to replace the brake parts during ordinary maintenance controls.

5.4- Maintenance

5.4.1- Cleaning

In order to ensure the moving parts to operate properly, no foreign matter must be kept in the housing of brake with instantaneous safety gear buffered effect.

In time, oil residual can occur due to smearing of lubrication of rails to the brake blocks. It is necessary that blocks and mechanism handles be cleared from oil residuals in order that brake system can operate properly. It should be ensured that moving parts are lubricated so that they can operate easily, and protected against corrosion.

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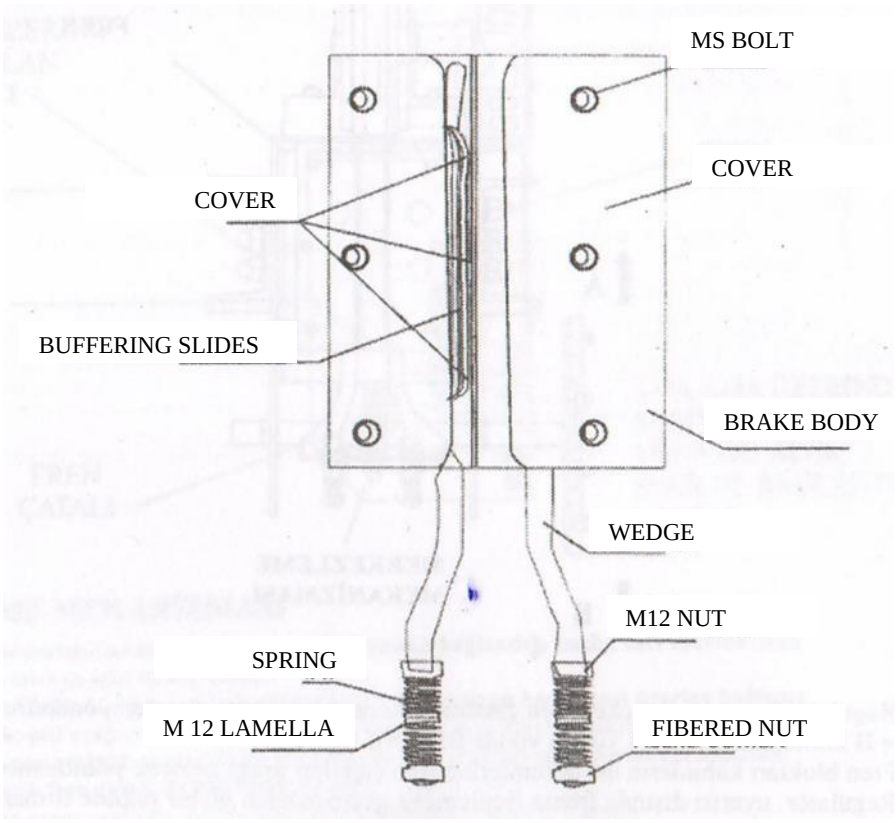
5.4.2 Corrosion

METROPLAST EKO 2000 brakes ensures protection against corrosion in the proper lubrication conditions. However, periodical controls are needed in order to make sure that all the moving parts of the brake are in perfect working order. There exists no need a test to be performed by performing a braking action. Yet, it will be useful to perform a simple check of moving parts, and to control the general condition of the surfaces through eyes.

No load downstream and upstream operation of pulley cages of EKO 2000 brake should be manually checked in periodical elevator controls.

It is compulsory that such controls be performed more frequently, and that precautions be taken against corrosion particularly in the installations made in the conditions which are more susceptible to corrosion.

6. EKO 2000 FORM AND MATERIAL



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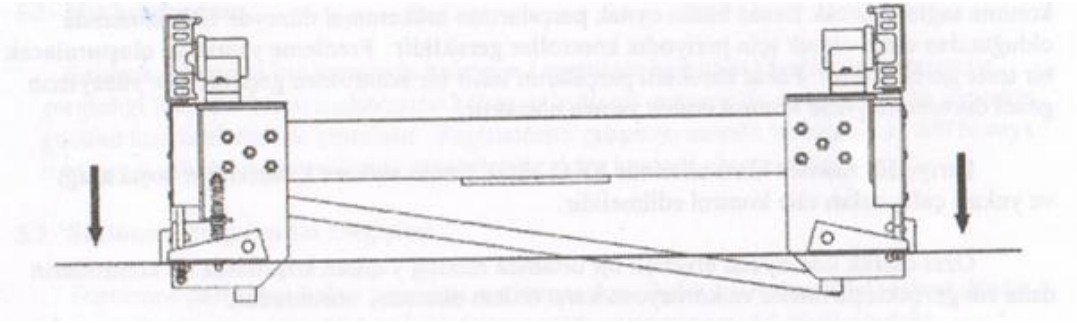
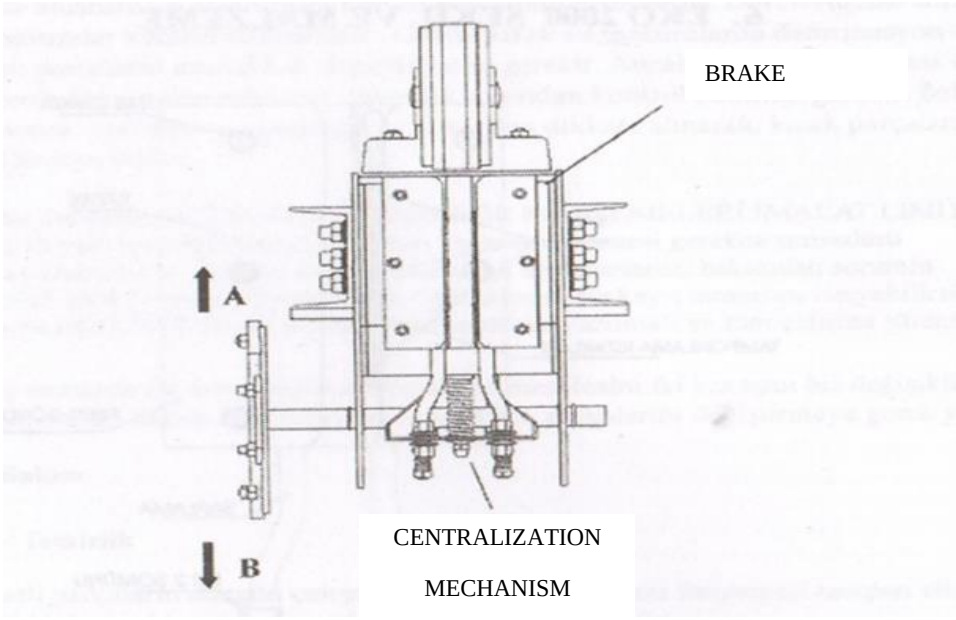
7. GENERAL DRAWINGS



INSTALLATION SHOULD BE PERFORMED IN A WAY THAT BRAKE CALIPERS ARE ON THE SAME PLANE.



- Provided that the movement coming from the regulator takes the brake handle to the position of A, downstream braking occurs, and if it takes it to the position of B, then upstream braking happens.
- Brake blocks should be installed in the upper parts of the cabinets in a way that brake calipers are down.
- Under no circumstances, apart from the warning of the regulator, is our company responsible for breaking action of the brake.

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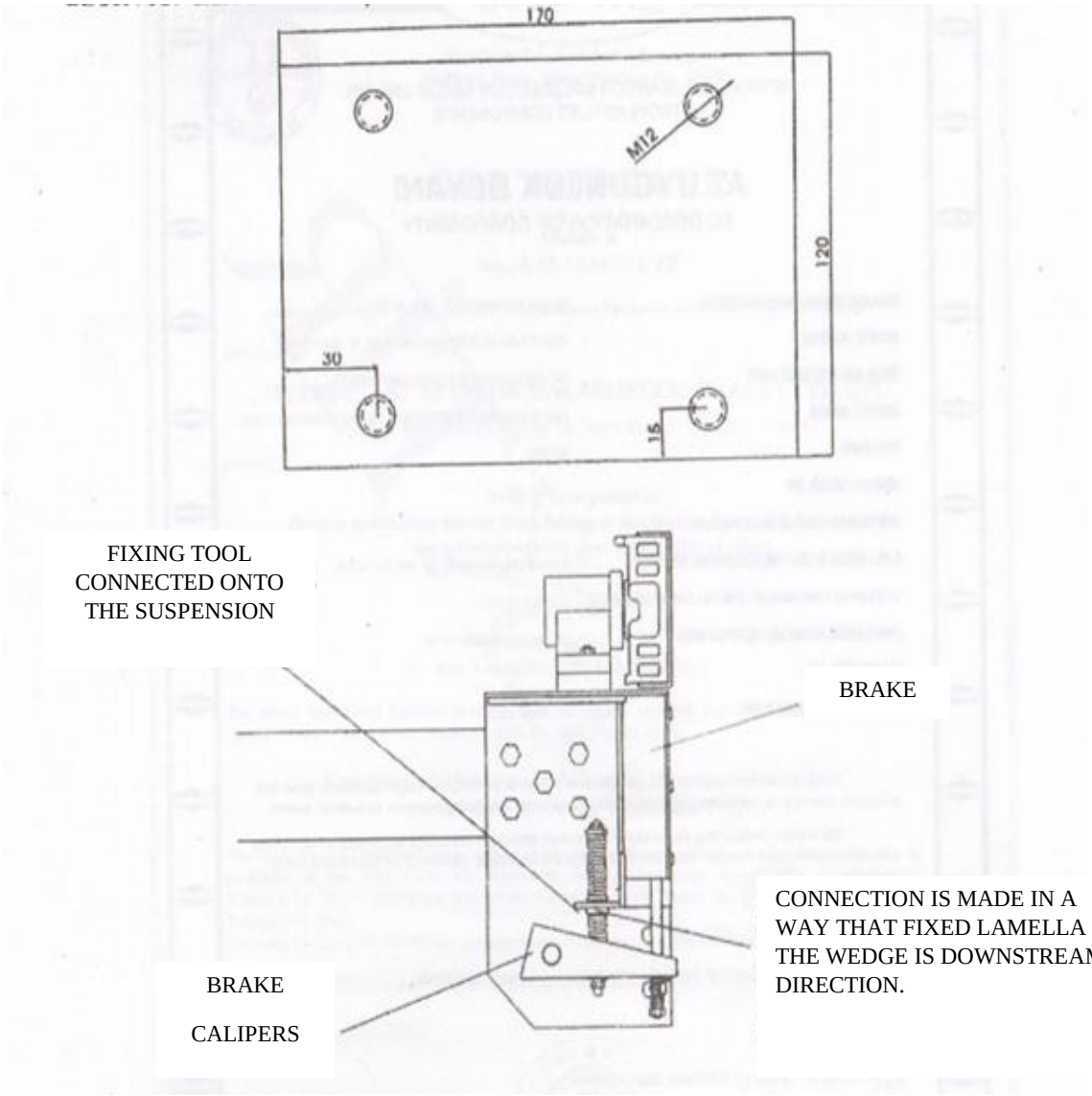
BLOCK MOUNT HOLE DIMENSIONS



CENTRALIZATION MECHANISM

Centralization mechanism is mounted onto the head panel to which the brake is connected in suspension in order to keep the brake calipers in the center.

"Centralization panel" that will carry the spring system is connected onto the suspension head panel. It is placed onto the centralization panel in a way that lamella on the wedge is down. Spring and bolts are placed onto the wedge. In a similar way, in the upper part, the spring is placed onto the wedge on the centralization panel and its connection with brake calipers is made.

Centralization adjustment is performed by the help of fibered nut on the wedge.

Strojírenský zkušební ústav, s.p.
Notified Body, Identification No. 1015

CERTIFICATE

EC TYPE EXAMINATION
Module B
No.: I-61-14247/12/ZZ

issued according to Part A, Annex V of the European Parliament and Council Directive 95/16/EC

Manufacturer:

METROPLAST ASANSÖR MALZEMELERİ İMALAT LTD. ŞTİ.

Hürriyet Mh. Ulus Cad. Erler Sk. No:5 Kartal - Istanbul - Turkey

Product:

Safety components
Devices preventing the car from falling or unchecked upward movement - instantaneous safety gear with buffered effect

Type:
EKO 2000

Product specification:
See Annex No. I-61-14247/12/ZZ/1

The above introduced Notified Body by this Certificate **certifies the conformity** of the subject sample of safety component properties with the requirements of the

European Parliament and Council Directive 95/16/EC according to Annex V (module B)

The basis for this Certificate issue is the conformity assessment carried out according to Module B, evaluated in the Part I. of the Inspection finding, Inspection Report No. 66-6068 dated February 15, 2012. An integral part of this Certificate is the Annex No. I-61-14247/12/ZZ/1 dated February 15, 2012.
The rules for using the Certificate are introduced in the conclusion of the Inspection Report.

Validity of the Certificate EC type examination is limited on period of 5 years.

In Brno, February 15, 2012

Ing. Jiří Rozsíval, MBA
Deputy Director

The Certificate consists of 1 page + 2 pages of the Annex.

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