

DYNA[®]

System - Direct System

Magnetic Attachment



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System - Direct System

Introduction

Reduced dentition used to retain an overdenture is a main factor not only preventing, to a great extent, alveolar bone resorption but increasing the stabilisation of the denture as well^{15,16,17,18}. In this respect the load distribution is an important factor. Magnetically retained overdentures transfer no detrimental lateral forces to those supporting element helping in maintaining a favourable clinical situation. Therefore, Dyna (Direct) System may be used on extremely compromised elements with mobility classification 2¹. Studies^{2,14} have shown that in 86% of magnet application in such cases the stability of the abutment teeth increases. Dyna (Direct) System by its simplicity and reliability offers both the dentist and the patient very firm and unique denture retention especially in compromised situations^{1,2,3,13,14}. Since 1985 it has been successfully applied worldwide.

LONGTERM CLINICAL FOLLOW-UP OF MAGNETIC RETAINED OVERDENTURES

- patients	66
- magnetic attachments	99
- evaluation period in years	4-6
- increased stability of the roots	86%
- survival rate by Kaplan & Meier 116 months	
- roots	79%
- magnets	76,7%

Langzeitverfolgung mit magnetischer Fixatur (Dyna-System)
J. Groll/W. Witten / Prothetik-ZWR 109 Jg. 2000, Nr. 1/2

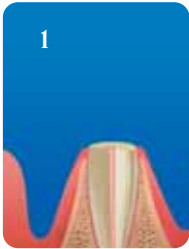


Indications

Retention of complete or partial overdentures in the maxilla or in the mandible

1. Also with elements with unfavourable prognosis^{2,3,14}
2. Patients with manual dexterity deficiency because of the simplicity of positioning and hygiene
3. Maxillo-facial prostheses
4. When using a keeper (Dyna Direct System) the elements must have a favourable inclination and the preparation should be placed above the gingiva level¹³. In all other cases Dyna EFM alloy^{4,5,6,7,8} should be used to produce individual keeper (Dyna EFM alloy contains no toxic or allergenic elements^{11,12}).





1

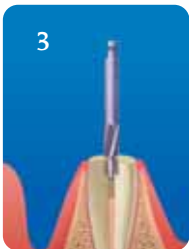
Dyna Direct System

A chair-side magnetic attachment for both partial and full overdentures supported by natural elements. It can be applied directly by the dentist and is very easy to use. It resembles pre-fabricated core-post systems. After endodontic treatment the abutment tooth is decoronated and the final preparation made with two drills supplied together with the system. The Dyna Direct keeper is cemented with a glasionomer cement and finished with a composite. Then the magnet can be fixed into the denture.



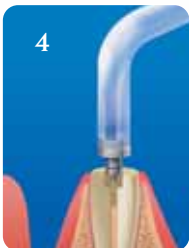
2

The system consists of:



3

1. Prefabricated keepers in two types, Ø4,8 (standard) and 4,0 mm, produced from precious Dyna EFM alloy^{4,5,6,7,8}

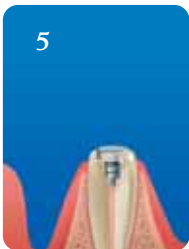


4

2. Powerful, biocompatible mini magnets supplied in different types



3. A Spiral drill, a seating drill and an application instrument



5

How to use the system?

1. On the chosen teeth perform an endodontic treatment in an usual manner
Decoronate the abutment tooth up till 1 mm subgingival. Prepare the final surface more or less parallel to the alveolar crest but with a slight lingual or palatal inclination
2. Drill a shaft in the root using the Dyna spiral drill*
3. Prepare the seat using the Dyna seat drill*
4. Cement the Dyna Direct keeper with glasionomer cement and finish all with composite
Prevent rough surfaces or edges
5. The magnet can be fixed in the denture by the dentist or dental laboratory (for more details see Dyna (Direct) System Manual)



* Prevent perforation of the root!





Dyna System

A magnetic attachment for both partial and full overdentures supported by natural elements. The system is very easy to use and resembles pre-fabricated core-post systems. After endodontic treatment the abutment tooth is decoronated and the final, lowest possible, bevel preparation made. After taking a complete impression the root cap made of Dyna EFM alloy^{4,5,6,7,8} is manufactured in the dental laboratory. The Dyna rootcaps are cemented with a glasionomer cement and finished with a composite. Then the magnet can be fixed into the denture.

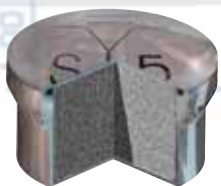


The system consists of:

1. Precious Dyna EFM alloy^{4,5,6,7,8}
2. Powerful, biocompatible mini magnets supplied in different types



Dyna WR Magnets



Dyna WR Magnets are produced with help of CAM lathing machines. This process enables shaping the magnet encapsulation in hardened surgical steel or Titanium grade 5 so that the ready product is **wear resistant**. The use of the latest laser lasing techniques prevents any undesired leakages^{7,11}. Materials used guarantee **permanent magnetic retention**. Magnets are supplied in two different types with very **small dimensions** 1,7 mm and 2,7 mm height and diameter 4,5 mm.

The 1,7 mm magnet (S3) has the attachment force of 300g whereas the 2,7 mm magnet (S5) \pm 470g. The magnet encapsulation has been made very thin on purpose. Therefore, the magnets never may be polished or cut !

R0.20 -0.05

Lx -0.10

Why Dyna System / Dyna Direct System?



The Dyna (Direct) System has the following advantages:

- No need for activation
- Permanent stable retention
- No impression or laboratory auxiliary elements
- Parallelism is less necessary
- Rebasing procedure is the same as for a standard denture
- Very easy dental hygiene for the patient
- Vertical load of the post elements
- Limited lab costs



The Dyna Direct System has the following extra advantages:

- Short treatment time (chair-side technique)
- Even more simple procedure
- Very limited costs



General contraindications

- Severe bruxism *
- Lack of patient motivation
- Poor dental hygiene
- Insufficient interocclusal space

* When using the magnets for bruxers anyway, space must be created in such a way that only direct contact between magnet and keeper is realized when maximum bite forces are applied. It may be easily controlled by using fitchecker material.

Contraindications for Dyna Direct System to be solved by using Dyna System

- Unfavourable abutment teeth inclination (perforation risk)
- Subgingival preparation
- Insufficient width of the abutment teeth

The magnetic attachment can also be used with implants





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Background information

The Dyna magnetic attachment is composed of two major components: the keeper or alloy, and the magnet itself. Both of them have been extensively documented since the introduction of the system to the market. Studies about the alloy show that:

- It does not corrode even when in contact with other metals intra orally^{4,6,7}
- Contains no toxic or allergenic elements⁵
- Gives no galvanic reactions with other metals used intra orally⁷

The phenomenon of magnetism has also been broadly studied. Different scientific papers exist, describing possible influence of the magnetic fields on humans^{9,10}. Based on this material it may be concluded that the Dyna (Direct) System, when used as indicated, has no whatsoever effect on the human body. Furthermore, those publications indicate that the Dyna magnets are biocompatible⁸ and corrosion-free¹¹. Apart from that the Dyna (Direct) System makes use of so called open field magnets meaning that the magnetic flux field radiate into the surroundings. The reason for choosing such a design was the fact that open field magnets, in contrary to the closed field magnets, do not have to be in close contact with an object to attract it. This has naturally clinical consequences. An overdenture placed in the mouth of the patient during its functional life has a certain degree of mobility meaning that the magnets are not always in contact with the keeper or abutments. It is by using open field magnets that the magnetic attraction may be retained even in such situations and patients themselves experience open-field magnets as more "comfortable".

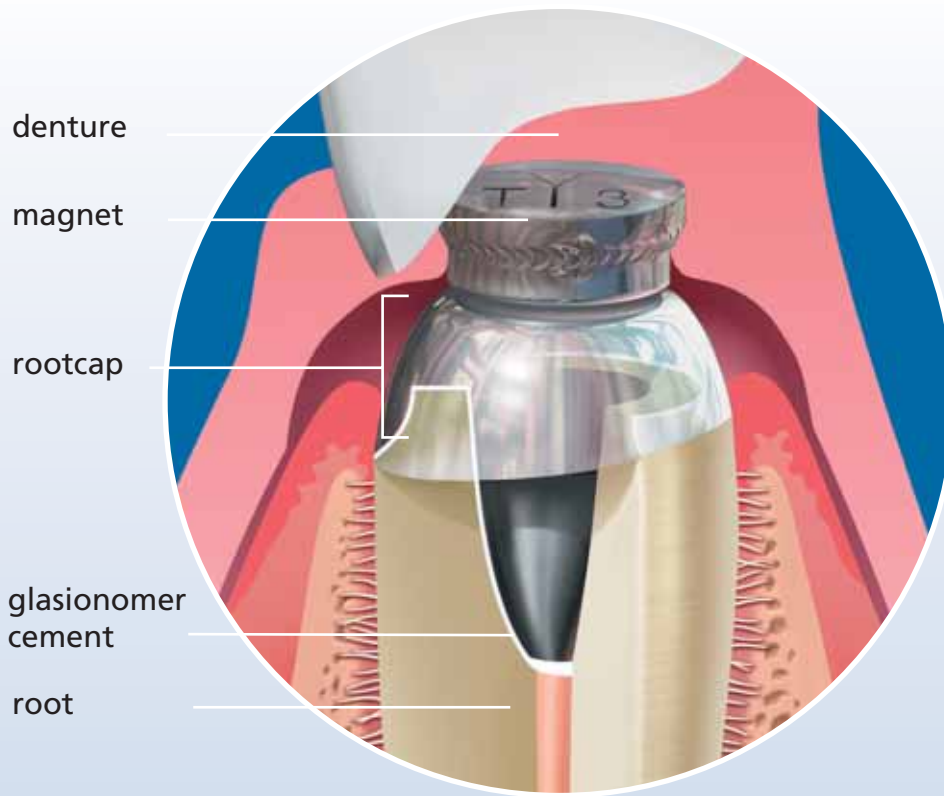
NMR imaging clearly shows correlation between the magnetic field and the magnets as well as the ferromagnetic rootcap in the patient's mouth. The NMR field is unfavourable for magnets. These magnets, as well as the ferromagnetic rootcap, will disturb the NMR field in a way that image-forming is severely damaged or even hindered¹⁹. Therefore the denture always needs to be removed. The rootcaps or keepers only need to be removed if imaging needs to be done in the area directly near the Dyna (Direct) System components. Dyna magnets do not have any influence on pacemaker function when the distance is > 1cm, so no problems for the patient will occur²⁰.

Technical data

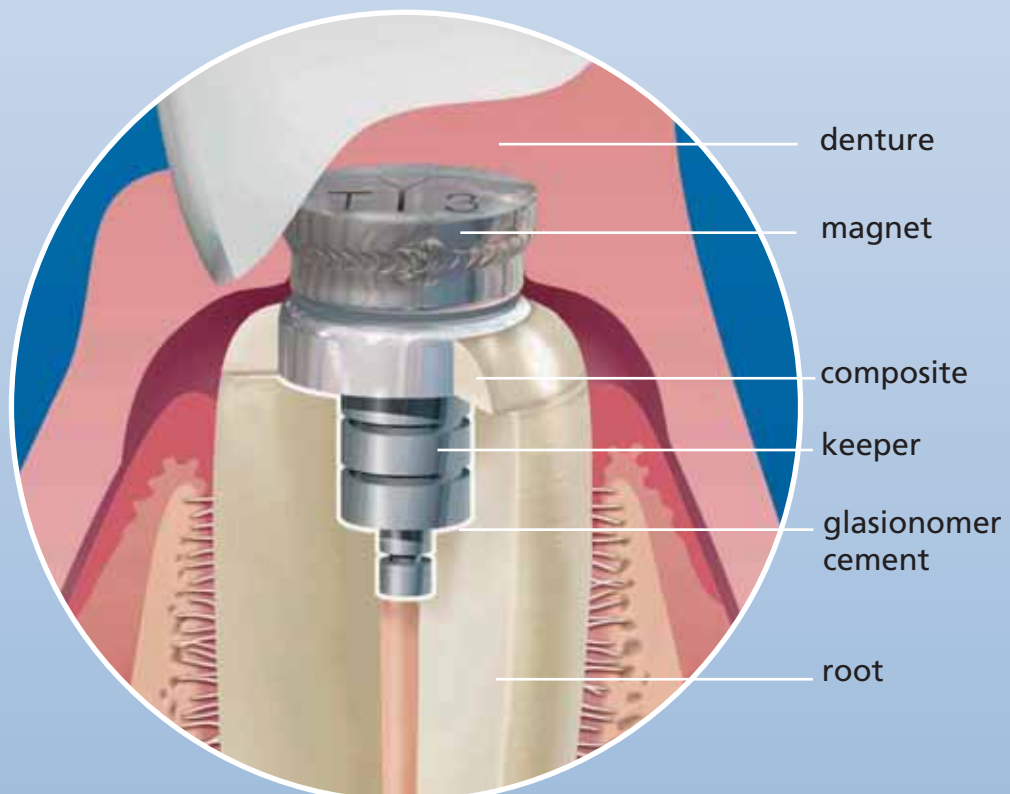
All dental implants and medical devices for dental restoration made by Dyna Dental Engineering B.V. meet the relevant provisions of the European Medical Device Directive 93/42/EEC. This is based on conformity of said products, manufactured by Dyna Dental Engineering B.V. covered by CE marking. Dyna Dental Engineering B.V. is compiling with the highest international standards for quality and production processes according to EN-ISO 13485:2003 and EN-ISO 9001:2000.

All Dyna products are thoroughly tested on corrosion resistency, biocompatibility etc. ^{4,5,6,7,8,9,10,11}.

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Distributors



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Distributeur:

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www.dynadental.com

Tel +31 (0)164 258980

Fax +31 (0)164 258390

e-mail dyna@dynadental.com

Dyna Dental Engineering BV
PO Box 70
4600 AB Bergen op Zoom
The Netherlands

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