



# Dyna Magnet Systems

Dyna is the founder of dental magnetic systems

Dutch Technology



- Dyna Direct System: keeps on natural roots
- Dyna System: root caps on natural roots
- Dyna Magnet abutments: on implants



your comfort is our goal!

- since 1984 -

# Dyna Magnet Systems

## Introduction

The Dyna magnet system was the first revolutionary magnetic anchorage system on the market. And has been specially developed as a magnet attachment for retaining roof prosthetics on natural abutment teeth or implants.

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 <sup>15,16,17,18</sup>. 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 2 <sup>1</sup>.

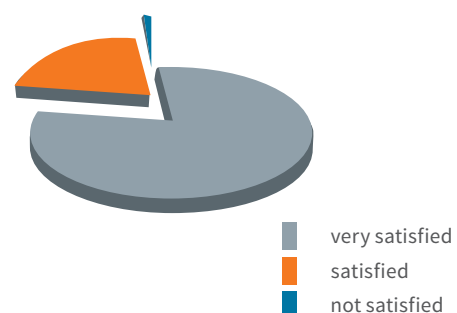
Studies<sup>2,14</sup> have shown that in 86% of magnet application in such cases the stability of the abutment teeth increases. Dyna (Direct) System by its simplicity and reliability offers both the dentist and the patient very firm and unique denture retention especially in compromised situations <sup>1,2,3,13,14</sup>.

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 maanden:	
roots:	79%
magnets:	76,6 %

Langzeiterfahrung met magnetgehalten protheses, Dyna System  
I. Coca, W. Wissler, K. Prisender. ZWR 109, year 2000 nr. 1/2

## Patient satisfaction



## Indications

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

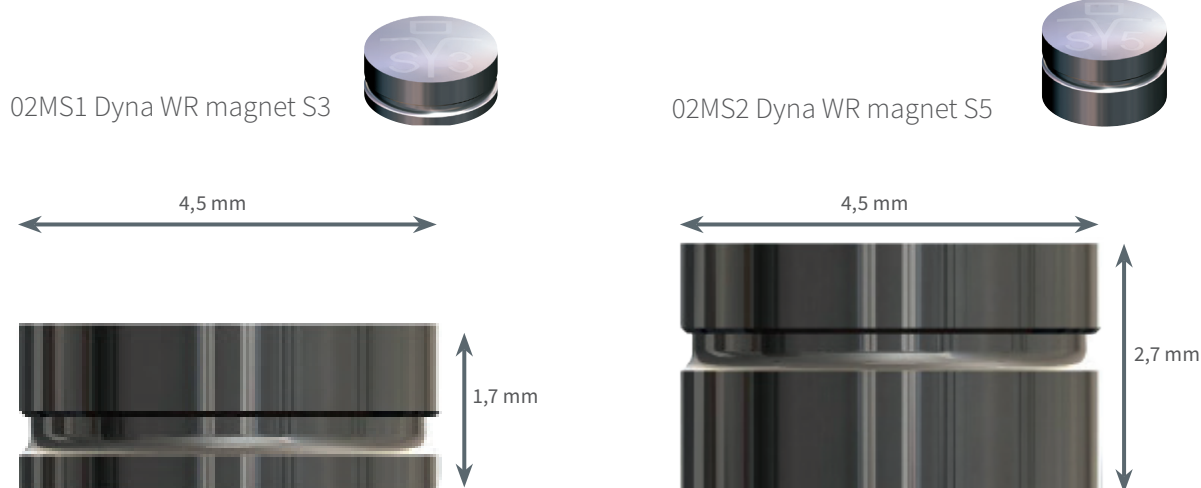
- also with elements with unfavourable prognosis <sup>2,3,14</sup>
- patients with manual dexterity deficiency because of the simplicity of positioning and hygiene
- maxillo-facial prostheses
- When using a keeper (Dyna Direct System) the elements must have a favourable inclination and the preparation should be placed above the gingiva level<sup>13</sup>. In all other cases Dyna EFM alloy<sup>4,5,6,7,8</sup> should be used to produce individual keeper (Dyna EFM alloy contains no toxic or allergenic elements <sup>11,12</sup>).



# Dyna WR magnet

## Dimensions

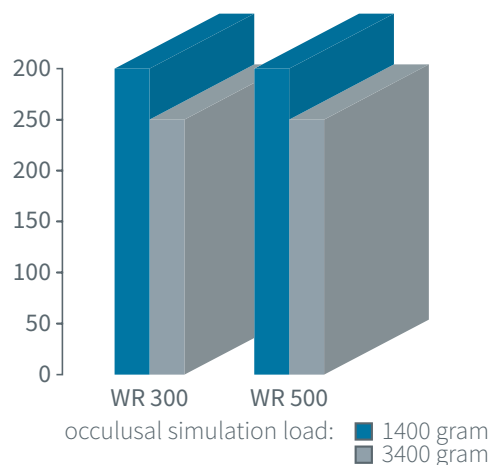
WR Magnets are sealed by means of the latest laser lasing techniques; produced with help of CAM lathing machines and having an internal retentionpart (5 year guarantee)



Dyna WR Magnets are produced with help of CAM lathing machines. This process enables shaping the magnet encapsulation in hardened surgical steel so that the ready product is wear resistant. The use of the latest laser lasing techniques prevents any undesired leakages<sup>7,11</sup>. 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 !

## Wear Resistance Test



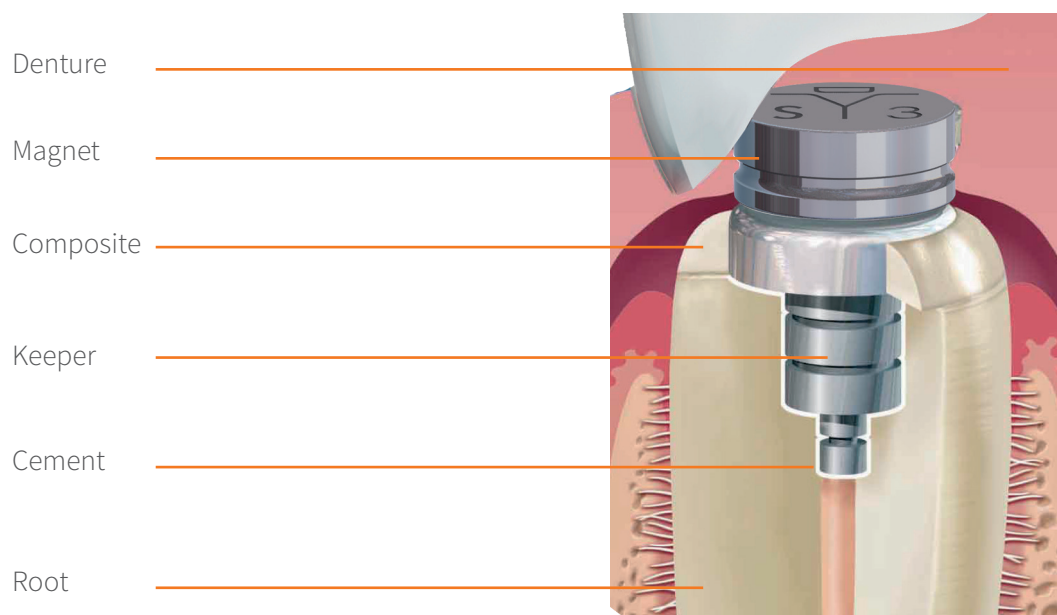
# Dyna Direct System

## A directly applicable magnetic system on natural elements

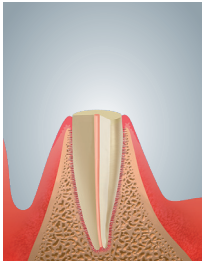
A chair-side magnetic attachment for both partial and full overdentures supported by natural elements. It can be applied directly by the dentist and is very easy to use. It resembles pre-fabricated core-post systems. After endodontic treatment the abutment tooth is decoronated and the final preparation made with two drills supplied together with the system.

## The system consists of:

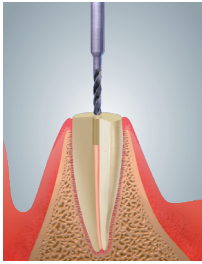
Prefabricated Dyna EFM alloy <sup>4,5,6,7,8</sup> keepers, magnets, a spiral drill, a seating drill and an application instrument.



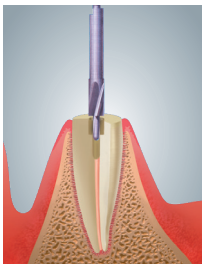
## How to use the Dyna Direct System:



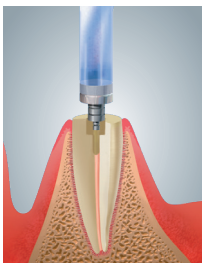
- 1 On the chosen teeth perform an endodontic treatment in an usual manner. Decoronate the abutment tooth up till 1 mm subgingival. Prepare the final surface more or less parallel to the alveolar crest but with a slight lingual or palatinal inclination.



- 2 Drill a shaft in the root using the Dyna spiral drill\*.



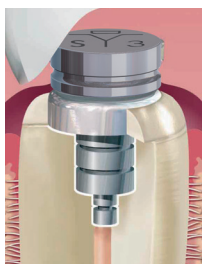
- 3 Prepare the seat using the Dyna seat drill\*.



- 4 Use the application instrument to insert the Direct Dyna keeper in the root.



- 5 Cement the Dyna Direct keeper with glasionomer cement and finish all with composite. Prevent rough surfaces or edges.



- 6 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!



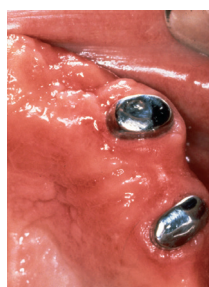
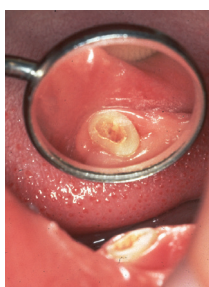
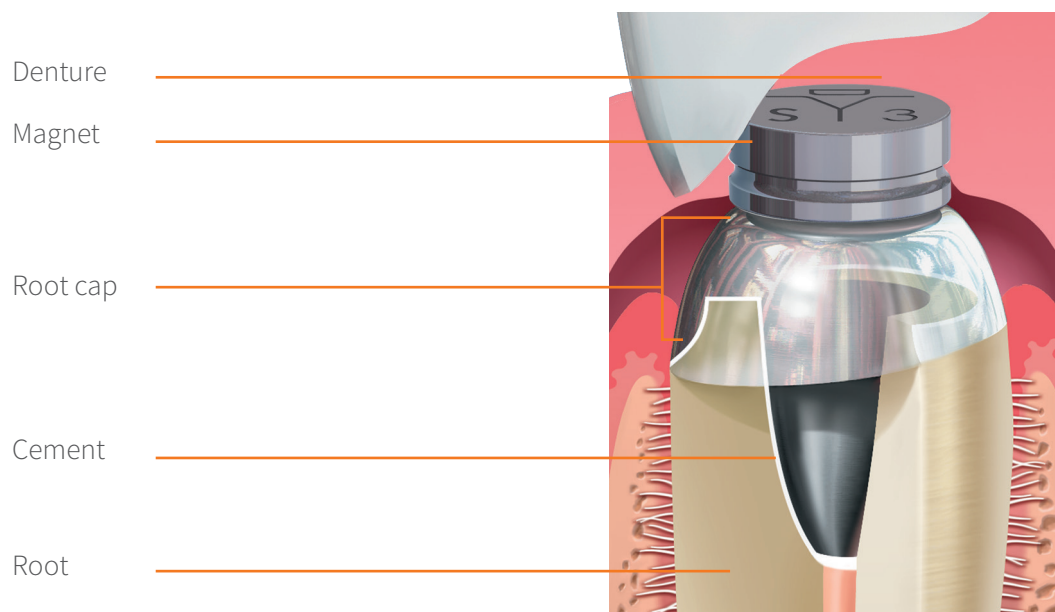
# Dyna System

## A directly applicable magnetic anchoring with Dyna alloy

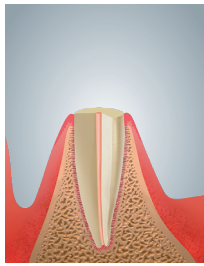
A magnetic attachment for both partial and full overdentures supported by natural elements. The system is very easy to use and resembles pre-fabricated core-post systems. After endodontic treatment the abutment tooth is decoronated and the final, lowest possible, bevel preparation made.

## The system consists of:

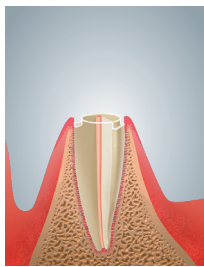
Precious Dyna EFM alloy<sup>4,5,6,7,8</sup> and magnets.



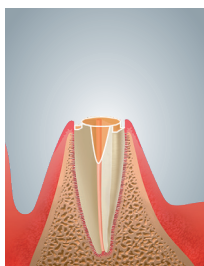
## How to use Dyna System:



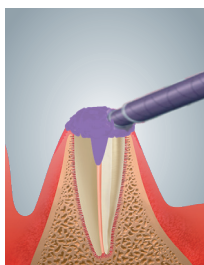
- 1 On the chosen teeth perform an endodontic treatment in an usual manner. Decoronate the abutment tooth up till 1mm subgingival.



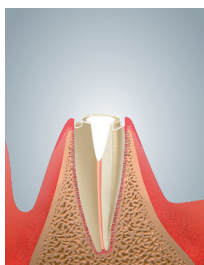
- 2 A preparation is made with an as low as possible bevel.



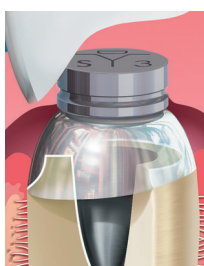
- 3 The core is prepared in a conical shape.



- 4 Make an impression of the preparation and close it partly or completely with temporary cement or composite. Prevent rough surfaces or edges. The laboratory can now make the final rootcap made out of Dyna EFM alloy.



- 5 Remove the temporary cement. Check the fit of the rootcap and cement it with the therefor intended cement.



- 6 The magnet can be fixed in the denture by the dentist or dental laboratory (for more details see Dyna Magnet Manual).

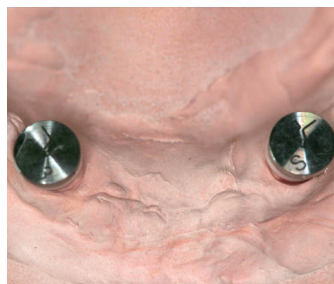
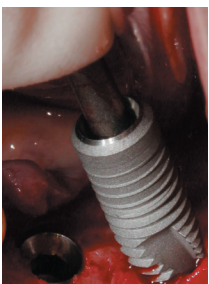
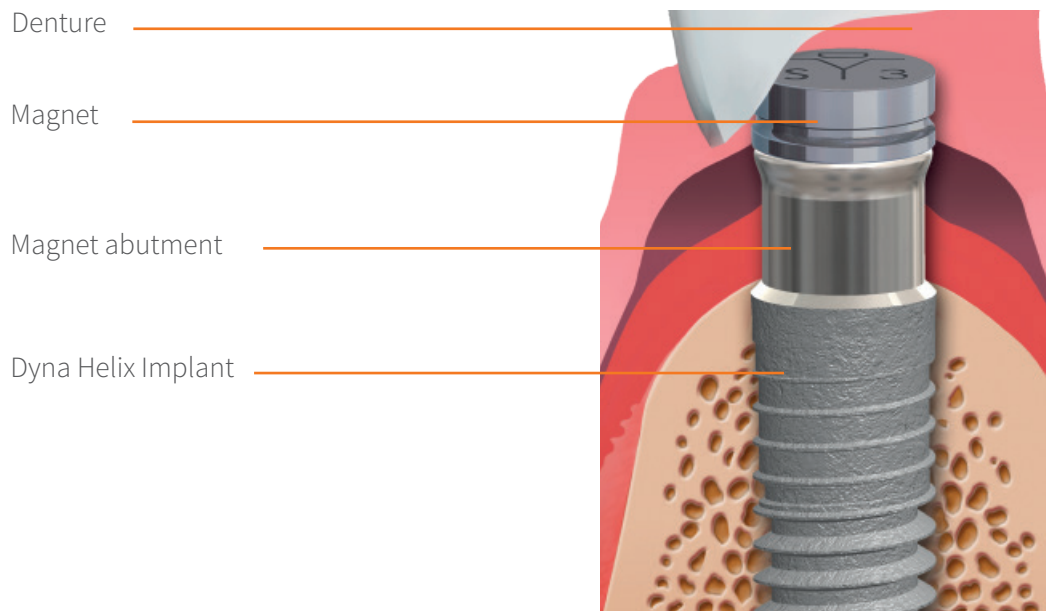


# Dyna Magnet abutments on implants

The magnet abutments allows to make a denture with magnets on implants. This makes it very easy for the patient to takeout the denture.

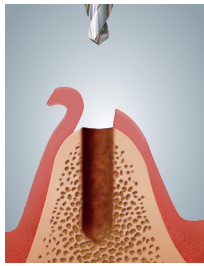
## Dyna Helix Magnet system:

Magnet abutment in differend heights. Biocompatible WR magnets supplied in different types.

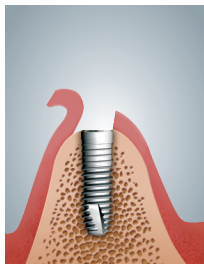




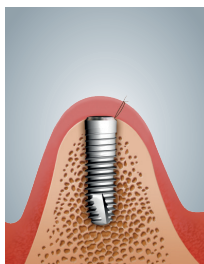
## How to use Dyna magnet on Dyna Helix implants



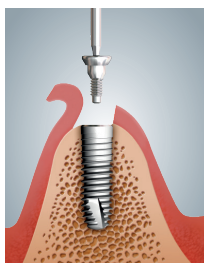
- 1 Bone preparation by marking the implant site by means of a guide drill. Use the pilot and spiral drills in different diameters to drill the necessary preparation.



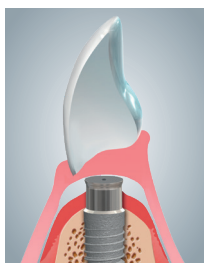
- 2 The implant can be placed with the octa driver.



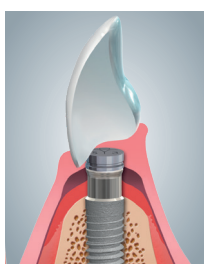
- 3 After placement the implant will be closed with the cover screw and the tissue can be sutured for the osseo-integration period.



- 4 After osseo-integration the cover screw can be removed.



- 5 The magnet abutment can be placed on to the implant.



- 6 Another healing period follows. Finally the denture can be provided with magnets or a completely new overdenture can be fabricated.



# Dyna System or 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, are solved by Dyna System:

- unfavourable abutment teeth inclination (perforation risk)
- subgingival preparation
- insufficient width of the abutment teeth

The magnetic attachment can be used in combination with natural elements and implants.

## 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<sup>4,6,7</sup>
- Contains no toxic or allergenic elements<sup>5</sup>
- Gives no galvanic reactions with other metals used intra orally<sup>7</sup>

The phenomenon of magnetism has also been broadly studied. Different scientific papers exist, describing possible influence of the magnetic fields on humans<sup>9,10</sup>. 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 biocompatible<sup>8</sup> and corrosion-free<sup>11</sup>. 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 hindered<sup>19</sup>. Therefore the denture always needs to be removed. The rootcaps or keepers only need to be re-moved 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 occur<sup>20</sup>.

## 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 de highest international standards for quality and production processes according to EN-ISO 13485:2016.

All Dyna products are thoroughly tested on corrosion resistency, biocompatibility etc.<sup>4,5,6,7,8,9,10,11</sup>.



## Dyna System

- precious Dyna EFM alloy
- powerful biocompatible WR magnets supplied in different types

There are 2 types of Dyna WR magnets available, one of 1,7mm and one of 2,7mm height.

Dyna magnets		
Art. no	02MS1	02MS2
		
Extra's	S3 - 300 gr.	S5 - 500 gr.
Diameter	4.5	4.5
Height	1,7	2,7

## Dyna EFM alloy


Precious Dyna EFM alloy can be re-molded several times.  
The alloy can be ordered by 2 grams.


2120



## Dyna Direct System

- prefabricated keepers in two types: Ø4,8 (standard) and 4,0 mm, produced from precious Dyna EFM alloy
- powerful biocompatible WR magnets supplied in different types
- a spiral drill, a seating drill and an application instrument

Dyna Direct Set 02DS10		
Description		
	WR magnet Ø 4.5 height 1,7 mm 2 pcs.	02MS1
	EFM Alloy keeper (Pd/Pt/Co) 2 pcs	3200
	Spiraldrill	3240
	Seatdrill	3241
	Magnetic application instrument	3250

Dyna Direct Set 02DS20		
Description		
	WR magnet Ø 4.5 height 2,7 mm 2 pcs.	02MS2
	EFM Alloy keeper (Pd/Pt/Co) 2 pcs	3200
	Spiraldrill	3240
	Seatdrill	3241
	Magnetic application instrument	3250

The prefabricated keeper made out of Dyna EFM alloy is available in two types:

EFM Alloy keeper Ø 4,8: 3200




EFM Alloy keeper Ø 4,0: 3210

Dyna EFM Alloy keeper		
Art. no	3200	3210
		
Diameter	4,8	4,0



## Dyna Direct System instruments

The spiral drill is used to make a shaft in the root, afterwards this needs to be widened by the seat drill. Using the application instrument it is easy to position an EFM Alloy keeper. These instruments are enclosed in the Dyna Direct set.

Dyna magnets instruments		
	Description	Art. no.
	Spiraldrill	3240
	Seatdrill	3241
	Magnetic application instrument	3250

## Dyna magnet abutment

The magnetic abutment attachment can be used on implant level and in combination with special Extension level magnet abutments 0mm on tissue level.

Dyna Magnet abutment Octa						
Art. no	82EM0	84MG1	82MG3	82MG4	82MG5	
						
Height	0	1	3	4	5	

The Dyna magnetic abutments (82MG3/4/5) nowadays consist of an extension level extension abutment (82EL2/3/4) and an extension level magnet abutment octa L0 (82EM0)

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your comfort is our goal!

Dyna Dental Engineering B.V.  
Vang 9  
4661 TX Halsteren  
The Netherlands

T. +31 (0)164 25 89 80  
F. +31 (0)164 25 83 90  
E. [dyna@dynadental.com](mailto:dyna@dynadental.com)  
W. [www.dynadental.com](http://www.dynadental.com)



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