

Instructions for use No. 1

DUOLOCK LOGA[®]

Precision since 1968



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The LOGA® attachment is processed as shown in the illustrations on pages 5 – 9 and 12 – 13 of these instructions for use.

DUOLOCK



INDICATION

This version of the DUOLOCK is indicated for free-end and bounded saddle partial dentures as well as removable bridges in patients with a non-atrophied or minimally atrophied alveolar ridge.

PRODUCT DESCRIPTION

The DUOLOCK is a rigid intracoronal attachment with a precisely adjustable activation screw in the patrix.

The extracoronal screw retention of the patrix with the threaded cap allows easy exchange of the patrix without damaging the acrylic saddle.

The DUOLOCK consists of a matrix, an exchangeable patrix and a threaded cap for holding the patrix.

Different matrices and threaded caps are available depending on the technique used.

INSTRUMENTS AND ACCESSORIES FOR ATTACHMENTS

An effective prosthetic restoration depends primarily on using a precise technique with ZL attachments. Always use original ZL instruments, tools and accessories to ensure that the precision of the attachments is maintained right through to completion of the restoration. This also applies when making adjustments to a finished denture.

Contents of Starter Kit No. 3680

- 2 Retention screws No. 146
- 1 Paralleling mandrel No. 354
- 1 Exchange instrument/ Activator No. 373
- 1 Manual cutter No. 383
- 2 Activation screws No. 386
- 2 Patrix retention screws No. 387

DUOLOCK^{Prospektiv}

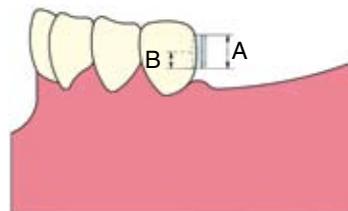
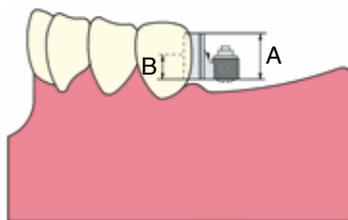
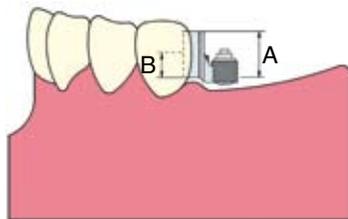


The DUOLOCK prospektiv T attachment is a rigid intracoronal attachment. The special construction of this attachment based on the proven DUOLOCK range allows the intraoral primary units to be incorporated in the design of a fixed/removable restoration as a base and retentive unit if there is a risk of abutment tooth loss.

DIMENSIONS FOR PLANNING

The DUOLOCK attachment is also indicated with very difficult occlusal relationships because it can be shortened. The internal thread of the patrix holder also provides additional height and allows the attachment to be shortened without loss of retention.

- A = Overall height as supplied = 5.4 mm
- B = Overall height after max. reduction = 2.9 mm



DUOLOCK^{Titan}



Extended indications require innovative ideas. The DUOLOCK Titan attachment, which was specially developed for use with hypersensitive patients, is based on the DUOLOCK precision attachment. The use of high-strength pure titanium provides increased biocompatibility with the same standard of precision. Systematic application of proven techniques during fabrication and easy handling for the patient extend the range of options for the dentist and laboratory in critical cases.

NOTES ON INDICATION

A stress-breaker with a milled interlock must be incorporated when using the DUOLOCK T attachment with free-end restorations. As a precaution, a stress-breaker should also be included with bounded saddles. This allows the primary situation of the denture to be integrated in the new design without any alteration after loss of the distal abutment tooth.

When working with ZL attachments, it is essential to note and adhere to the sections marked in red in the instructions for use.

5-YEAR GUARANTEE ON ALL DUOLOCK ATTACHMENTS

The period of the 5-year guarantee begins from the fabrication date filled in on the guarantee card by the laboratory. We will replace any parts free of charge due to defects in the attachment, which occur during the period of the guarantee and are the result of faults in the material or fabrication. When making a claim, send us the completed guarantee card and the defective attachment component. We will immediately send you a free replacement. The guarantee is void if the attachment has not been prepared according to our instructions for use, i.e. any faults are due to incorrect processing or preparation. The instructions for use are available free of charge on request. Further claims are excluded.

DUOLOCK^{30°}



No. 3600 30° No. 3620 90°



Matrices (Pt/Ir), cast on with precious, Pd-based and non-precious metal alloys (one-piece casting)



Threaded caps (Pt/Ir), cast on with precious and non-precious metal alloys (one-piece casting)

No. 3601 30° No. 3602 30° No. 3621 90° No. 3622 90°



Matrices (Pt/Ir), cast on with precious, Pd-based and non-precious metal alloys (one-piece casting)



Threaded caps (Pd/Ag), solderable or adhesive retained to precious and non-precious metal alloys

No. 3603 30° No. 3623 90°



Matrices (Pt/Ir), cast on with precious, Pd-based and non-precious metal alloys (one-piece casting)



Threaded caps (Ti), adhesive retained or laser welded

DUOLOCK^{90°}



No. 3610 30° No. 3630 90°



Matrices (Pt/Au), high-fusing alloy, cast on with precious metal alloys, solderable to precious, Pd-based and non-precious metal alloys



Threaded caps (Pt/Ir), cast on with precious and non-precious metal alloys (one-piece casting)

No. 3611 30° No. 3612 30° No. 3631 90° No. 3632 90°



Matrices (Pt/Au), high-fusing alloy, cast on with precious metal alloys, solderable to precious, Pd-based and non-precious metal alloys



Threaded caps (Pd/Ag), solderable or adhesive retained to precious and non-precious metal alloys

No. 3613 30° No. 3633 90°



Matrices (Pt/Au), high-fusing alloy, cast on with precious metal alloys, solderable to precious, Pd-based and non-precious metal alloys



Threaded caps (Ti), adhesive retained or laser welded

DUOLOCK^{Titan}



No. 3671 30°



Matrices (Ti), adhesive retained or laser welded to titanium



Threaded caps (Ti), adhesive retained or laser welded

No. 3672 30°



Matrices plastic with ceramic spacer



Threaded caps (Ti), adhesive retained or laser welded

DUOLOCK^{Prospektiv}



No. 3695



Matrices (Pt/Ir), cast on with precious, Pd-based and non-precious metal alloys (one-piece casting)



Matrices (Pt/Au), high-fusing alloy, cast on with precious metal alloys, solderable to precious, Pd-based and non-precious metal alloys



The patrices of these versions of the attachment are always screw-retained and are therefore easily exchanged.



A RELIABLE TECHNIQUE FOR PRECISE CASTING RESULTS OF THE PLATINUM-IRIDIUM MATRIX WITH NON-PRECIOUS, PD-BASED OR PRECIOUS METAL ALLOYS

Notes on technique:

To ensure the papilla is kept free, place the deactivated matrix into the matrix that has already been waxed in position.

Check the gap between the appendix of the matrix and the alveolar ridge.

CAUTION!

Do not allow any wax degreasing agent to get into the attachment matrix.



1 After determining the path of insertion, place the matrix on the crown wall using the parallelometer and paralleling mandrel No. 354.



2 Mark the matrix outline on the crown wall if the matrix is to be placed intracoronally.



3 Then cut out sufficient space for the matrix.



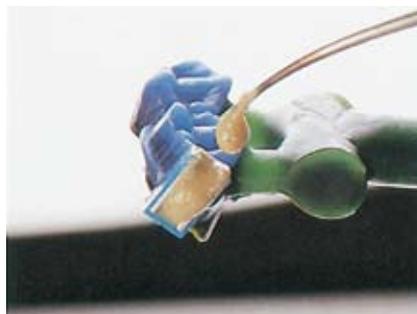
4 Place the matrix on the crown wall or into the recess and wax it in position.



5 Attach the sprues according to the metal manufacturer's instructions.



6 To ensure the investment flows fully into the matrix, put a small drop of water in the matrix.



7 After mixing the required amount of investment, hold the rubber base vertically on the vibrator and use a probe to flow the investment into the attachment from the occlusal. (Do not press in!)



8 Place the casting ring on the base. Fill the mould with the remaining investment.



9 Devest the mould after casting and sandblast the crowns and castings with microbeads before preparation. With the solderable threaded cap proceed as described on Page 12 for fabricating the CrCo framework. With the cast-on threaded cap proceed as described on Page 10.

Successful casting results and an accurate fit depend on precise preparation.

Before investing, decide which dental alloy is to be cast onto the matrices.

When using investment with controllable expansion (phosphate-bonded) adhere strictly to the mixing ratio of powder, liquid and liquid concentrate.

TECHNIQUE FOR ACCURATE CASTING RESULTS WITH THE **PLATINUM-GOLD MATRIX**

CAUTION!

When using a wax degreasing agent, ensure that it is only applied to the wax pattern.

Never apply wax degreasing agent to the attachment guide surfaces, as there is the risk of metal flowing onto these surfaces during casting.



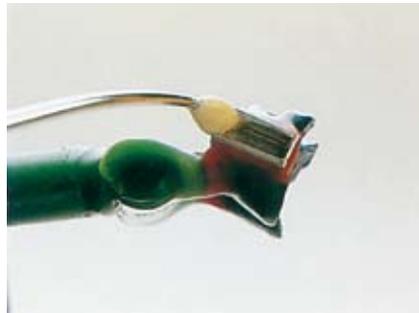
10 After determining the path of insertion, place the metal matrix on the crown wall using the parallelometer and paralleling mandrel No. 354. Mark the matrix outline on the crown wall if the metal matrix is to be placed intracoronally. Then cut out sufficient space for the metal matrix.



11 Place the metal matrix on the crown wall or in the recess and apply wax to all sides of the matrix.



12 Attach the sprues according to the metal manufacturer's instructions. To ensure the investment flows fully into the matrix, put a small drop of water in the metal matrix.



13 After mixing the required amount of investment (size of casting ring), hold the rubber base vertically on the vibrator and use a probe to ensure the investment flows into the attachment channel. Place the casting ring on the base and fill the mould with the remaining investment.

Devest the mould after casting and sandblast the crowns and castings with microbeads before preparation. With the solderable threaded cap proceed as described on Page 12 for fabricating the CrCo framework. With the cast-on threaded cap proceed as described on Page 10.

TECHNIQUE FOR A PRECISE, RELIABLE SOLDER CONNECTION BETWEEN THE PLATINUM-GOLD MATRIX AND CROWN

Notes on technique:

To ensure the papilla is kept free, place the deactivated matrix into the matrix that has already been waxed in position. Check the gap between the appendix of the matrix and the alveolar ridge.



14 Proceed as shown in figures 10 - 11 on Page 6. Apply separating agent to the matrix before waxing up. After removing the metal matrix, contour a flow channel for the solder.



15 Attach the sprues according to the metal manufacturer's instructions, invest and cast in the usual way.



16 After finishing the casting, prepare the matrix recess in the crown wall.



17 After determining the path of insertion, position the metal matrix in the recess using the parallelometer and paralleling mandrel No. 354.



18 Secure the metal matrix in position on the cast crowns with resin or wax. If a precious metal spot welder is available, spot weld the metal matrix onto the crowns.



19 Fabricate a solder model and solder in the usual way. If the attachment has been spot welded, protect the inner surface of the matrix with antifix, e.g. Context (Degudent).



20 Prepare the solder joint. Heat treat the attachment matrix in a furnace (0-700°C, hold for 30 minutes, cool slowly). If solderable threaded caps have been used, proceed as described on Page 12.

TECHNIQUE FOR A PRECISE, RELIABLE ADHESIVE CONNECTION BETWEEN THE DUOLOCK THREADED CAP AND DENTURE FRAMEWORK.

Fabricating a duplicate model

Soak the model in water at 40-50°C for 10 minutes. Then dab the model with a soft cloth and duplicate it immediately (with reusable duplicating material). Ensure that the reusable duplicating material is not too old to prevent any inaccuracies in the height.



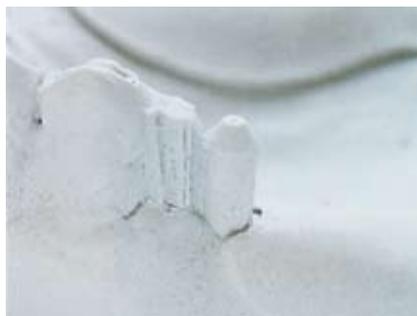
21 Adhesive aid No. 390



22 Replace the original threaded cap No. 384 with the adhesive aid No. 390. Insert the matrix with the screw-retained adhesive aid into the matrix.



23 Wax out the activation slot of the matrix, the thread of the activation screw and the space between the matrix and matrix. Block out under the appendix of the matrix and the adhesive aid with wax.



24 Duplicate according to instructions. The adhesive aid is clearly defined on the investment model after removal of the duplicating material.



25 Surround the duplicated adhesive aid with a layer of wax 0.5 mm thick. The conical tip of the adhesive aid should not be covered with wax (outlet for excess DuroBond). Invest and cast in the usual way.



26 Replace the adhesive aid No. 390 with the threaded cap No. 384.



27 Prepare the CrCo framework in the usual way. The threaded cap recess in the CrCo framework should not be prepared.



28 Unscrew the retention screw No. 387 and remove the threaded cap No. 384 from the DUOLOCK matrix.



29 Insert the positioning screw No. 146 into the threaded cap. Block out the inside of the threaded cap and the stress-breaker arm with wax (protection when sandblasting).



30 Sandblast the threaded cap and the threaded cap recess in the CrCo framework with 250 µm corundum at approx. 5 bar pressure. Remove the block out wax with a steam cleaner.



31 Assemble the threaded cap and patrx. Insert the attachment into the matrix. Block out the activation slot, the activation screw and the underside of the patrx with wax. Degrease the threaded cap with acetone, if necessary.



32 Mix DuroBond according to the instructions on the pack.



33 Apply DuroBond to the threaded cap and in the CrCo framework. Place the CrCo framework on the crowns and check the accuracy of fit. To light cure the DuroBond, place the model in a light-curing unit for at least 3 minutes.



34 After the DuroBond has cured, separate the CrCo framework from the crowns. Then unscrew the DUOLOCK patrx from the threaded cap in the CrCo framework and remove any adhesive that has exuded from the side so that the attachment can be easily activated. The denture is set up and finished in the usual way.

DIMENSIONAL ACCURACY OF THE DUPLICATE MODEL IS ESSENTIAL FOR A PRECISE FIT OF THE PATRUX HOLDER

Fabricating a duplicate model

Soak the model in water at 40-50°C for 10 minutes. Then dab the model with a soft cloth and duplicate it immediately (with reusable duplicating material). Ensure that the reusable duplicating material is not too old to prevent any inaccuracies in the height.



35 Place the patrix in the matrix. Block out under the appendix of the threaded cap with wax and prepare the model in the usual way.



36 After duplicating according to instructions, remove the master model from the duplicate impression.

Use a spray for conditioning the surface of the silicone duplicating material. Do not place the duplicating cap in the silicone mould until it has been sprayed and blown dry. When preparing for duplication, ensure that the occlusal, lingual and buccal surfaces of the activation screw and patrix are blocked out. This guarantees that the patrix can be activated without any problem.



37 After duplicating according to instructions, remove the master model from the duplicate impression.

Boil out any wax debris that may have flowed into the threaded cap, as metal could otherwise flow in during casting.



38 Replace the threaded cap accurately in the duplicate impression. Put a small drop of water in the threaded cap so that the investment flows fully into the cap.

Before investing

With reusable duplicating material the duplicating cap should be placed in the recess without applying excessive pressure. With silicone duplicating material we recommend wetting the duplicating cap with water. This raises the duplicating cap automatically to the correct height if it has been pressed in too far.



39 Mix the amount of investment required for the model. Fill the threaded cap first using an instrument.



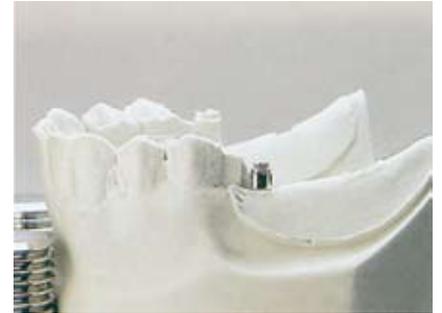
40 Fill the duplicate impression with the investment.



41 After the model has set, the threaded cap is fixed rigidly on the model.



42 Harden the model in the usual way. After hardening the model, heat the duplicating cap with a Bunsen burner and then remove it with tweezers.



43 Remove any investment still sticking to the threaded cap with an instrument.



44 The threaded cap is securely retained in the model by the positioning screw.



45 Surround the threaded cap with a layer of wax 0.5 mm thick.



46 Cover the top of the threaded cap with a layer of wax approx. 0.5 mm thick. Invest the model in the usual way.



47 To avoid overoxidation of the positioning screw, the mould should not be held at the final temperature (950-1050°C) for longer than 30 minutes.



48 Cast the CrCo framework in the usual way and sandblast it after deinvesting. The inside of the threaded cap should only be sandblasted briefly. We recommend sandblasting the threaded cap with microbeads to prevent it being damaged. Remove the positioning screw from the threaded cap.



49 Clean any residual investment still sticking to the surface of the threaded cap with the manual cutter No. 383. Use oil as a lubricant.

TECHNIQUE FOR A RELIABLE, PRECISE SOLDER CONNECTION BETWEEN THE THREADED CAP AND DENTURE FRAMEWORK

Fabricating a duplicate model

Soak the model in water at 40-50°C for 10 minutes. Then dab the model with a soft cloth and duplicate it immediately (with reusable duplicating material). Ensure that the reusable duplicating material is not too old to prevent any inaccuracies in the height.



50 Insert the matrix with the solderable threaded cap in position into the matrix. Block out the activating slot of the matrix and the gap between the matrix and matrix with wax.



51 Block out under the appendix of the attachment matrix with wax and surround the solder threaded cap with a thin layer of wax approx. 0.2 mm (for the solder gap).

When preparing for duplication, ensure that the occlusal, lingual and buccal surfaces of the activation screw and matrix are blocked out. This guarantees that the matrix can be activated without any problem.



52 Duplicate according to instructions. The threaded cap is clearly defined on the casting model after removal of the duplicating material.



53 Surround the threaded cap duplication with a layer of wax approx. 0.5 mm thick. Do not cover the top of the threaded cap with wax. Invest and cast in the usual way. Prepare the framework after devesting and sandblasting.



54 Secure the threaded cap in position with resin. Remove the attachment from the threaded cap and screw in the positioning screw Order No. 146. Fabricate a solder model and solder in the usual way.



55 If a spot welder is available, cut a T-shape in the framework at the metal surrounding the threaded cap. Spot weld the metal segments to the threaded cap from the inside to the outside. Unscrew the attachment matrix before soldering freehand.



56 The threaded cap should be rigidly connected to the CrCo framework after fixing it in position.



57 Coat the threads of the threaded cap with antflux, e.g. Context (Degudent).



58 Apply flux, e.g. Oxynon (Degudent), to the threaded cap and CrCo framework.



59 Vibrate the CrCo framework with an instrument to ensure the flux flows into the solder gap.



60 Ensure that the flux has flowed completely round the threaded cap.



61 Degas the flux with the flame before soldering.



62 To avoid overheating the CrCo framework and flux, apply the required amount of balled solder to the prepared solder site.



63 Heat the solder joint from the bottom to the top. When the solder reaches flow temperature, it shoots into the soldering gap.



64 Check that the solder has flowed completely round the threaded cap. If a solder model was used, remove investment residue from the threaded cap after soldering with an ultrasonic cleaner or using the manual cutter No. 383. Prepare the solder joint and then insert the patrix in the threaded cap.

TECHNIQUE FOR ACCURATE CASTING RESULTS WITH THE PLATINUM-GOLD MATRIX AND PLATINUM-IRIDIUM PATRIX



65 Fabricate a fully anatomical wax pattern.



66 Place the matrix No. 380 or No. 382 on the crown using the parallelometer No. 354. Ensure that the matrix is completely surrounded with wax (min. 0.5 mm).



67 Mill a stress-breaker arm with interlock.



68 Attach the sprues according to the alloy manufacturer's instructions. To ensure the investment flows fully into the matrix, put a small drop of water in the matrix.



69 After mixing the required amount of investment (size of casting ring), hold the rubber base vertically on the vibrator and use a probe to ensure the investment flows into the matrix. Place the casting ring on the base and invest in the usual way.



70 Always use resin beads for sandblasting the matrices. The maximum pressure for sandblasting should be 2.5-3.0 bar.



71 Prepare in the usual way.



72 Insert the patrix into the matrix.



73 If the attachment has to be shortened, remove the patrix before grinding.



74 If the matrix is to be shortened, increase the depth of the screw slot with a cut-off wheel 0.3 mm.



75 Contour the secondary unit using an appropriate resin.



76 Fabricate the wax pattern. Ensure that no part of the attachment projects into areas to be faced with porcelain.
(Risk of porcelain splitting off on direct contact with platinum/iridium).



77 Attach the sprues. Then remove the activation screw. *Reduce the wax by 0.2 mm circumferentially around the matrix.*



78 Ensure that no modelling resin has flowed into the matrix screw holes. Put a small drop of water into the matrix (facilitates investing).



79 Flow the investment into the matrix using a probe. Invest the pattern and cast in the usual way.



80 Sandblast the attachment area of the framework with resin beads at a maximum pressure of 2.5 to 3.5 bar.



81 Prepare the framework and check the accuracy of fit and proper functioning of the activation screw. If necessary, clean the thread with the thread tap No. 501.



82 Face in the usual way.
The activation screw (Ti) must always be removed from the matrix during firing.

FABRICATING A CrCo DENTURE ON EXISTING INTRAORAL DUOLOCK MATRICES



83 Model situation of a finished bridge with DUOLOCK prospektiv attachments on 35 and 44.



84 If there is premature loss of abutments 37 and 47, the retention screws are loosened and the bridge removed.



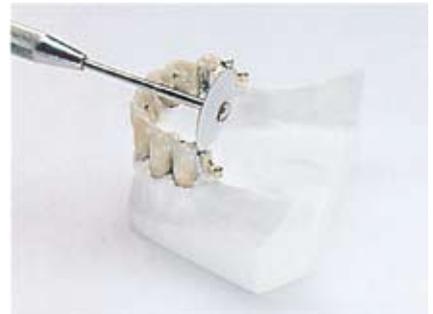
85 Situation after healing.



86 The operator uses an exchangeable DUOLOCK patrix in preparing for impression taking.



87 The patrices are lightly activated on insertion into the matrices intraorally.



88 If required, the patrices are shortened to the height of the matrices with a suitable rotary grinding instrument.



89 DUOLOCK brass laboratory matrix (Order No. 339)



90 The shortened patrices are inserted into the laboratory matrices by the operator or dental technician.



91 The matrices are shortened to the height of the patrices using a suitable rotary grinding instrument.



92 The impression cap No. 338 is connected to the matrix with a screw. The laboratory matrix is then removed.



93 The matrices with the screw-retained impression aids are inserted into the matrices intraorally. An impression is then taken of the situation with a suitable impression material.



94 Insert the matrix into the matrix analogue. Cover the activation slot of the matrix and the buccal and lingual spaces between the matrix and matrix with a thin layer of wax or Vaseline.



95 Reposition these components in the impression. Check the exact fit of the matrix analogues and matrices in the impression. Pour the impression with a suitable high-strength dental stone.



96 Remove the model after the stone has set. Remove the matrices from the matrices.



97 Working model with matrix analogues. Proceed with fabrication of a CrCo denture as described in the Instructions for Use on Pages 8 + 9.



98 The framework should be tried in before final fitting of the threaded caps so that any minor adjustments can be made.



99 Finished lower denture on the model



100 The "fitted" replacement denture.

TECHNICAL DATA OF THE ALLOYS

Alloy	Palladium-Silver (Pd/Ag)	Platinum-Gold (Pt/Au)	Gold-Platinum (Au/Pt)	Platinum-Iridium (Pt/Ir)	MainBond EH (Au/Pt)	Titanium (Ti)
Colour	white	white	yellow	white	yellow	white
Melting range (°C)	1170 - 1240	1360 - 1460	900 - 930	1830 - 1855	895 - 1010	1610
Vickers hardness VH tempered	245	250	250	225	295	270
0.2% Proof stress (daN/mm ²) tempered	60	78	67	55	60	25
Tensile strength (daN/mm ²) tempered	80	82	82	72	76	54
Elongation at rupture (%) tempered	18	15	20	18	21	22
Tempering	0-500°C, allow to cool slowly for 10 min.	0-700°C, allow to cool slowly for 30 min.	0-350°C, allow to cool slowly for 15 min.	0-700°C, allow to cool slowly for 30 min.	0-450°C, allow to cool slowly for 15 min.	

Titanium retentive units must not be subjected to procedures involving heat, e.g. soldering.

Plastic components burn out without residue.

Information on our products and techniques is based on ongoing technical development and monitoring.

This does not release the user from the obligation of checking our instructions and recommendations before use to ensure their fitness for the intended purpose.

If modifications are made to our products in the course of ongoing technical development, we reserve the right to supply the modified version.

Our technical advisory service is a voluntary customer service, which is offered without liability on our part.

Claims for compensation are limited to claims under guarantee and to the contractual terms of our general conditions of sale and delivery.

We reserve the right to make technical changes.

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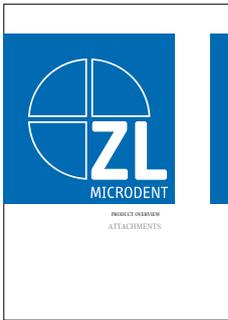
ALLOY COMPOSITION OF ZL ATTACHMENTS

Alloy abbreviation	Name of alloy	Au %	Ag %	Pt %	Pd %	Cu %	Ir %	Rh %	Zn %
Pd/Ag	Alba O	2,0	37,0	8,0	40,0	13,0	-	-	-
Pt/Au (high-fusing alloy)	HeraPlat	61,0	-	23,8	15,0	-	-	0,2	-
Au/Pt ¹	MainGold O	70,0	12,5	7,0	0,4	10	0,1	-	-
Au/Pt ²	MainBond EH	70,0	13,4	8,5	-	7,5	0,1	-	0,5
Pt/Ir	Platinum/Iridium	-	-	80,0	-	-	20,0	-	-

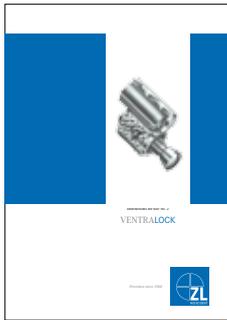
Ti¹ Titanium 99,7% = Ti 7065 Grade 2
 Ti² Titanium 90% Al 6% V 4%
 1.4305 X 10 CrNi S 18 9
 1.4310 X 12 CrNi 17 7

1 = Pt/Ir
 2 = Pd/Ag
 3 = Pt/Au
 4 = Au/Pt¹
 5 = Au/Pt²
 6 = Ti¹
 7 = Ti²
 8 = 1.4305
 9 = 1.4510
 10 = Silicone Si O
 11 = PTFE polytetrafluorethylene
 12 = POM polyoxymethylene

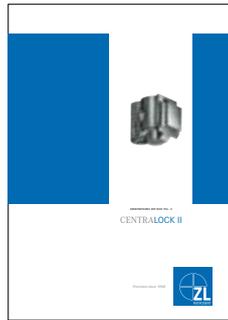
Precision since 1968



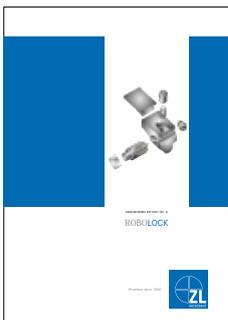
Product overview
ATTACHMENTS



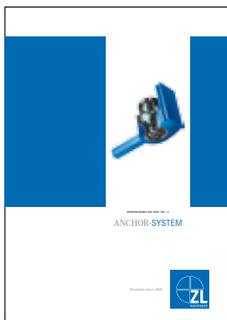
Instructions for use No. 2
VENTRALOCK



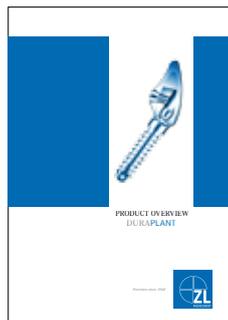
Instructions for use No. 3
CENTRALOCK



Instructions for use No. 4
ROBOLOCK



Instructions for use No. 5
ANCHOR-SYSTEM



Product Overview
DURAPLANT

ZL MICRODENT
Attachment GmbH & Co. KG
Schützenstraße 6 - 8
D 58339 Breckerfeld

Tel. +49 2338 801-0
Fax. +49 2338 801-40
info@zl-microdent.de
www.zl-microdent.de