



KDF

Quality, Trust and Efficiency

All products are made in Japan



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DENKEN-HIGHDENTAL Co.,Ltd.

KDF

From Japan to the world

日本から世界へ

**Aiming to contribute to the world
by our technology and to create a worthwhile company.**

In 1969, Denken-Highdental Co., Ltd (KDF) was established as a leading company of electric furnace for scientific researchers with the base of electric technology of heat-control. By the application of that, we, as a worldwide manufacturer, have brought high-level dental laboratory equipment to the market with the brand "KDF" that has had a High quality, reliable and efficient products and reputation from plenty dental technicians in the world.

In order to use our products with customer satisfaction and trust, we manufacture products with particular attention to quality, and we are proud of our Japanese products, and we manufacture safe, high-quality products. We provide dental materials and equipment not only in Japan but also in the United States, China, South Korea, Southeast Asia, India and other countries around the world.

KDF supplies new system and products from Japan to the world by our rich experience and sophisticated technology.

We are planning to do our best for contributing dentistry.

We look forward to your increased patronage.

 DENKEN-HIGHDENTAL Co.,Ltd.

Contents

FREXIBLE DENTURE MATERIALS

BIOTONE	3
BIOPLAST	4

ACRYLIC DENTURE MATERIALS

ACRY TONE	5
ISO RESIN Q	5
ISO RESIN FLOW	5

REPAIR & PRIMERS

ISO-FAST	6
RELINING PRE-PRIMER	6
SUPER PRIMER	6
RESIN PRIMER	6

DENTURE PRODUCTION SYSTEM

SINGLE JET	7
JET MELT SERIES	7
JET SYSTEM SET	7

ZIRCONIA SINTERING FURNACE

ZIRCOM SPEED	9
ZIRCOM	9
ZIRCOM PLUS	9

CASTING MACHINE

CASCOM SE	11
NEO SUPER CASCOM	11

PORCELAIN FURNACE

MASTER PLUS	13
-------------	----

BURNOUT FURNACE

007 PLUS	13
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DENTAL ALLOYS

COBALT BOND	11
COLLON BIUM TYPE II	11
HIGH-CHROM SOFT-7	11

BIOTONE

Perfect combination with flexibility and moderate hardness



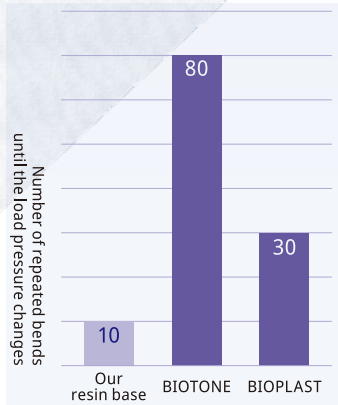
BIOTONE: Technical Data

Flexural strength	57(MPa)
Flexural modulus	1340(MPa)
Tensile modulus	600(MPa)
Izod impact strength	8(kJ/m²)
Residual amount MMA Monomer	No detection
Water absorption	33(µg/mm³)

BIOTONE allows for partials to be fabricated very thinly without sacrificing its durability. With BIOTONE, metal frameworks can be added when additional rigidity is necessary cases. The elasticity of BIOTONE can be controlled through its thickness during fabrication. BIOTONE is especially easy to grind and polish in a short amount of time without the use of system specific tool and without feathering, leaving a brilliant shine and smooth finish that will not fade. BIOTONE has been shown to contain no residual monomers and is allergen free. Due to its high thermal deformation temperature, BIOTONE has excellent wear resistance and shock resistance.

Special Flexible denture resin that meet diverse requirements

- Excellent aesthetics
better esthetics, translucent allows natural gum to show through, making it invisible. No metal framework.
 - Easy grinding and polishing makes a brilliant shine
 - Extremely low of shrinkage (less 1%)
 - High flexibility and strength
 - Monomer-free and Biosafe (hypoallergenic and allergen-free)
 - Odor and plaque resistance
 - Ultraviolet resistance
 - Better chewing efficiency and hard to deform
 - Excellent chemical resistance (can use any Denture cleaner)
 - Reline-able and repairable
 - Self-Curing resin (Iso-Fast) can be added with using our Relining Pre-Primer
- You don't need to reinject. Just fill up within 10 mins to reduce the working time.



Not easily deformed and hard to break.

All materials were stable for more than 300,000 times without change in load pressure. (Experiment to repeatedly apply load up to 5.8 mm deflection in 37°C warm water assuming mastication.)



[View Product Page](#)



BIOPLAST

Highest flexibility in KDF resins



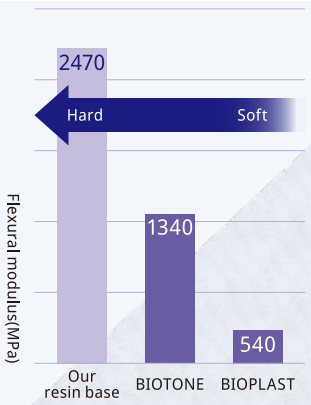
BioPlast: Technical Data

Flexural strength	27(MPa)
Flexural modulus	540(MPa)
Tensile modulus	430(MPa)
Izod impact strength	4(kJ/m²)
Residual amount MMA Monomer	No detection
Water absorption	14(µg/mm³)

This very flexible partial denture is easy to install and remove. It is giving users a stress-free denture experience. BIOPLAST has developed higher performance standards by replacing the holding arms and using flexible materials to reduce stress on natural teeth. Unable to be connected to self-curing resin or relining materials chemically but possible for mechanically repairing.

Flexible!!

- High aesthetics
It is elastic and can be made thin. Also, because it is light, there is no discomfort in wearing.
- Can do re-injection using our Super Primer
- Monomer-free (hypoallergenic and allergen-free)
- High flexibility and strength
- Odor and plaque resistance
- Extremely low of shrinkage (less 1%)
- Ultraviolet resistance
- High Color Stability



Choice from flexibility

You can choose from two types of softness depending on the case. The lower the flexural modulus, is the softer.

	Flexural modulus(MPa)	Polishability	Residual amount MMA Monomer (%)	Adhesion with Self-curing resin	Adhesion by Clear-arm or Re-injection
ACRY TONE	Hard 1360	High	0.2	○	○
BIOTONE	↑ 1340	↓	0.0	○ *1	○ *2
BIOPLAST	Soft 540	Low	0.0	—	—

*1 Using Relining Pre-Primer *2 Using Relining Pre-Primer or Super Primer

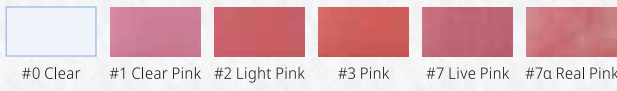


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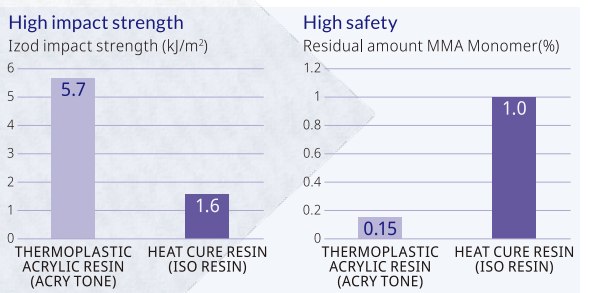
ACRY TONE

Repairable, less monomer and crack than cold cure type resin



High quality among acrylic resins

AcryTone is premium grade acrylic denture base that is fully repairable dentures. With AcryTone, you now have acrylic options that is 100% fully reline-able and repairable using our ISO-Fast, self curing method (or with other conventional self /cold-curing methods).



ISO RESIN Q

HEAT CURE RESIN



Low cost

JUST 10 MINS CURE in boiling water (3 mins microwave cure), 20 mins bench cool. Moderate transparency, beautiful color tone, discoloration resistance. Fantastic aesthetics, available in every standard shade.

ISO RESIN Q	Flexural modulus (MPa)	2470
ISO-FAST		1870

ISO RESIN FLOW

POURABLE COLD CURE ACRYLIC RESIN



Low shrinkage and high compatibility

ISO RESIN FLOW is multifunctional cold-curing acrylic that can be perfectly used as a pouring, relining, rebasing and repair acrylic. Minimized shrinkage prevents making cracks and tooth fallout from denture base.

ISO RESIN FLOW	Flexural strength (MPa)	72
ISO RESIN Q		73

ISO-FAST

SELF -CURING RESIN



Immediate self-curing resin

Self-curing resin for repairing of acrylic denture base. Unnoticeable repairs due to the matching colors with KDF resins (except BIOPLAST).

RELINING PRE-PRIMER

Biotone's adhesive to relining material and self-cure resin(Iso-fast)



Relining material, ISO-FAST and "Bio-Tone" adhesive

Applying "Relining Pre-Primer" to denture makes inner lining and reparation with ISO-FAST possible.

SUPER PRIMER

ADHESIVE FOR POLYAMIDE RESIN



Possible to rebuild arm and re-shape

"Super Primer" makes it possible to rebuild arm and to add new teeth to denture by re-injection. For polyamid resin adhesive (BIOTONE, BIOPLAST).

RESIN PRIMER

Adhesive for artificial teeth and denture base resin



Adhesive for artificial teeth and denture base resin

Adhesion between ACRY TONE and resin or artificial teeth. Adhesion of heat cure or pouring acrylic resin and resin or artificial teeth.

FOR CLINIC USE

DH FIT RELINER



Can be saved doctors chair time

Work time reduction because powder and liquid do not need to be reconstituted before use. "Paste type" easy line formation and maintains fluidity. Easy portability for chair-side consultation. Less waste and extremely economical. Comparison between the conventional method time and DH Fit Reliner work time.

Powder and liquid type KDF resin			
30 sec for measuring powder and liquid	10 sec for mixing	20 sec for applying	Total 60 sec

20 sec for applying Just 20 sec!! Reducing working time!

DH FIT RELINER



SINGLE JET



JET MELT 2

JET MELT 6

JET SYSTEM SET



SINGLE JET

Injection machine with pressure control unit

[View Product Page](#)



Easy operation

Compatible with a wide range of materials, allowing for more precise injection with selectable injection speeds.
[Slow injection / Fast injection]

- Easy to inject heat cure resin an thermoplastic resin
- Safety design (Safety lock)
- Injection pressure can be adjusted with a regulator

Specification

TYPE	1024JG
Usage environment	Temperature: 5-40 ° C
	Humidity: 10-95%RH(No condensation)
	Elevation: under 2,000m
Power-supply voltage	AC100-240V±10% 50/60Hz
Power consumption	7VA
Injection time	1sec-9min59sec, 10mins-99mins, Continuous
Dimensions	275(W)×280(D)×602(H) mm
Weight	30kg
Required air pressure	0.7MPa-1.0MPa

JET MELT SERIES

Melting furnace for thermoplastic resin

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Precise temperature control

- Can be melted at the exact setting temperature
- Can be melted thermoplastic resin (20°C~340°C)
- Strong against temperature changes / hardly affected by ambient temperature changes
- Quick response to changes in temperature settings

JET MELT 2

Specification

TYPE	2223G
Power-supply voltage	AC220-230V±10% 50/60Hz
Power consumption	500VA
Dimensions	200(W)×250(H)×170(D) mm
Weight	6.8kg
Number of melting cylinders	Two
Heating rate	30 minutes fromnormal temperature to 340°C
Temperature setting	20-340°C
Timer	10sec-99mins59sec

JET MELT 6

Specification

TYPE	2223G
Power-supply voltage	AC220-230V±10% 50/60Hz
Power consumption	1000VA
Dimensions	200(W)×170(D)×350(H) mm
Weight	10.4kg
Number of melting cylinders	Six
Heating rate	30 minutes fromnormal temperature to 340°C
Temperature setting	20-340°C
Timer	10sec-99mins59sec

JET SYSTEM SET

Complete starter set for the denture system!!
You can start it from now on.

- Jet packing (100pcs / box) * 2 boxes
- Aluminum case (5pcs / box) * 2 boxes
- DREAM FLASK * 2 pcs
- Removal plate (for removing SINGLE JET Cylinder & Alumi-case) * 1pc
- Removal stand (for removing remaining resin & Alumi-case) * 1pc
- Pressurization bar (for pushing Alumi-case when it is started to melt.) * 1pc
- Funnel (for pouring dried resin into Alumi-case) * 1pc
- Cylinder Pliers L (for removing SINGLE JET Cylinder from Dream-Flask) * 1pc

- Cylinder Pliers S (for handling SINGLE JET Cylinder) * 1pc
- Wooden hammer (for hitting Dream-Flask for breaking gypsum) * 1pc
- Hex. Wrench (for tightening Dream-Flask) * 1pc
- Sprue Wax (7.5mm dia.) 200g/box * 1pc
- Sprue Wax (5.5mm dia.) 200g/box * 1pc
- Sprue Wax (4.0mm dia.) 200g/box * 1pc
- Sprue Wax (3.0mm dia.) 200g/box * 1pc
- Working gloves & Gloves for hotwater for Flask handling * 1pc

ZIRCOM SPEED



ZIRCOM



ZIRCOM PLUS

	Fast Sintering (Up to 90mins)	Normal Sintering (4-10+hours)	Full Mouth	Compact Size	Capacity
ZIRCOM SPEED	✓	✓	φ95	✓	MAX 75 copings
ZIRCOM Standard	—	✓	φ95	✓	MAX 75 copings
ZIRCOM PLUS	—	✓	φ130	—	MAX 80 copings

ZIRCOM SPEED

High Speed Zirconia Sintering Furnace

[View Product Page](#)



NEW ZIRCONIA SINTERING FURNACE
High speed sintering (Fast sintering) 90mins

- **Quality**
Precise temperature control with high speed sintering.
Stability of temperature distribution.
Normal to fast sintering, various sintering program.
- **Cost effectiveness and efficiency**
Special consumables for fast sintering tray, setter and plate.
- **Easy to Use**
Programmable Furnace.
The programmable sintering furnace allows you to put 100 programs with 20 steps.
- **Easy maintenance**
4 Heaters/unit, and can be changed from each heater element.
Can be changed the heater element and thermocouple easily.

Specification

Power Requirement	AC220-240V 50/60Hz MAX3.5kVA
Dimension	300(W)×450(D)×640(H)mm
Weight	29kg
Heat element	4 elements (Molybdenum disilicide)
Control	PID control
Maximum Temperature	1,600°C
Firing Platform	φ95mm
Tray	3 Stackable Trays (Max25 copings each tray; Max 75)
Tray for Fast sintering	2 Stackable Trays, setter and plate for high speed sintering
SD Card Slot	Software Update, Program Back Up

ZIRCOM

Zirconia Sintering Furnace

[View Product Page](#)



Super compact with high productivity and large capacity

The unit has capability to sinter 75 copings simultaneously by three stackable trays.
Compact and easy to use! (300(W) x 450(D) x 640(H)mm with 29KG).
Sintering machine that using in many countries around the world.

- **Normal Sintering**
Can be processed in various ways for various zirconia materials.
- **Quality**
Precise temperature control.
Stability of temperature distribution using KDF muffle producing with historical experience.
- **Easy to Use**
Programmable Furnace.
The programmable sintering furnace allows you to put 100 programs with 20 steps.
- **Easy maintenance**
4 Heaters/unit, and can be changed from each heater element.
Can be changed the heater element and thermocouple easily.

Specification

Power Requirement	AC220-240V 50/60Hz MAX2.5kVA
Dimension	300(W)×450(D)×640(H)mm
Weight	29kg
Heat element	4 elements (Molybdenum disilicide)
Control	PID control
Maximum Temperature	1,600°C
Firing Platform	φ95mm
Tray	3 Stackable Trays (Max25 copings each tray; Max 75)
SD Card Slot	Software Update, Program Back Up

ZIRCOM PLUS

Zirconia Sintering Furnace with Large Muffle

[View Product Page](#)



Wide muffle with high productivity and large capacity

The unit has capability to sinter 80 copings simultaneously by two stackable trays.
You can sinter full mouth with large tray.

- **Normal Sintering**
Can be processed in various ways for various zirconia materials.
- **Quality**
Precise temperature control with five heater elements.
Stability of temperature distribution using KDF muffle producing with historical experience.
- **Easy to Use**
Programmable Furnace.
The programmable sintering furnace allows you to put 100 programs with 20 steps.
- **Easy maintenance**
5 Heaters/unit, and can be changed from each heater element.
Can be changed the heater element and thermocouple easily.

Specification

Power Requirement	AC220-240V 50/60Hz MAX3.5kVA
Dimension	375(W)×540(D)×725(H)mm
Weight	43kg
Heat element	5 elements (Molybdenum disilicide)
Control	PID control
Maximum Temperature	1,600°C
Firing Platform	φ130mm
Tray	2 Stackable Trays (40 copings, MAX 80)
SD Card Slot	Software Update, Program Back Up



CASCOM SE



CASCOM SE

Induction Casting Machine

High casting temperature and fast casting.
Ideal for casting various popular dental alloy

High Frequency Induction Heating with vacuum and pressure casting machine. Gas is less likely to enter the alloy by not using a torch. You can keep clean work place because you do not need to use a torch/flame. The alloy does not absorb gas and minimize porosity and creating extremely smooth surface.

Enhances working speed and less working time. Taking only 2 to 3min to cast. The casting which makes it perfect for various popular dental alloy supplied commercially excluding titanium and platinum. Easy mechanism ensures quick adjustments to match various sizes of casting mould.

- Compact desktop design
- Easy to use

Specification

Power Requirement	AC220-240V 50/60Hz MAX3.5kVA
Dimension	560(W)×490(D)×490(H)mm
Weight	42kg
Alloy Melting Method	High Frequency Induction Heating
Cooling System	Optional Chiller or Direct Connect Water
Casting Method	Chamber Inverting and Vacuum Pressure Casting
Melting Atmosphere	Air or Argon gas
Pressurized Atmosphere	Air or Argon gas
Maximum Temperature	1650 °C



View Product Page

NEO SUPER CASCOM

Ceramic Heater Casting Machine

Accurate temperature control

Ceramic Heating with vacuum and pressure casting machine. You can put casting program until melting with easy input. Notify the user when the program is ready to cast by Alarm.

- Cost efficiency
Long life Ceramic heater.
The temperature is controlled in every 1°C with a heater element and thermocouple. Minimize overheating, less miscasting, less material waste.
- Ideal for casting precious metal alloys, less material waste with accurate temperature control.

Specification

Power Requirement	AC220-230V±10% 50/60Hz MAX 1.5kVA
Dimension	504(W)×530(D)×521(H)mm
Weight	50.5kg
Max. Muffle Temp.	1530 °C (Carbon crucible max. temp. 1450 °C)
Heating Method	Ceramic Heating Element
Program Memory Capacity	100 programs
Melting Atmosphere	Air or Argon gas
Pressurized Atmosphere	Air or Argon gas
Casting Method	Chamber inverting and vacuum pressure casting system



View Product Page



NEO SUPER CASCOM

DENTAL ALLOYS



COBALT BOND

Usage: PFM (Porcelain fused metal)
Packing: 1kg (ingot 7g/pce)

Suitable for any casting machine
Higher biocompatibility due to Ni-free composition. Wide range of applications due to high coefficient of elasticity.
Excellent corrosion resistance and high biocompatibility due to special formulation. The thermal expansion is stable, there is no fear of cracking, and it can be used with various porcelains. Light weight and high performance alloy



COLLON BIUM TYPE II

Usage: PFM (Porcelain fused metal)
Packing: 1kg (ingot 6g/pce)

The combination of special metals leads to strong bonding between oxide film and porcelain. It is easily mirrored and is suitable for any casting machine.
By using a vacuum casting machine during manufacture production, it makes reduced the occurrence of air bubbles and cracks when serving porcelain.



HI-CHROM SOFT-7

Usage: Crown, Inlay, Bridge
Packing: 1kg (ingot 4.5-5g/pce)

Economical due to repeated usage.
Easy grinding and polishing result in a pleasing platinum color.
Castable with phosphate and also gypsum investment

Co	Cr	W	Other(Mo,Ga,Si,Mn,Al)	
59.3	25.3	6.4	9	

Melting Point	Vickers Hardness	Proof Strength	Elongation	Thermal Expansion (50-500°C)
(°C)	(HV)	(MPa)	(%)	(×10 ⁻⁶ K ⁻¹)
1375	350	570	4	14.5

Ni	Cr	Mo	SiCr	Other(Mg,Ti,Ga)
60.2	24	9.1	5	1.7

Melting Point	Vickers Hardness	Strength	Elongation	Thermal Expansion (50-500°C)
(°C)	(HV)	(MPa)	(%)	(×10 ⁻⁶ K ⁻¹)
1245	300	686	2.5	14.1

Ni	Cr	Cu	Sn	Other (Si,Fe,Ca,Mn,C,Al)
73.5	5	12.5	5	4

Melting Point	Vickers Hardness	Strength	Elongation
(°C)	(HV)	(MPa)	(%)
1250	288	530	5



MASTER PLUS
Porcelain Furnace

MASTER PLUS

Porcelain Furnace

The smallest size in porcelain furnace as KDF's history

- **Quality**
Precise temperature control.
Muffles with long History and experience to manufacture.
Equipped with a cooling fan that responds to furnace temperature. Minimize trouble caused by dust inhalation.
- **Easy to Use**
Programmable Porcelain Furnace.
A variety of programs can be used (530 programmable).
Program changeable during firing.
Support for two-stage firing program (Crystallization).



Specification

Power Requirement	AC120V±10% 50/60Hz 1.3kVA AC220-230V 50/60Hz 1.35kVA
Dimension	260(W)×432(D)×312(H)mm
Weight	15.2kg
Max. muffle temperature	1200°C
Inner muffle size	φ93×62mm
Programs storable	500 courses, 30 courses (Two-stage)
Option	Oil vacuum pump, Dry vacuum pump

007 Plus
Burn out Furnace



007 Plus

Burn out Furnace

Simple Operation with
Precise temperature control

- **Quality**
Combining technologies cultivated through long experience in muffle manufacturing.
007Plus can store multi-firing program up to 10 courses for every investment need.
Their units feature a quick firing button that allows you to change the normal firing program to the quick version for quick heat investment.
- **Easy to Use**
3 Firing Stages as easy programing.
007Plus allows you to obtain 3 stages of firing temperature with optimum heat rising speed and precise temperature maintenance for each specific stage.
Operator can program multi stage for various investments.

Specification

Power Requirement	AC120V±10% 50/60Hz, 1.3kVA AC220V±10% 50/60Hz, 1.1kVA
Dimension	310(W)×445(D)×345(H)mm
Muffle Dimension	120(W)×220(D)×110(H)mm
Weight	20kg
Program	10 courses
Max Temperature	1100°C
Maximum heating rate	30 minutes from normal temperature to 1000°C when empty
Firing Stage	3

View Product Page 