INTERCAST 60A

INTERDENT D.O.O.
Opekarniška cesta 26, 3000 Celje, Slovenija
Tel: +386/3-425-62-00, Fax: +386/3-425-62-10
Email: info@interdent.cc, www.interdent.cc

ISO 9001:1994, št. certifikata: SI – Q – 304

CONTENTS

WARNING!

READ THE ENCLOSED INSTRUCTIONS CAREFULLY BEFORE INSTALLING AND STARTING UP THE DEVICE.

THE INSTALLATION AND THE CONNECTION OF THE DEVICE TO THE POWER SUPPLY SHOULD ONLY BE CARRIED OUT BY A COMPETENT PROFESSIONAL.

THE DEVICE SHOULD ONLY BE OPERATED BY PERSONS TRAINED IN ITS SAFE USE.

1 USE

The centrifugal casting device INTERCAST 60A is intended only for high-frequency melting and casting of Co-Cr-Mo, Ni-Cr-Mo alloys and precious metals used in dentistry. The manufacturer declines all responsibility concerning safety of operation or damage to the device, persons or things deriving from uses other than the declared.

2 TECHNICAL DATA

Mains voltage	230 V ± 10%/ 50 Hz
Maximum wattage	3 kW
Minimum amount of metal in the melting crucible	7g
Maximum amount of metal in the melting crucible	80g
Material of the melting crucible	ceramics
Material of the melting crucible in precious metal melting	ceramics with graphite insert
Maximum time for melting 30 g of metal	60 s
Cooling	water-based, closed circuit
Setting the power of the high-frequency generator in melting Ni-Cr-Co alloys and precious metals	manual
Torque setting	manual
Measurements length/height/width	620/660/1060 mm
Weight	120 kg

3 STRUCTURE OF THE DEVICE

The centrifugal casting device INTERCAST 60A is composed of three autonomous units managed by joint controls:

3.1 The transistor unit for metal melting, made up of a high-frequency generator, a power-supply unit and a cooling system

3.2 Centrifugal casting mechanism

3.3 Control box and blocking system

4 INSTALLATION

4.1 Check and, if necessary, refill the coolant water into the tank. Water should reach up to the mark on the tank.

4.2 Verify the mains voltage (230 V ± 10%) and the safety measures for protection against electric shock (grounding) at the point of device's connection to the power supply network

4.3 The device should be positioned onto a solid and stable surface.

4.4 The arm of the centrifugal mechanism should be in a horizontal position. Level it by adjusting the feet of the device (with wrenches 14 and 19, and a spirit level) to prevent vibrations during casting.

4.5 The device can be connected to the power supply network (single-phase protection contact socket) by means of a plug; connection to a fixed outlet is recommended – in such case remove the plug on the cable of the casting unit (Warning! This operation can only be carried out by a competent The diameter of the installation cable leading from the indoor distribution box to the socket (connection of the device to the power supply network) should be 3 x 2.5 mm2. The distributor of the device should be protected by a 20 A slow-blow thermal cut-out. No other users should be connected to this circuit.

5. OPERATING INSTRUCTIONS

5.1 Settings:

To ensure a balanced position of the centrifugal arm as well as the flask with the metal, follow the procedure below before each casting operation:

- loosen the black knob (1) on top of the centrifugal arm
- insert the flask in its seat (2)
- insert the ceramic crucible in its seat (3).

IMPORTANT! When melting precious metals a graphite insert has to be used.

- Place the necessary amount of metal in the ceramic crucible.
- Using the setting lever (4) find the appropriate position for the flask seat, so that the flask is centred, then block the slide by means of a support pin; make sure that the ceramic crucible does not touch the flask.
- Move the ceramic crucible holding slide into a position close to the flask (approximate distance 3 mm).
- Balance out the centrifugal arm by turning the balancing weight (7).

IMPORTANT! The settings are important for preventing vibrations and problems during casting.

5.2 Operation modes:

After having applied the settings, continue the procedure in the following order

(see Fig. 2):

5.2.1 Connect the device to the mains through the “Power” main switch. If the upper lid is closed, indicator light “3” is off (see Fig. 2); it lights up as soon as the lid is opened.

5.2.2 Select the torque by turning potentiometer “P1”, and the melting power by turning potentiometer “P2”. When melting precious metals (use the graphite insert!) set the potentiometer P2 knob in position 4; in melting non-precious metals the values have to be set higher (from 6 to 9).

5.2.3 Close the upper lid. If the inductor is in the bottom position, indicator light “9” is on.

5.2.4 When the inductor is in the bottom position, place the centrifugal arm with the crucible above the inductor. Using the handle “1” (Fig. 3) lift the inductor as far up as possible in the terminal position and move it slightly to the left so that it snaps into the appropriate notch.

Make sure that the crucible fits into the inductor perfectly by slightly turning the arm (Fig. 1) and moving the slide “6”. Indicator light “8” is now on, while indicator light “9” goes out.

IMPORTANT: Preheat the crucible and the metal before casting in order to reduce the melting time, prevent the flask from cooling too much and protect the crucible from cracks.

The casting torque is selected by turning the P1 potentiometer knob: for precious metals set P1 to level 4, for non-precious metals to levels from 6 to 9.

5.2.5 Before commencing the melting operation, apply the settings in the following order:

1. Turn the P2 potentiometer knob to the far left position (1-minimum power).
2. Insert the necessary amount of metal in the crucible and close the lid – the heating of the metal starts.
3. Slowly (by 0.5 to 1 grade of the scale per second) turn the P2 potentiometer in clockwise direction towards the far right position (maximum power).

4. On completion of the melting phase the indicator light 2– “current protection” – lights up. Start turning potentiometer P” anti-cloclwise by 0.5 to 1 grade of the scale per second, decreasing the power.

5. Open the lid of the casting unit; the heating stops, the device goes into stand-by mode and is ready for casting.

6. When the melting phase starts and the current protection (2) switches on again, repeat the procedure explained under 4 above.

7. The procedure for setting the melting can be used for preheating the crucible.

5.2.6 Melting

Close the upper lid. The device goes into “melting” mode. The red indicator light “HF” on the front panel is on, indicating that the high-frequency generator has switched on. The green indicator light “1” is on, too, indicating that the required pressure in the cooling system has been achieved. When the red indicator light “4” is on, it indicates that the “timer” is switched on.

If you lift the upper lid during the melting phase, the high-frequency generator immediately switches off and the device goes into stand-by mode. In case you leave the upper lid closed, the device remains in the “melting” mode for 150 s. After that indicator light “4” goes out and the device is guided to the starting position, which is also indicated by an acoustic signal. This protects the device from excessive operation in the “melting” mode. When the upper lid is lifted again, the device goes into stand-by mode again.

If during the melting of the metal the “current protection” (“2” in Fig. 2) indicator light lights up, the high-frequency generator switches off automatically and the melting is interrupted. To resume the melting process you have to decrease the melting power by turning the P2 potentiometer by one grade, open the lid and close it back again (“2” in Fig. 3).

In the event that the “current protection” (“2”) indicator light lights up again, repeat the mentioned procedure.

5.2.7 Monitor the melting of the metal through the viewing glass (“3” in Fig. 3) in the upper lid.

When the metal is molten, lower the handle (“1” in Fig. 3). This places the device into “casting” mode. Press the “turning” key (“P3” in Fig. 2): the centrifugal arm starts turning and the casting begins. The arm will turn as long as the “P3” key is pressed.

WARNING! The device has no brake system, thus the arm turns until it comes to a stop by itself. For greater safety wait a while before opening (lifting) the lid. Keep in mind that any instance of pressing the “turning” key (“P3”) causes the arm to turn if the inductor is in the bottom position and the upper lid is closed.

5.2.8 Open the upper lid and remove the flask. Close the lid. Switch off the device by turning off the main switch on the control panel.

5.3 Description of indicator lights on the front panel:

(“1”) – adequate pressure of the cooling water in the cooling system

(“2”) – current protection switched on

(“3”) – device in stand-by mode

(“4”) – timer (150 s) switched on

(“5”) – thermal protection switched on

(“6”) – upper lid open

(“7”) – upper lid closed

(“8”) – inductor in top position

(“9”) – inductor in bottom position

(“10”) – the interlock has been released and the inductor can be lifted

FIG. 1: ARM OF THE CENTRIFUGAL CASTING MECHANISM PANEL

FIG. 2: CONTROL PANEL

FIG. 3: APPEARANCE OF THE DEVICE

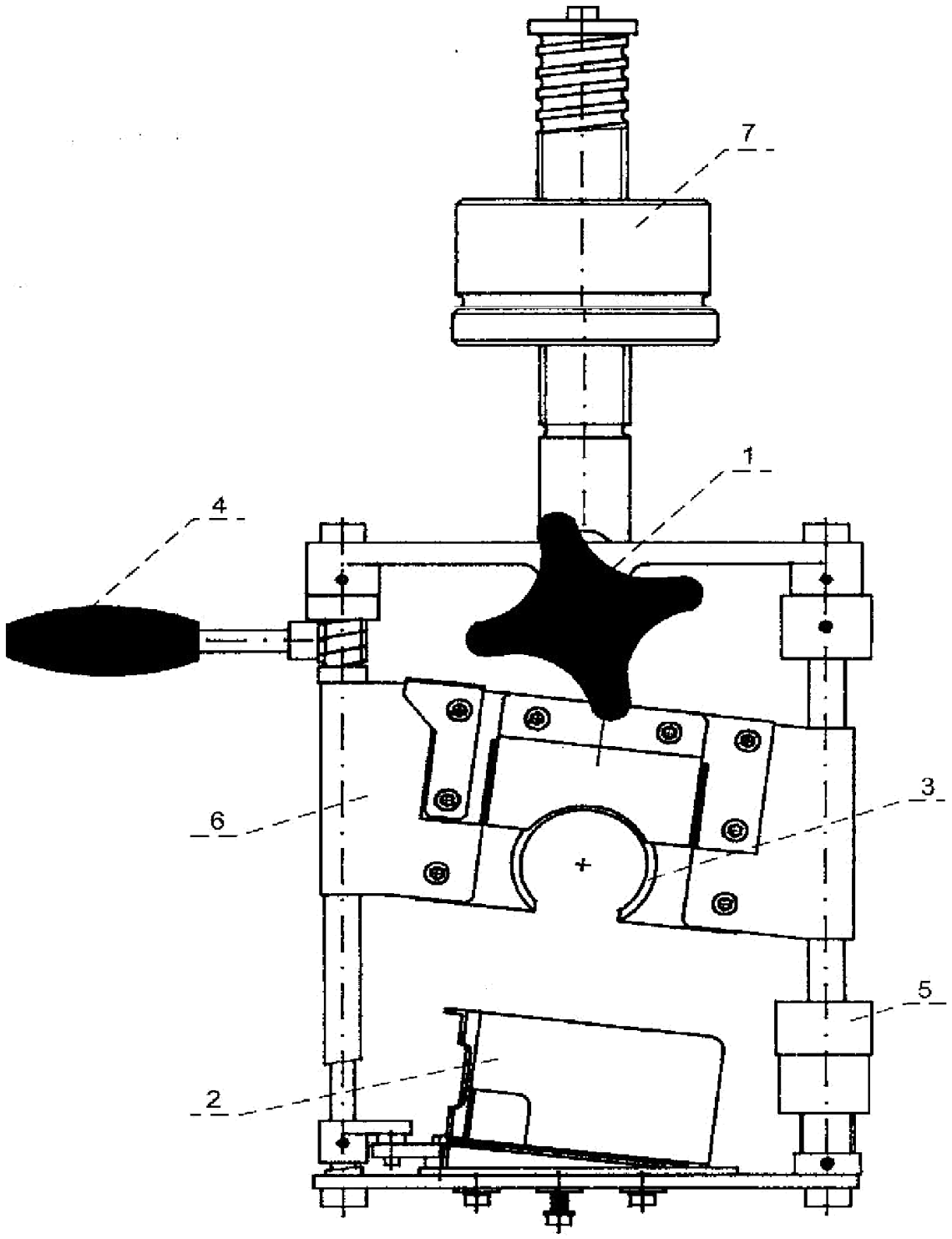

FIG. 1: ARM OF THE CENTRIFUGAL CASTING MECHANISM PANEL

FIG. 2: CONTROL PANEL

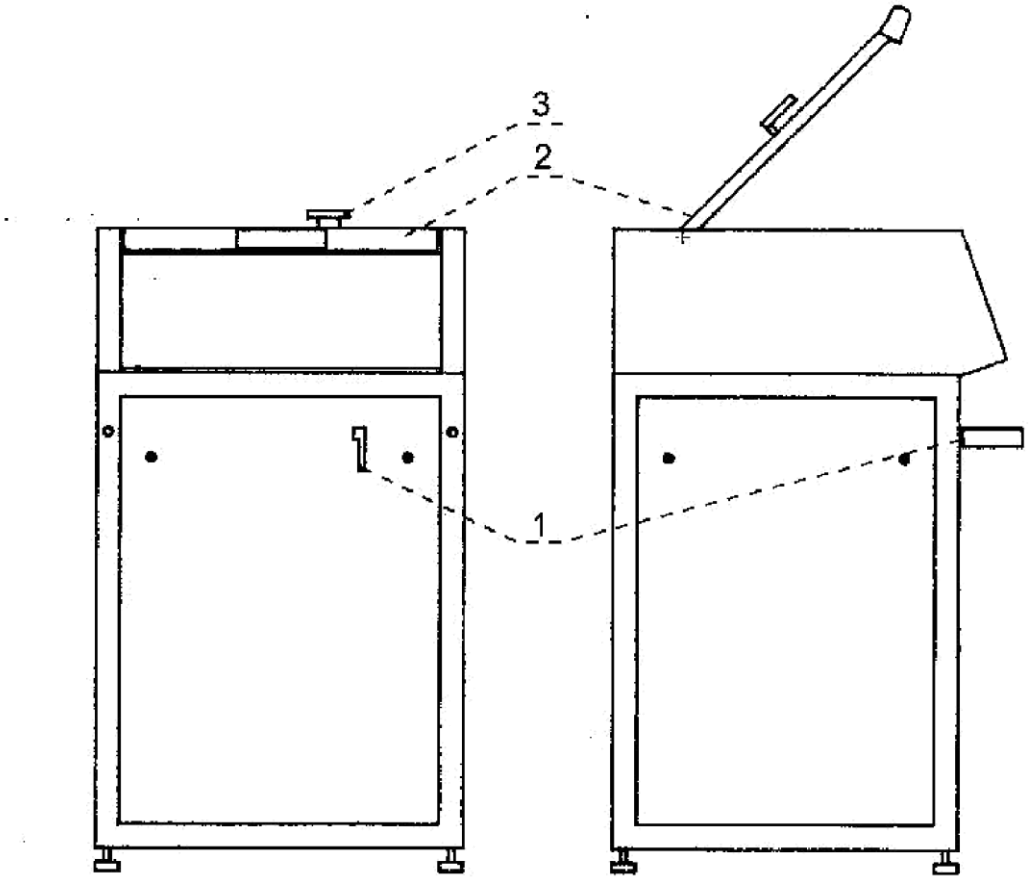

FIG. 3: APPEARANCE OF THE DEVICE

6 REGULATIONS FOR SAFE USE

6.1 The centrifuge and the high-frequency generator may only be switched on when the upper lid is closed.

6.2 Whenever the upper lid is opened during the melting phase, the high-frequency heating is interrupted.

6.3 Do not open the upper lid when pressing the “turning” key (“P3” in Fig. 2).

6.4 In case of absence or insufficient amount of water in the cooling system, the device should not be set in the “melting” mode.

6.5 The inductor can only be placed in the top position for melting if the crucible is centred in it correctly.

6.6 The centrifuge starts only when the inductor is in the bottom position and the “turning” key (“P3” in Fig. 2) is pressed.

6.7 The lifting handle of the inductor can only be raised if the main switch (“POWER” in Fig. 2) on the front panel is on. During the operation of the centrifugal motor the lifting handle of the inductor is blocked in the bottom position.

7 IMPORTANT PRACTICAL INFORMATION

7.1 After each casting remove any metal residue from the melting crucible.

7.2 Preheat the ceramic melting crucible to a minimum of 800°C (temperature of the flask).

7.3 The graphite inserts placed into the ceramic crucible are only intended for

melting precious metals.

7.4 This device is intended for the melting and casting of dental alloys only.

8 MAINTENANCE

WARNING!

8.1 Before opening the side lids pull the plug out of the socket.

8.2 Check the water level in the tank regularly. To do so, open the left side lid by means of a special wrench.

8.3 Carefully remove all metal residue – make sure that no residue gets stuck in the coils or their guides.

8.4 The coils of the high-frequency inductor should not be in direct physical contact.

8.5 The insulation plates of the inductor may only be cleaned with a dry cloth. Do not use water or solvents.

9 DECLARATION OF CONFORMITY

INTERDENT d.o.o.
Opekarniška cesta 26
SI-3000 Celje
Slovenia,

declare under our sole responsibility that the product:

Casting Unit - Model INTERCAST 60A

is in conformity with:

LVD 73/23/EEC	Council directive of 19 February 1973 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits.
EMC 89/336/EEC	Council Directive 89/336/EEC of 3 May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility.
98/37/EC	Directive of the European Parliament and of the Council of 22 June 1998 on the approximation of the laws of the Member States relating to machinery.
EN 61010-1:2001	Safety requirements for electrical equipment for measurement, control and laboratory use.
EN 61010-2-010-2003	Safety requirements for electrical equipment for measurement, control and laboratory use.) radio-frequency equipment – Radio disturbance characteristics.
EN 61000-6-1:2002	Electromagnetic compatibility Part 6: Generic standards – Section 1: Immunity for residential, commercial and light-industrial environments
EN 61000-6-3:2002	Electromagnetic compatibility. Part 6: Generic standards – Section 3: Emission standard for residential, commercial and light-industrial environments.
EN 55011+A1:2003	Electromagnetic compatibility.
EN 55011/A2:2003	Industrial, scientific and medical (ISM)

CE

Celje, April 2009

Igor Grudnik

Service department manager

INTERDENT d.o.o.
SI • 3000 CELJE • Opekarniška cesta 26

10 WARRANTY

Device: Centrifugal high-frequency casting unit INTERCAST 60A

Serial number:
Installation date:
Installation and connection carried out by:
(Company, Name)

Our company, INTERDENT d.o.o., guarantees a perfect operation of the above stated device for a period of 12 months from the date of its selling to the final customer. During this time the company will remedy at its own expense any faults encountered during a normal use of the said device.

Terms and conditions of warranty:

- The installation and connection must be carried out by a qualified professional authorised by the manufacturer.
- The device must be operated strictly according to the enclosed instructions.
- The warranty does not cover any damage incurred during transportation, resulting from inappropriate maintenance or handling, or deriving from disturbances in the power supply network, nor any mechanical damage.
- The warranty is invalid in the event that non-original spare parts have been used and that the device has been repaired, altered or modified by the customer or other unqualified, non-officially appointed person with the purpose of remedying a defect or malfunction.
- In the event of defect or malfunction contact us by phone at (03) 42-56-206 or by e-mail at servis@interdent.cc.

Stamp, name and surname, and signature of the authorised person

INTERDENT
Signature of the authorised person