WARRANTY

WARRANTY: Except with respect to those component parts and uses which are herein-after described, DENTSPLY NeyTech warrants this ultrasonic cleaner to be free from defects in material and workmanship for a period of two years from the date of sale. DENTSPLY NeyTech's liability under this warranty is limited solely to repairing or, at DENTSPLY NeyTech's option, replacing those products included within the warranty which are returned to DENTSPLY NeyTech within the applicable warranty period (with shipping charges prepaid), and which are determined by DENTSPLY NeyTech to be defective. This warranty shall not apply to any product which has been subject to mis-use; negligence; or accident; or misapplied; or modified; or repaired by unauthorized persons; or improperly installed.

INSPECTION: Buyer shall inspect the product upon receipt. The buyer shall notify DENTSPLY NeyTech in writing of any claims of defects in material and workmanship within thirty days after the buyer discovers or should have discovered the facts upon which such a claim is based. Failure of the buyer to give written notice of such a claim within this time period shall be deemed to be a waiver of such claim.

DISCLAIMER: The provisions herein stated DENTSPLY NeyTech sole obligation and exclude all other remedies or warranties, expressed or implied, including those related to *MERCHANTABILITY* and *FITNESS FOR A PARTICULAR PURPOSE*.

LIMITATION OF LIABILITY: Under no circumstances shall DENTSPLY NeyTech be liable to the buyer for any incidental, consequential or special damages, losses or ex-penses.

LIMITATION OF ACTIONS: The buyer must initiate any action with respect to claims under the warranty described in the first paragraph within one year after the cause of action has accrued.

Ultrasonik™ Cleaner

DENTSPLY NEYTECH

Owner & Operator's Manual

Model No
28 X
57 X
104 X

DENTSPLY NEYTECH

SAFETY

- **The cleaner must be electrically grounded to a three wire electrical outlet or receptacle.** The electrical service provided must be a ground outlet to prevent electrical shock. An electrical outlet or receptacle with "ground fault" protection is preferred.

- **Do not use flammable liquids in the cleaner** the cleaner will cause them to vaporize and increase the risk of fire or explosion.

- **Disconnect the power cord before moving, filling or draining** the cleaner.

- **Do not attempt to service the Ultrasonik cleaner yourself,** it contains high voltages and should only be serviced by a properly trained technician.

- **Do not use chlorinated solutions in the tank.** They will cause the tank to rust or corrode. Pit holes in the tank are generally caused by chlorinated solutions (eg. Chlorine bleach).

- **Do not use solvents or acids in the cleaner** they may cause dangerous or harmful fumes.

- **Do not place objects to be cleaned directly on the bottom of the tank.** This disrupts the flow of energy from the ultrasonic transducers and may cause them to overheat and damage the tank.

- **Do not leave the Ultrasonik cleaner running when not in use or unattended.** The natural action of the ultrasonic cleaner wears out the tank. The cleaner can also run dry which will damage it.

- **Do not place your hands or fingers in the cleaner** when it is running.

- **Do not fill the tank higher than 20mm (3/4") from the top or lower than 50mm (2") from the top.**

- **Do not place the cleaner in sinks or tanks** where water can run or splash inside and damage the electronics.

- **Do not place cold solutions into a cleaner that has run dry,** turn off the cleaner and allow it to cool before adding any solution. Sudden temperature changes can damage the transducers.

- **Do not operate the cleaner with the cover on for long periods (>1 hour) of time,** the cover may cause the cleaner to over heat if operated continuously.

- **Protection provided by the equipment may be impaired if the equipment is not used in the manner specified by manufacturer.**

SYMBOL TABLE	
$\sim$ - Alternating current	Courant alternatif
I - On (Supply)	Marche (alimentation)
O - Off (Supply)	Arrêt (alimentation)
⚠ - Caution, Hot Surface	Attention, surface chaude
⊕ - Protective Conductor Terminal	Borne de masse, châssis
⚠ - Caution	Attention

ACCESSORY PART NUMBERS

Description	NUMBER
MODEL 28X (2.8L or 3Qt)	
Perforated Baskets	94-93-189
203mm(8")L x 117mm(4.6")W x 97mm(3.5")H	
Beaker holder, (holds two 600ml)	94-92-165
Cover	94-92-161
MODEL 57X (5.7L or 6Qt)	
Perforated Baskets	94-93-287
260mm(10.2")L x 114mm(4.5")W x 142mm(5.6")H	
Beaker holder, (holds three 600ml)	94-92-166
Cover	94-92-162
MODEL 104X (10.4L or 11Qt)	
Perforated Baskets	94-93-288
267mm(10.5")L x 203mm(8.0")W x 142mm(5.6")H	
Beaker holder, (holds four 600ml)	94-92-167
Cover	94-92-163
600ml Beaker (1 piece)	93-59-013
400ml Beaker (2 pieces)	94-91-265A
Adapter ring for 400ml beaker (1 piece)	94-92-176
Adapter ring for 250ml beaker (1 piece)	94-92-177

PRODUCT SERVICE

BEFORE RETURNING THE CLEANER, COMPLETE THE FOLLOWING:

1 Remove all baskets, racks and other loose items from inside the tank.

2 Pack the cleaner in the original packing material. Contact DENTSPLY NeyTech for replacements if necessary.

3 Call DENTSPLY NeyTech for a RMA number (Return Material Authorization). This is used to track and identify your ultrasonic cleaner. Material received without this number may not be identifiable.

4 Note the RMA number clearly on the outside of the packaging, ship cleaner.

5 Equipment damaged in shipment as the result of improper packing may not be paid by the carrier. The DENTSPLY NeyTech Company will not be responsible for damages resulting from improper packing.

909.795.2461
FAX 909.795.5268

Ship Prepaid To:
DENTSPLY NeyTech
RMA Number _____
13553 Calimesa Blvd.
Yucaipa, CA 92399-2303 USA

CERTIFICATE OF CONFORMITY

Dentsply Ceramco certifies that the following product:

Name: ***Ultrasonic Cleaners***
Serial Numbers:

Model 28X -	ELKxxxx-xxx	(Where x is a number from 0-9)
Model 57X -	ELLxxxx-xxx	(Where x is a number from 0-9)
Model 104X -	ELMxxxx-xxx	(Where x is a number from 0-9)

Conforms with the basic requirements of the following EC guidelines:
- Low Voltage Directive 73/23/EEC
    with 1. Modification 93/68/EEC
- EMC - Electromagnetic Compatibility 89/336/EEC
    with 1. Modification 92/31/EEC
        2. Modification 93/68/EEC

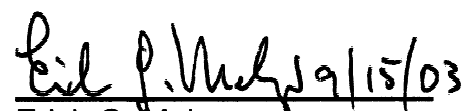The following Harmonized Standards were applied:
- EN 61010-1:1990 + A1:1991 + A2:1995(Safety)
- EN 55014:1993 (Emissions)
- EN 50082-1:1992, IEC 801-2:1991, IEC801-3:1984, IEC801-4:1991 (Immunity)

Dentsply Ceramco's quality system meets these requirements:
- ISO 13485:1996

Erich G. Melzer 9/15/03
Electronic Project Engineer

John H. Holbeck 9/16/03
Mechanical Project Engineer

Richard D. Roy 9/12/03
Director of Operations
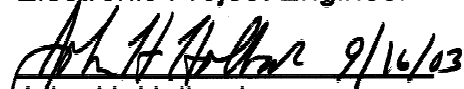
FEATURES

- High Power Ultrasonik Generator with Power and Degas Controls
- 20 Minute Electronic Timer and Continuous On Key
- Stainless Steel Tank with Drain
- Convenient and Chemically Resistant Pinch Valve
- Corrosion Resistant Powder Paint Coated Aluminum Enclosure
- Temperature Limiting Heater Thermostat
- Efficient Silicone Pad Heaters
- Lighted Heater Switch
- Beaker holders And Perforated Pans Available For All Sizes

INSTALLATION INSTRUCTIONS

Shipping damage should be reported to the carrier as soon as detected.

The ultrasonic shipping carton contains the following:
- One Ultrasonik Cleaner Complete With Power Cord
- Owner & Operator's Manual

UNPACKING
Carefully unpack and remove the ultrasonic cleaner from its shipping carton. Save the carton and other packing material for future use in transporting the ultrasonic cleaner.

INSTALLATION
1. Remove all packing material from in and around the cleaner.
2. Locate cleaner on a level secure surface.
3. Partially fill the cleaner with the desired cleaning solution.
4. Check the solution height with the intended load (beakers, pans, baskets, racks, etc.). Do not allow the solution to overflow when placing the load in the tank.
   The solution must not be lower than 50mm (2") from the top of the tank during operation. This allows the solution to cover the heater which is attached to the side wall of the tank.
5. Plug the cleaner into the appropriate power outlet. The cleaner is now ready to operate.

MAINTENANCE

- Unplug the cleaner and allow solution to cool.

- Drain, rinse and clean the tank.

- The cleaner's solution should be changed when it becomes saturated with dirt. The tank should be rinsed out so that sediments or dirt from the cleaning process do not attack or corrode the stainless steel tank.

- Rinse and dry out the cleaner's tank if it is not going to be used for prolonged periods. This will reduce the possibility of corrosion.

- Wipe tank clean using a mild soap solution. Isopropyl alcohol may be used to break down grease and oily residues.

- Use a soft damp cloth to clean the control panel. Avoid excess water or solution when cleaning the cleaner. These solutions can attack the panel or electronics and cause the ultrasonic cleaner to malfunction.

- Inspect for worn/leaky drain hose.

- Check for worn power cord.

- No operator serviceable parts in unit.

Fuses:
- Models 28X, 57X & 104X - F125, 5A

Calibration:
- All Ney Ultrasonik cleaners are calibrated before shipment. No further calibration is required.

TROUBLESHOOTING

- **Cleaner does not operate:** Check the wall socket for power, verify that the power cord is securely plugged into the back of the cleaner. Verify that the red power LED is on. If the red led is illuminated and the cleaner does not make any noise when the "Timer" key or the "Start" key is pressed check the fuse.

- **Cleaner ran dry:** Turn the cleaner off and allow it to cool. Do not pour solution into the hot tank; it may crack the transducer. Allow the cleaner to cool, pour solution into tank and resume cleaning. If cleaner does not operate check the fuse.

- **Water inside cleaner:** Unplug and turn off the cleaner. Allow the cleaner to dry out. Test the cleaner the next day. If cleaner does not operate, the water may have the blown the fuse or damaged the electronics inside.

- **Cleaner smokes or smells:** Does the cleaner have the proper water level? If the water level is too low, the tank heater is getting too hot. Test with heater turned off.

  Tank transducers (Ceramic discs on bottom of tank), heater or control board burning or damaged. Discontinue operation, have the cleaner serviced.

- **Heater is not heating:** Is heater switch light on? (Switch lights when switch is on.) Put cold water into the tank and check the back side of the tank for heat. If no heating is detected, the heater or temperature cutoff may be defective.

OUTLINE DRAWING

Model 28X Pictured
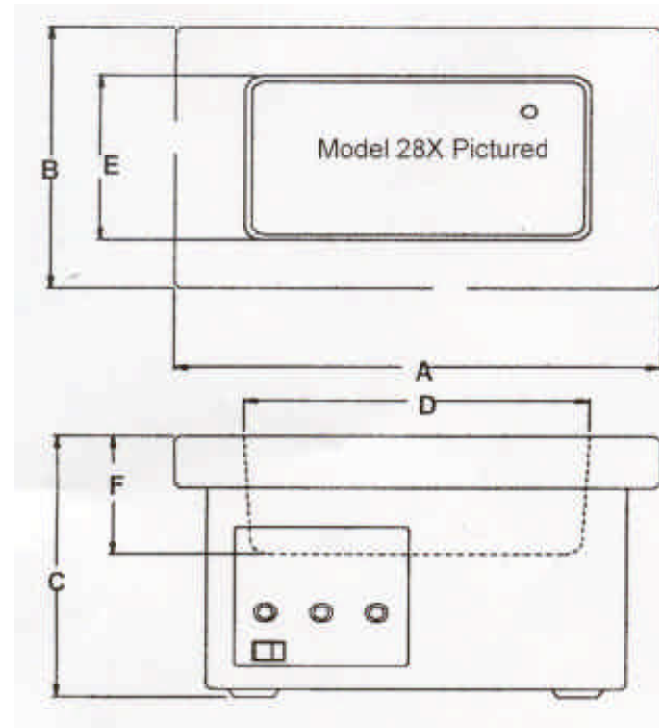
Exterior Dimensions		"A" Length	"B" Width	"C" Height
Model	28X	330mm (13")	230mm (9")	229 mm (9")
	57X	385mm (15.25")	230mm (9")	279mm (11")
	104X	385mm (15.25")	330mm (13")	279mm (11")

Tank Dimensions		"D" Length	"E" Width	"F" Height
Model	28X	241mm (9.5")	140mm (5.5")	102mm (4")
	57X	295mm (11.6")	152mm (6")	152mm (6")
	104X	295mm (11.6")	236mm (9.3")	152mm (6")

Weight	--- Cleaner Only ---		--- Shipping ---	
Model	100&120V	220&240V	100&120V	220&240V
28X	6.4 lbs (2.9 Kg)	10.9 lbs (5.0 Kg)	8.2 lbs (3.7 Kg)	12.7 lbs (5.8 Kg)
57X	8.6 lbs (3.9 Kg)	13.8 lbs (6.3 Kg)	12.7 lbs (5.8 Kg)	19.7 lbs (9.0 Kg)
104X	10.5 lbs (4.8 Kg)	15.8 lbs (7.2 Kg)	16.0 lbs (7.3 Kg)	21.3 lbs (9.7 Kg)

OPERATING INSTRUCTIONS

CLEANING INSTRUCTIONS - HOW IT WORKS

An ultrasonic cleaner uses transducer(s) mounted to the bottom of the tank to create high frequency sound waves in the tank's liquid. In the simplest sense, the sound waves cause tiny vacuum cavities to form in the liquid, a process called "cavitation". When these cavities collapse, or "implode", they release large amounts of energy. The implosions "scrub" particles of dirt, stains, or other debris from the surfaces immersed in the liquid.

An ultrasonic cleaner performs best when the amount of cavitation is sufficient to clean the surface efficiently and thoroughly, but not great enough to damage the surface. The ultrasonic energy is so strong that it eventually etches away the stainless steel tank. Aluminum foils are etched away in just minutes. Care must be used in cleaning soft metals and stones. The ultrasonic activity can damage their surface finish.

CLEANING SOLUTIONS

The DENTSPLY NeyTech Ultrasonik Cleaner can be used only with water-based solutions such as detergents, soaps and industrial cleaners.

Cleaning solutions serve two purposes. The first and most important purpose is to act as a surfactant, which reduces the surface tension of the solution and allows cavitations to occur more easily. The second is to aid in removing soil from the surface of the part to be cleaned - investment plaster, scale, rust, tarnish, oils, fats, polishing compounds and other soils.

Excess concentrations of cleaning solutions can actually reduce the ultrasonic activity in the tank. Test your cleaning solution at low concentrations to determine the most effective level. More is not necessarily better with ultrasonics. Carefully read the cleaning solution label for instructions on proper dilution. Too much solution will decrease the cavitation activity thereby, reducing the effectiveness of the cleaning procedure.

If you do not have an ultrasonic cleaning solution readily available then start with a small amount of a simple liquid detergent (i.e. "Joy", "Simple Green", etc.).

REMEMBER: Chlorinated or Acid based solutions will damage the tank and void the warranty. Only use these types of solutions in glass beakers.

OPERATION

UNPLUG THE UNIT before filling or draining!

1. Pour a sufficient amount of properly diluted cleaning solution into the tank to bring the liquid level to 1.0" (25mm) below the top of the tank.

CAUTION Check the water level often. Running the cleaner without an adequate level of solution may cause damage and void your warranty.

The cleaner should be operated only when needed. The normal operation of the cleaner will cause tank wear.

2. Plug unit into a GROUNDED AC outlet. Power red light will be illuminated indicating power

3. Turn on the HEATER; indicator light in the switch will be illuminated. The heater will heat solution to approximately 60°C (140°F). Heating the solution increases chemical activity and increases the ultrasonic action, providing faster, more thorough cleaning. A thermal switch mounted on the bottom of the tank will turn off the heater when the solution reaches approximately 60°C (140°F). When the solution cools the switch will turn on. The heater switch light on the front of the cleaner will remain on whenever heater switch is on.

OPERATING INSTRUCTIONS (cont)

4. When new water or cleaning solution is poured into the tank it will require degassing for proper operation before cleaning begins. Degassing generally requires 10 to 20 minutes. Subsequent operation with the same water or solution will not require degassing. The LED above the timer will be illuminated when the cleaner is operating under a cleaning cycle.

5. DENTSPLY NeyTech Ultrasonik cleaners come with adjustable power burst and degas period control knobs; select the settings for your application.

   The degas knob controls the off time which allows the fluid to relax and release trapped gases. A long degas period (MAX) cleans complex items thoroughly by allowing gases to escape from crevices. A short degas period (MIN) provides quick cleaning of simple shapes with few recesses. When new solutions are placed in the tank some amount of time is required for "degassing" for before the solution will attain peak performance. The cleaner will produce full cleaning power within a few seconds with degassed solutions.

   The power knob controls the intensity of the cleaning action. A long power burst (MAX) is used for aggressive cleaning. A short burst (MIN) is for more gentle cleaning. For delicate items, clean a test sample to determine the best setting.

6. Press "Timer" key to turn on the ultrasonics for a timed cycle. For continuous operation press the "Start" button, do not press "Timer" button. By pressing the "Start" button, the cleaner will operate continuously even if the "Timer" key is pressed. Pressing the "Stop" button will turn off the ultrasonic operation.

7. Place the items to be cleaned in a perforated pan or beaker with holder, and lower the pan or beaker into the tank. The items to be cleaned may also be supported with wires or racks. Be careful not to allow the tank to overflow.

   NEVER PLACE ITEMS TO BE CLEANED DIRECTLY ON THE BOTTOM OF THE TANK. THIS INCREASES TANK WEAR AND REDUCES ITS LIFE.

8. At the end of the cleaning cycle, remove trays, rinse and dry parts.

9. Turn off the heater switch at the end of the day before leaving.

   LEAVING THE HEATER ON OVERNIGHT WILL CAUSE THE CLEANING SOLUTION TO EVAPORATE AND POSSIBLY DAMAGE THE HEATER.

SPECIFICATIONS

POWER (Watts)

Model		100V	120V	230V
28X	2.8L (3Qt) Heat	145W	160W	245W
57X	5.7L (6Qt) Heat	230W	260W	310W
104X	10.4L (11Qt) Heat	355W	400W	700W

CURRENT (Amps)

Model		100V	120V	230V
28X	2.8L (3Qt) Heat	2.0A	2.0A	1.4A
57X	5.7L (6Qt) Heat	2.5A	2.0A	2.2A
104X	10.4L (11Qt) Heat	3.7A	3.9A	3.1A

Output Frequency   **Input Frequency**
28X: 45-49 kHz   50/60Hz
57X & 104X: 43-47kHz

ENVIRONMENTAL
Ambient Operating Temperature: 5 - 40°C (40 - 105°F)
Relative Humidity: Maximum 80%, non-condensing