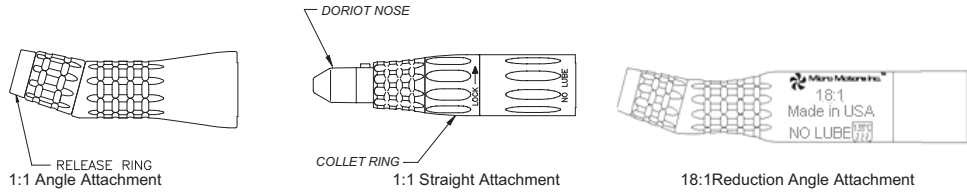
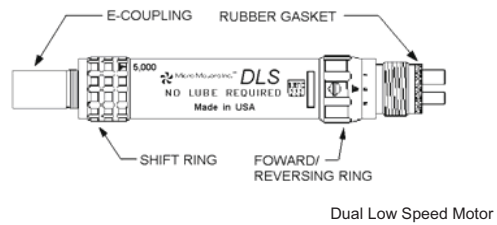


Dual Low Speed Handpiece System Operation and Maintenance Manual



You will receive maximum use and value from the Micro DLS System if you first familiarize yourself with and thereafter follow these operation and maintenance instructions. These instructions may be different from other air drive motors you have used, especially the unique DUAL SPEED operation and the NO LUBRICATION feature. Please read and follow these simple instructions so that you may enjoy years of dependable service.

The DLS attachments are designed for use only with the Micro DLS system and may not operate on any other motors.

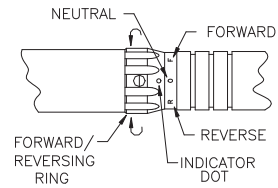
CAUTION: Do not use any DLS System Attachment for drilling implants. The torque loads encountered in this type of application could exceed the capabilities of this attachment. Surgical implant handpieces are recommended for this application.

Operation

The Dual Low Speed System head attachments are designed for use with the Micro Motors, Inc. DLS System.

Motor Operation:

The forward/reversing ring located at the rear of the motor controls the speed and direction of the motor. Turn the ring clockwise (towards "F") for "forward" rotation or counter-clockwise (towards "R") for reverse rotation. Align the arrow on the ring with the "O" in the center to stop the motor completely.



Note: Motor speed may be varied during a procedure by use of either the forward/reversing ring or by the foot control. However, reducing the speed will also reduce the torque output of the motor.

The DLS motor can be operated in 2 speed ranges: 500 to 5,000 RPM and 5,000 to 20,000 RPM. To select, rotate the Shift Ring on the front of the motor to align the arrow with the desired top speed shown on the housing. This is best accomplished while the motor is running (you will hear the gears engaging but this is not harmful). If the motor is off, it may take several tries to get the gears to engage.

CAUTION: Shift Ring arrow must be in line with the speed marking on the housing. In between, the gears are in neutral and will not drive the output shaft. Using the motor in this position may cause damage to the mechanism.

Reduction Angle Attachment:

With the DLS motor set to 20,000 RPM, the output speed of the reduction angle will be approximately 1,100 RPM to 300 RPM with exceptional torque. With the DLS motor set to 5,000 RPM, the output speed of the reduction angle attachment will be approximately 300 RPM to 30 RPM with exceptional torque. Use this speed with nickel titanium latch-type rotary endodontic files and for setting pins.

Installation

The LS attachments will only accept Micro Motors brand quick disconnect heads.

- To install heads, simply push the head in and rotate it until it locks into place. The head may be installed in the normal Contra Angle position or at the inverted (180°) position.
- To remove head, pull the release ring on the attachment away from the head while pulling on the head with a slight force.

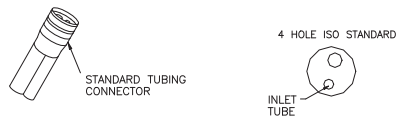
The DLS attachments are designed to attach to the Micro DLS Low Speed Motor. To install, simply slide the handpiece over the nose portion of the motor until it locks into place. To remove attachment, pull off with slight force.

To install bur or doriot angle installation on straight attachments:

- Only use 0.093 in. diam. (2.36mm) straight shank burs and Doriot angle attachments.
- Open collet by turning the collet ring counter clockwise (opposite of the direction of the arrow) until it "clicks" into the open position.
- Insert the bur or Doriot angle attachment. Be sure the bur is fully seated into the collet or Doriot attachment is touching the shoulder.
- Lock the bur or angle into place by turning the collet locking ring clockwise (in directions of the arrow) until it "clicks" into the locked position.

CAUTION: Do not operate handpiece without either a bur or an angle attachment securely locked in the collet. Do not operate the handpiece with the collet in the open position.

The DLS motor is designed to attach to standard dental tubing with 4-hole connectors, with or without coolant or chip air holes. Ensure rubber (sterilizable) gasket on the connector of the motor is in place. Attach and finger tighten the tubing connector securely. **DO NOT USE A WRENCH.**



Sterilization

The Micro DLS System may be sterilized by autoclave. Failure to follow these precautionary measures may cause handpiece failure and may void warranty.

CAUTION: It is strongly recommended that reusable handpieces be cleaned and heat sterilized between patients.

- Do not exceed 275 degrees F (135 C).
- Do not submerge in any solution.
- Do not use ultrasonic cleaners.
- Do not use surface disinfectants.
- Proper maintenance of and periodic validation of sterilizer function and temperature is important for proper maintenance of dental handpieces.
- Failure to follow these instructions can result in hazard of infection.
- Failure to follow proper infection control guidelines, manufacturer's guidelines, or both when disposing of accessory items or cleaning materials may result in hazard to environment.

To clean exterior, wipe with soft wipe or gauze slightly moistened with warm water or neutral detergent. To sterilize, place handpiece in appropriate sterilization bag recommended by sterilizer manufacturer. Sterilize by steam autoclave at 275°F (135°C) for 25 minutes. Remove the sterilization bag from sterilizer immediately after cycle and allow cooling in bag. Store the components in the sealed sterilization bag until ready for use.

Maintenance

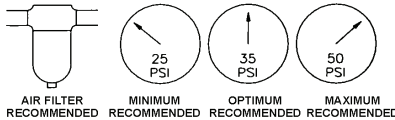
Under most operating conditions, the DLS System motor requires NO LUBRICATION. However, it is not unusual for particulate matter from the air supply to accumulate in the motor after long usage. To prevent this problem, we recommend that you perform this cleaning procedure on a routine monthly basis or if the motor becomes sluggish.

1. Disconnect the air tubing connector.
2. Apply 3 to 4 drops of Air Motor Cleaner into the small inlet tube on the handpiece connector.
3. Reconnect the air tubing connector and run the motor in forward and reverse for approximately 10 seconds or until the motor runs smoothly.

The ball bearings in the attachments are permanently lubricated and it is not necessary to lubricate them.

Air Supply Requirements

Clean, filtered air is essential for long, trouble-free life. An air filter NO LARGER THAN 50 MICRONS (µm) is recommended to be installed in the supply line. Recommended air pressure for optimum performance is 45 psi (310.26 kPa) measured at handpiece tubing end.



Troubleshooting

Problem

Motor sluggish. Low speed or low power. Will not start at low air pressure.

Solution

Check air pressure. Ensure gasket is in place. Check forward/reverse ring for "on" position. Clean per cleaning instructions. Repeat up to 3 times if necessary.

Motor will not turn on.

Check air pressure. Ensure gasket is in place. Check forward/reverse ring for "on" position.

Air leak at connector.

Tighten tubing connector. Check for faulty or missing gasket.

Motor runs but output shaft not turning.

Speed Shift Ring is not fully engaged in detent. Rotate until it "clicks" in.

Head is difficult to insert or remove.

Lubricate inside and outside the release ring with several drops of Air Motor Cleaner (MM001) and operate release ring several times to flush out debris. Repeat, if necessary, to restore smooth operation.

Attachment spins rough.

Check to ensure collet ring is fully in the closed position.

Attachment locked up or is securely in the locked position.

Ensure bur or Doriot angle attachment is locked into place and collet ring not rotating. Clean per instructions.

Collet will not accept bur or Doriot angle attachment.

Check to ensure collet ring is fully locked in the open position. Only use standard size burs (.093 in. or 2.36mm max diam.) or Doriot angle attachments.

CAUTION: If problems still occur after following these instructions, contact PRO-DEX, INC. customer service for assistance.

Product Warranty

The DLS motor and LS attachments are warranted to be free from defects in materials and workmanship for a period of 2 years from date of purchase. This warranty applies only if the product has been maintained per these instructions. The warranty will not apply if the product has been subject to misuse or abuse. Sole liability under this warranty is limited to the repair or replacement, at our option, of the defective product. No other warranties are expressed or implied. Any defective product must be returned to the address below with proof of purchase (copy of invoice) and transportation prepaid.

Pro-Dex, Inc.
Attn: Returns Department
2361 McGaw Avenue
Irvine, CA 92614 USA
Tel: 949-769-3200
Fax: 949-769-3284

Caution: Federal law (USA) restricts this device to sale by or on order of a dentist.

MADE IN USA

P/N 6927 Rev D