STEINDORFF®

CX SERIES

INSTRUCTION MANUAL

NEW YORK MICROSCOPE COMPANY INC.
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A microscope is the key to many thrilling expeditions in the invisible micro-world. Before we venture into this wonderland let's learn to use the microscope properly. As with all fine instruments, your microscope must be kept in good working order. Dampness may cloud the lens and corrode the metal parts. When the microscope is not in use, protect it with a cover or case. Please do not tamper with or take apart your microscope.

The microscope is supplied with an expanded two-part Styrofoam case. This case should be used for storage, transport, and shipping. Microscopes that are not properly packed are usually damaged during transport and shipping.

KEEP STYROFOAM BOX FOR FUTURE USE FOR SHIPPING AND/OR REPAIR.

Unpack the microscope and its parts carefully. Do not throw away any boxes or packing materials until the contents of the shipping container have been checked against the packing list of your order. In a clean, dry, dust free environment, place the microscope and parts on a sturdy desk or table for initial use and/or assembly.

DO NOT TOUCH ANY LENS SURFACES WHILE HANDLING THE MICROSCOPE; IT MAY ADVERSELY AFFECT IMAGE QUALITY.

FEATURES AND DEFINITIONS:

EYEPIECES: Locked in, 10X wide field (WF) eyepiece with built in calibrated pointer.

HEAD: 360º rotatable. May be Monocular (for one viewer), Double 45º Dual View (for two viewers), 90º Dual Video (one viewer and camera mount), or Binocular (for viewing with both eyes).

REVERSE NOSE PIECE: Provides more working space in the front of the stage.

OBJECTIVES: Lower functional component of the optical system. Available in 4X, 10X, 40X and 100X(R) oil.

COAXIAL FOCUSING KNOBS: The microscope is equipped with coaxial coarse and fine focus knobs. The coarse focus knob is the large knob and the fine focus knob is the smaller knob. Coaxial fine and coarse adjustment enable you to perform two functions without having to move your hands to a different position. The reduction system allows for movement on a single ball bearing dove-way for smooth accurate focusing control. One complete turn of the fine focus control is equal to 2mm vertical displacement of the stage.

CONDENSER: The microscope is equipped with a 1.25 N.A. Abbe Condenser. The condenser fills the back lens element of the objective to improve the resolution of an image.

DIAPHRAGM: The microscope is equipped with an Iris Diaphragm. Adjust the condenser Iris diaphragm to set optimum lighting for each objective. This is done by first closing the iris, then opening it slowly until the entire field is evenly and brightly lit. If the objective is changed to a higher power, the iris must be adjusted to the new objective.

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ILLUMINATOR: Depending on the model the microscopes are usually equipped with a 20W 110V Tungsten light bulbs, 120V 5W Fluorescent tube, or 6V 20W Halogen bulb.

MECHANICAL STAGE: The mechanical stage on the microscope is equipped with low position coaxial controls for ease of operation. Precision engineering of ball-bearing dove-ways assures smooth, accurate, low resistant movement. The mechanical motion has X-Y travel graduations to 0.1mm allowing you to return to the exact field with a minimum of effort.

SAFETY RACK STOP: Controls the maximum upward movement of the stage. When properly adjusted prevents the upward movement of the stage by the coarse focus system. It prevents high power objectives from breaking a specimen slide.

SPECIFICATIONS (With 10X Eyepiece):

Objective	Total Magnification	Field of View	N.A.
4x	40x	4.5mm	0.10
10x	100x	1.8mm	0.25
40x	400x	0.45mm	0.65
100x Oil	1000x	0.18mm	1.25

OPERATING PROCEDURE
How to use your Microscope

- Select a position to work where little direct light falls on the instrument. Avoiding placing the microscope in near or facing a large window as direct light may fall directly on the microscope and adversely affect the contrast and resolution.
- Place a low powered objective into position and simply turn on the in stage illuminator.
- Place the micro-slide specimen to be observed under the spring stage clips. If using a mechanical stage, pull back the lever on the left side of the stage, insert the slide, then bring the crescent shaped holder into contact with the slide. Be certain that the cover slip of the slide is facing towards the objective; otherwise you will not be able to focus your specimen at high magnifications.
- Position the specimen so that it is centered over the in-stage condenser.
- Focus the objective on your specimen by turning the LARGE COARSE ADJUSTMENT KNOBS until the image of your specimen is bright and clear. Microscopists will always lower the objective to a point that they know is beneath the focal plane and focus upwards. Now you can bring the specimen into sharp focus by turning the SMALLER FINE FOCUS KNOBS.
- With the specimen now in sharp focus rotate the nosepiece to the other objectives and focus using only the fine focus knobs. Since the optics on the Microscopes are Par-focal and Par-centered only a slight turn of the fine focus knobs with be necessary.

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- The sub-stage Abbe condenser is mounted beneath the stage in a spiral-focusing mount. To focus the condenser, loosen the large lock screw facing you as you look at the front of the condenser. Twist the base of the condenser to the left to lower and to the right to rise. Adjust the condenser until the illumination of the field is uniform.
- Adjust the condenser iris diaphragm to match the N.A. of the objective. This is done by first closing the iris and opening it slowly until the entire filed is evenly and brightly lit and in good focus. If the objective is changed to a higher power, the iris must be adjusted to the new objective.
- Immersion objectives are used for the highest magnification. The microscope tube is racked up and the 100XR objective swung into place. Place a drop of good quality immersion oil on the slide and focus down with the coarse adjustment until the lens makes contact with the oil. Continue (more slowly) to focus down with coarse adjustment until the color or a blurred outline of the specimen just appears. Now complete the focusing with the fine adjustments.
- In using the 100X objective, the most favorable resolution is obtained with the Abbe condenser nearly touching the slide specimen. Ideally, a drop of immersion oil is placed between the condenser and the slide, as well as between the slide and the 100X objective. Although this practice is not always followed in routine study, it is the only way to take full advantage of the inherent resolution of the 1.25 N.A. Abbe condensers.

MAINTENANCE & CARE OF YOUR MICROSCOPE

Cleaning of the optical surfaces - Never take objectives or eyepieces apart. They should be cleaned on the instrument since they are not easily removed. To clean lens surfaces, first remove dust using a soft brush or blow off with a small syringe. Use a cotton-tip applicator and a small amount of xylene. Clean only the front lens element of the objective and the top lens of the eyepiece. Wipe again with a clean cotton-tip and, finally, blow or brush off the lens surfaces. The mirror or illuminator lens surfaces may be cleaned in the same manner, but better results may be obtained by wiping with a soft lint free cloth.

Cleaning and Lubricating of Mechanical parts - This type of maintenance should be done by an authorized technician and will help insure many years of trouble free use of your microscope.

Adjustment for body drift - Tension control adjustment collar is located between arm and coarse focus adjustment knob. With a small jeweler type screwdriver, loosen locking setscrew located in one of four holes on the collar. Rotate collar clockwise until stage drift is eliminated. Re-tighten locking set screw to prevent accidental movement of collar. Lay the microscope on its side. Loosen the thumbscrew that secures the lamp housing cover and open. The CX series is either equipped with an 110V 20W tungsten bulb, a 120V 5W fluorescent tube, or a 6V 20W Halogen bulb. Remove the lamp by depressing it slightly and turning it counter clockwise until it pops up slightly. Replace it with an 110V 20W tungsten bulb with a double contact, bayonet base.

The fluorescent tube is held in place by spring pressure clips and is removed by slightly pulling the fluorescent tube straight out from the socket. Replace it with a 120V 5W fluorescent tube.

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The halogen bulb is held in place by a socket. Simply pull the bulb out to remove. **When inserting a halogen bulb it is important not to directly touch the bulb with your fingers.** Any dust or dirt on the surface of the bulb will decrease its life expectancy drastically. Use a small piece paper to handle the bulb and insert it into the socket.

WARNING: DISCONNECT POWER BEFORE REPLACING LAMP

CAUTION: ALLOW LAMP TO COOL BEFORE REPLACING

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