

FT500 PULSE Tubes

PULSE Tubes (Pressure Used to Lyse Samples for Extraction) transmit the power of PCT from the Barocycler instruments to the sample. Specimens are placed on the Lysis Disk of the FT500. Using a PULSE Tube Tool, the FT500 is assembled with a Ram, selected sample processing buffer is added, and the Tube is closed with a Screw Cap. The FT500 is placed in the pressure chamber of the Barocycler, chamber fluid is added, and pressurization begins. As pressure is increased, the Ram pushes the sample from the Sample Chamber through the Lysis Disk and into the Fluid Retention Chamber. When pressure is released, the sample (now partially homogenized) is pulled back through the Lysis Disk by the receding Ram. The combination of physical passage through the Lysis Disk, rapid pressure changes, chemistry and other bio-physical mechanisms, breaks up the cellular structures quickly and efficiently, releasing nucleic acids, small molecules, and proteins.



PULSE Tube Tool



Introducing the FT500-ND PULSE Tube

Unlike the FT500 PULSE Tube, the FT500-ND does not have a Lysis Disk. It was designed for processing solutions, suspensions, or complex matrices – such as soil – that do not require passage through a Lysis Disk for partial homogenization. A Blue Screw Cap is first attached to the PULSE Tube Sample Chamber using the PULSE Tube Tool. Sample and processing buffer are then added through the Ram end of the tube and a Blue Ram is put into place using the Tool. Since there is no Lysis Disk, greater variation in both sample amount and processing buffer volume is possible than with the FT500. Researchers should consult specific applications for the use of the FT500-ND. Like the FT500, the FT500-ND transmits the power of PCT from the Barocycler instrument to the sample. The assembled FT500-ND is placed in the pressure chamber of the Barocycler, chamber fluid is added, and pressurization begins. As pressure is increased, the Ram contacts the sample and processing buffer transmitting pressure to the sample. When pressure is released, the Ram partially retracts. This process is repeated for the requisite number of pressure cycles for a particular application. The FT500-ND employs a combination of rapid pressure changes, chemistry, and other bio-physical mechanisms that makes it ideal for processing bacteria, complex matrices, extracting mitochondria from cells, or for accelerating trypsin digestion and other enzymatic reactions under pressure.

