OPERATING INSTRUCTIONS

FEEDING THE MILL

Mega Milling's custom designed precision feeding system is a weigh feed belt that with electronic controls, will feed within 1% of the desired rate per second. Each part is specifically designed and assembled into the unit to achieve a role and purpose.

Because of the Turbulent Impact Mills unique process and design with the exception of hammer sets pre milling effect, the milling is primarily air on material (materials colliding with materials in a designed chaotic air flow chamber). The particle size reduction is achieved in seconds rather than minutes or hours. This instant process method requires a steady and precise input feed that does not exceed the Turbulent Impact Mills controlled process rate output per second. The technology of the T.I.M. process is unique in particle separation. Particle separation by the T.I.M. is drastically different from other type impact and grinding mills.

EXAMPLE: A T.I.M. that processes at a rate of 2000 lbs. per hour actually **will not process more than .55 lbs. per second.** If the T.I.M. is fed at a rate that exceeds its ability to instantly process the solid load, the following things begin to happen. (1) The excess material will be thrown outward from the unit's pulverizing chamber with no possible way of re-entering. When this condition occurs, immediate wear on the rotor blades and internal heat rises. Detection of this condition is observed by the decrease in T.I.M. speed of the rotor and excessive HP load on the motor. Even

though the unit will accept overloading, the result will be excessive wear on moving parts and minimal production.

NOTE: Do not feed a Turbulent Impact Mill one pound (16 oz.) per second when the mill can only process half a pound (8 oz.) per second.

TURBULENT IMPACT MILL

Mega Milling's Advanced Turbulent Impact Mill pulverizing technology is designed to instantly powder dry ores and other fractural materials in varying ton per hour, depending on the T.I.M. model. Our milling technology is a **DRY PROCESS**, classified feed material should have no more than 6% humidity. Damp materials fed into the T.I.M. will cause severe damage to the internal housing parts and will dramatically affect the efficiency of product output.

The T.I.M. also requires the addition of a collection system for the powdered product exhausting from the T.I.M. Without a proper collection system, the T.I.M. process is inefficient. In addition to inefficient production, damage results to the internal parts of the T.I.M. by causing excessive metal wear and heat BUILD UP due to inadequate air flow discharge. Downstream air flow restriction MUST BE AVOIDED.

GOLD MAXX COLLECTION SYSTEM

The collection system involves the process of stripping the solids (powder and fine particles) from the air stream flow discharge exhaust from the T.I.M. Each T.I.M. model is designed to generate and process a continual predetermined volume of air. This flow rate is critical to the volume amount of solid material

introduced into the T.I.M. milling chamber. All T.I.M. models generate a calculated air discharge in direct proportion to air intake measured in CFM (Cubic feet/minute). The discharged air from the T.I.M. MUST ALWAYS equal or exceed intake air for efficient, worry free operation.

The flow design for efficient operation of the T.I.M. will be a properly sized cyclone for bulk material collection and a bag house properly sized for fine dust collection from bag house filters. The system must be vacuumed sealed causing air generated throughout the system to come through the T.I.M. intakes. About 98%(+/-) of the material product will be collected in the cyclone or primary collection unit and the remaining 2%(+/-) will be collected in the bag house. If air permits are required, all the intake air must be exhausted beyond the bag house as acceptable clean air as defined by regulation standards.

The physical and mechanical T.I.M. process of particle size reduction involves four primary functions. These T.I.M. functions (1) air speed (velocity), (2) air intake, (3) pressure drop and (4) air exhaust. The even balance between air intake and air output of the T.I.M. process is essential in order for the Turbulent Impact Mill to function efficiently.

Each T.I.M. unit model is constructed for specific production capacities of **DRY** crushed classified feed size ore (1/4" or 6.5mm). Solids introduced into the mill intake become instant airborne particles inside the mill chamber. Particles that collide with other particles create friction (heat) and are quickly amplified into the mill chamber due to the chaotic air speed movement. The

powdered material is exhausted from the T.I.M. through designed exhaust port(s) at rates ranging from 400 to 2400 cfm (cubic feet minute) with a velocity speed of 55-75 mph (80+ feet per second) depending on the T.I.M. model. If immediate discharge of air is decreased and airborne particles are restricted downstream, backpressure builds up in the mill chamber causing immediate heat build-up, a decrease in air speed (T.I.M.) and excessive solids accumulation in the mill chamber. This situation in turn causes excessive wear on the rotating blades.

The Turbulent Impact Mill will quickly and efficiently powder dry materials that are fractural. Collecting the powdered material discharge and stripping the solids out of the air stream is just as important as making the powder. This is not a simple task. The solids have to be collected from the moving air flow.