

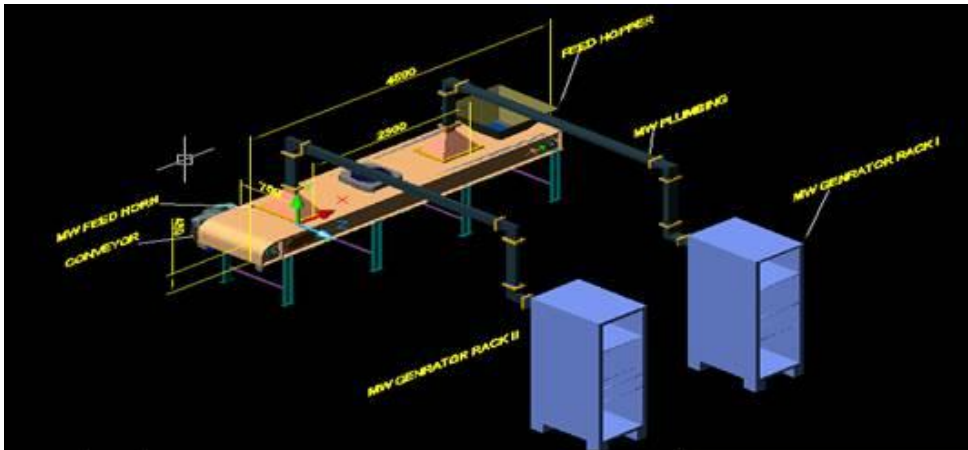
Development of High Power Microwave System for Tea Processing

Energy efficient modern technologies are being adopted in many process industries to improve quality of the yield. Tea processing industry is one of the major exporter of our country, where quality of the produced tea is of utmost importance. Through DST sponsored project, in phase I, the high power microwave system, wherein power can be varied from 1 kW to 10 kW with conveyORIZED belt applicator has been indigenously developed, tested and installed at tea garden for field trials of this new technology for tea drying. Initially, machine was installed and field trials were carried out for tea production, which have shown very good results. In qualitative manner it has been demonstrated that the tea quality is enhanced with uniform and even drying. Phase 1B was taken up to further generate data so that superiority of the indigenously developed technology could be quantified, more rigorous field trials at larger scale has been carried out with cooperation of tea garden/production unit and coordinated effort between SAMEER, T&I and tea estate. Now, sufficient data on working of the machine and also the quality of the processed tea in terms of measureable parameters such as colour, aroma, liquor quality, grain size, lusture, etc, has been ascertained. After the phase 1B, work on the next phase of developing a final pilot unit of this hybrid dryer should be taken up.

Microwave drying technology, because of its numerous advantages, is fast becoming a very popular name and has tremendous potential to revolutionize various industrial processing sectors in India. Now, this useful technology can be exploited by tea and other processing industries in our country. The Microwave technology based drying, being a molecular phenomena, not only provides solution for even drying for tea, but also eliminates bacterial growth during various stages of processing of tea. In our country, tea industry is getting tough competition from other countries like Kenya and Sri Lanka, the technology developed under this project is likely to immensely benefit this sector leading to technological advancement. It has been ascertained, through the present project of field trials, that there is substantial improvement in the tea quality.



Schematic Diagram of the Variable Power 10 kW Microwave System for Tea Drying



Microwave System

Developed



Photograph of field trials of the Variable Power 10 kW Microwave System for Tea Drying at Luxmi Tea Estate, Narayanpur, Assam