COMPARISON CHART

(Drum & Vertical Roaster)

S.No.	PARTICULAR	HORIZONTAL DRUM ROASTER-MIXER	VERTICAL ROASTER-MIXER
1.	**ROASTING QUALITY**	Moderate to Good quality roasting. Under Roasting and Over roasting is frequent.	High quality roasting. No inconsistency in the product roasting quality.
2.	**ROASTING EFFICIENCY**	Comparatively more energy is required per kg of moisture evaporation as compared to Vertical.	Lesser energy consumption.
3.	**ROASTING PROCESS**	Only one product can be processed at a time. Mixed product is, normally, not processed.	Mixed Spices (Whole or Powder form) can be Dried or Roasted simultaneously and will get mixed uniformly during Roasting.
4.	**HEAT LOSS**	Very high as compared to Vertical.	Bare minimum.
5.	**UNIFORMITY**	Under Roasting and Over Roasting is inevitable. Appearance and Texture of the product is not uniform.	Highly uniform Roasting and even Texture.
6.	**LAYER FORMATION OF MATERIAL**	Powder roasting in a horizontal Roaster results in layer formation of the powder product on the heated surface. 	In vertical unit even powder can be Roasted. Further, as the movement is against gravity, powder does not stick to the heating surface. 
7.	**MIXING EFFICIENCY**	**VERY LESS** as compared to Vertical Mixer. Material is not homogenously mixed with each other.	Mixing efficiency is very high. 97% mixing completes in first three minutes of operation.
8.	**SPACE OCCUPATION**	Occupies lot of horizontal space.	Occupies very less horizontal space but more of vertical space, hence reduces the floor

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			area required. Gravity flow can also be planned for feeding and discharge.
9.	**OPERATION**	Continuous Process with various controls on Feeding, Rotation and Temperature	Batch or Continuous, both operations can be planned with the unit. Hence single point feeding and discharge for high capacity requirements as well.
10.	**HEATING**	Material is heated using both Conduction and Convection process.	Material is heated using conduction process only. However, provision of Convection system is also possible.
11.	**EXHAUST**	Wide open area is there, hence, exhaust planning is more difficult.	Limited open area and, hence, exhaust can be planned easily for the big units as well.
12.	**CAPACITY**	Small to High scale roasting units, with higher size units becoming more and more inefficient.	High capacity roasting units, of upto 4000 lits, possible. Efficiency does not change with size.
13.	**MAINTENANCE**	More as compared to vertical mixer.	Comparatively much less.
14.	**AMBIENT CONDITIONS**	Very high temperature is felt in and around the Roasting Unit.	Comparatively, much less temperature is felt around the unit.
15.	**AROMA**	Aroma Preservation and Control is very difficult.	Aroma can be controlled as per requirement and can also be trapped easily, if required.