ITEM: LAB SIGMA MIXER, R&D/CTI/SR/SIGMA/11-13

Technical Specification No. R&D/CTI/SR/SIGMA/11-13

Technical Specifications:

A. General Requirement and Purpose of the Equipment:

The sigma blade mixer is commonly used for mixing and kneading high viscous materials usually in combination with a solid to another liquid material in variable proportions. It belongs to the class of double arm kneader mixers. The commonly used blade types are the sigma blade, masticator blade, shredder blade etc. The rotation of the blades could either be tangential to each other or the blades could overlap within the trough. The blades rotate toward each other at the same or differential speeds. The blades pass the container walls and each other at close clearances, normally within 2 - 3 mm resulting in uniform and homogenous mixing. The close clearances produce very high shearing action thereby promoting homogeneous mixing which could be achieved within several minutes to hours depending on the type of materials used.

The design, construction and associated operational features etc could vary to one to another machine/supplier, however all the interested Vendors should keep in mind the sole purpose of mixing/kneading of the said equipment and fabricate the equipment accordingly following the underlining technical specifications.

B. Technical Specifications

Sl.No.	Parameters	Specification
1	Container Type	Double trough “U” type container; to be welded & machined appropriately
2	Sigma Blades / Rotors	Two “Z” arm/shaped blades rotating in opposite direction with variable RPM to be provided
3	Materials of Construction	Both container and blades to be made of SS 316 or equivalent stainless steel material
4	Container Capacity	7 - 10 litres of total volume with 3 - 5 litres of working volume
5	Dimension of Container	8” X 8” X 8” (Approx.)
6	Gap between the Blades and Bottom of the Container	< 2mm
7	Rotor Clearance	2 mm – 3 mm
8	Rotor Assembly	Taper bore and key fitting to be provided

9	Shaft Sealing	Sigma blades are to be fitted with bearing blocks which are to be provided with roller bearing, steel glands
10	Bearing Housing	Lubricating points to be provided away from end plates for easy maintenance and eliminating lubricant contamination
11	Motor Capacity	1 – 1.5 HP
12	M.S. Jacket arrangement	The machine is to be provided with M.S. Jacket arrangements for heating or cooling the system
13	Discharge of materials (Tilting arrangements)	Mechanically operated hand liver to be provided to tilt the container from 0 – 110 degrees (approx.) for discharging materials
14	Lid	Hinged type single piece top cover with locking bolts, manual operation in SS construction, nozzle for maintaining gas atmosphere to be provided
15	Control panel	On/Off push button, emergency off push button, timer, speed indicator to be provided
16	Safety features	All the required safety features are to be provided and incorporated in the machine
17	Installation & Commissioning	The equipment is to be commissioned at our plant by the Vendor within 2 weeks after the technical & site clearance
18	Warranty	One year warranty of the equipment from the date of commissioning