

Ultima Model Specification

The pump shall be an ITT Jabsco Ultima rotary positive-displacement ultra-hygienic lobe-type pump or identical equivalent.

The pump shall be capable of delivering _____ litres/minute [_____ US gpm] of liquid viscosity _____ cP against a differential pressure of _____ bar [_____ psi]. at a speed of _____ rpm +/- _____. The absorbed power shall be _____ watts [_____ hp] and the Nett Inlet Pressure Required by the pump is _____ bar abs [_____ psi abs].

All metal pump head parts in contact with the pumped fluid shall be manufactured from austenitic stainless steel grade AISI 316L or equivalent and all product contact surfaces shall be finished to *0.8µm Ra / 0.8µm Ra and electropolished / 0.5µm Ra and electropolished*. The pump rotor case shall have an internal shape which allows low-viscosity liquid to freely drain and gases to vent through the port connections when installed with the pipe axis vertical.

The rotor case shall be removable from the bearing housing in situ without draining lubricant or disturbing shafts and bearings. Any adjustment shims must be captive to prevent loss. The pump bearing housing shall be manufactured from AISI grade 304 or better stainless steel. The external shape shall prevent the collection of pools of wash-down liquid. The area between the pump rotor case and bearing housing shall be accessible and free-draining to prevent build-up of product leakage and to allow inspection. A removable safety guard shall be provided to protect users from rotating parts during operation.

The rotors shall be of the scimitar type designed to minimise shear of liquid of all viscosities and shall not contact each other or the pump rotor case up to their full design limits of pressure and temperature. They shall be secured by retainers completely external to the pump chamber to avoid crevices and eliminate risk of scratching during maintenance. The front surfaces of the rotors shall be flat and there shall be no recesses in the end cover.

The pumped fluid shall contact only the outside diameters of the primary shaft seal faces. The seal area shall be free from crevices liable to harbour micro-organisms and shall allow liquid to freely drain. Product contact seal faces shall be made from *Carbon on Silicon Carbide / Silicon Carbide on Silicon Carbide* materials conforming to US FDA requirements and shall be accessible without removing the rotor case from the pump. The rotating faces shall be fitted into the backs of the rotors and the elastomeric joints shall be of the moulded gasket type sealing on square edges. Elastomer seals in product contact shall be moulded from: *peroxide-cured EPDM certified to US FDA CFR 21 section 177.2600 / Viton®*

The pump end-cover shall be sealed to the rotor case by a *moulded elastomeric* joint ring of the gasket type. This shall seal on square edges and be fitted in a groove designed to avoid crevices, control the compression of the joint and prevent extrusion, expansion or creep under vacuum into the pump chamber. The shape of the inside edge of the joint when fitted shall exactly follow the inside shape of the pump chamber so there are no areas of metal to metal contact inside the sealed perimeter.

The hygiene capabilities of the pump shall be demonstrated by the following protocols set by the European Hygienic Equipment Design Group (EHEDG).

A method for the assessment of in-place cleanability of food processing equipment

A method for the assessment of in-line steam sterilizability of food processing equipment

A method for the assessment of bacteria-tightness of food processing equipment

Tests shall have been carried out on a similar pump from the same manufacturer by an independent nationally-recognised testing authority and a written certificate issued. Zero detectable contamination shall have been achieved in every test (exceeding the EHEDG requirements which allow up to 30% contaminated surface area).