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‘CR’ Liquid ring pumps versus ‘AS’ Centrifugal air separator pumps

‘CR’ Liquid ring pumps

- Are fitted with Roten mechanical seals as standard. John Crane mechanical seals are available on request.
- Have fully open impellers.
- Are fitted to 4-pole motors.
- Consume more power as the flow *decreases*.
- Are second-to-none in their scavenging capability.
- Are more compact (‘AS’ pumps have an air separator vessel above the pump).
- Have a built-in self-priming vessel as standard and can therefore pump even when the suction pipe is empty at start-up (eg in a suction lift situation). The ‘AS’ pumps can handle an air-liquid mixture but are not self-priming as standard. The ‘AS’ pumps can be made self-priming by fitting an optional ‘SP’ vessel to the pump inlet.

‘AS’ Centrifugal air separator pumps

- Are fitted with John Crane mechanical seals as standard.
- Have radial (semi-open) impellers.
- Are fitted to 2-pole motors.
- Consume more power as the flow *increases*.
- Are gentler to the product. Independent tests on milk have demonstrated that these pumps cause minimum shear and stress to the liquid.
- Are generally preferred by our customers for road tanker unloading.
- Can be fitted with a drain either in the bottom of the pump casing, vertically, or in the front of the pump casing, inclined downwards at an angle of 3°. A liquid ring pump requires *two* drains, one for the main pump casing and one for the built-in self-priming vessel. The drain in the main pump casing must be vertical.
- Can be manufactured to deliver much higher flows than the liquid ring pumps. The ‘AS’ pumps can deliver differential pressures up to 4.5 bar at flows in excess of 200m³/h. Pressures higher than 4.5 bar are available on request. This compares to the largest liquid ring pump, the CR80, that is limited to 50m³/h at 1 bar, 45m³/h at 2 bar, 35m³/h at 3 bar, 20m³/h at 4 bar and 10m³/h at 4.5 bar.
- Can be operated at closed valve. The liquid ring pumps cannot.
- Are made from machined stainless steel 316L. (The liquid ring pumps are made from cast stainless steel 316L.)
- Are available in a hygienic design with a removable cover on the air separator vessel (and also on the ‘SP’ vessel, where supplied). ‘Pure’ surface finishes (max. 0.8µm R_a) are not available on the liquid ring pumps.
- Tend to be quieter than liquid ring pumps (although all scavenge pumps are noisy).
- Can sometimes handle solid suspensions (depending on their type). Liquid ring pumps rely on there being a very close fit between the impeller and the pump casing. For this reason, liquid ring pumps are not suitable for pumping liquids containing solids.
- Tend to be more efficient than liquid ring pumps at higher pressures.
- Can be made so as to give a steeper performance curve, in order to meet a particular duty point more closely. This can be done either by trimming the impeller or, preferably, by putting an orifice in the pump outlet. It is not possible to trim an impeller on a liquid ring pump or change the characteristic of its performance curve.
- Can be built in compliance with the *ASME BPE* standard, on request. Compliance is not possible with the liquid ring pumps.