

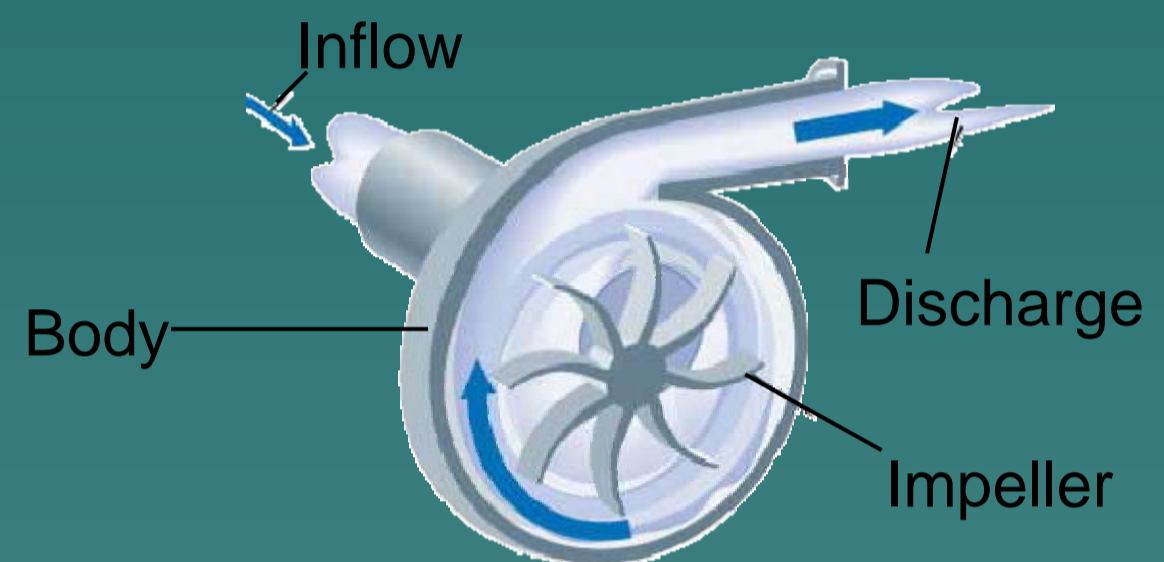
Pumps and fans

The Market At A Glance

- ◆ Change in type of products required in the UK due to decline of traditional industry.
- ◆ Strong demand, particularly for pumps in the profitable oil and gas sectors, as well as pharmaceuticals.
- ◆ OEMs are increasingly turning to service oriented business models in a price sensitive market place, with pressure from cheaper imports from the Far East and China.
- ◆ High capital cost of larger units makes remanufacture attractive.
- ◆ Some units may be in operation in excess of 40 years, whilst others will need remanufacture after only 1 or 2 years – depends on what environment they are in.
- ◆ Fans generally operate in less abrasive environments and thus require remanufacture less often, if at all.
- ◆ A remanufactured unit will cost around 60%-70% of the cost of new.
- ◆ 90% of life cycle energy is consumed during the usage phase, thus it is vital to consider more efficient equipment before remanufacture.
- ◆ Fan and pump technology has not made and step advances in terms of efficiency for the past decade.

How Do They Work And What Can Be Reused?

Nearly all parts of a pump or fan may be recovered for remanufacture, other than wearing items such as bearings. The body and impeller may be repaired using metal deposition. The motor may be remanufactured with new windings, bearings and brushes (where applicable).

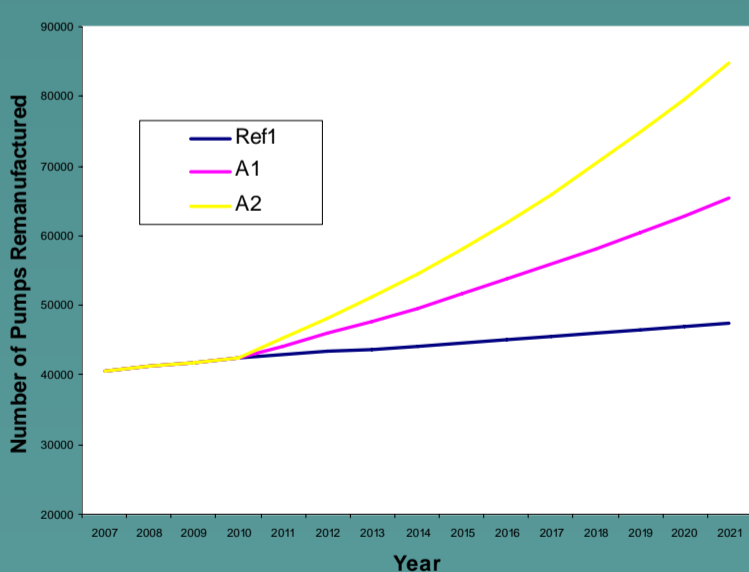


The body of the unit acts as a guide for the fluid / gas. It will be subject to wear from any particles in the medium. The body will hold bearings that will require replacement when the pump is remanufactured. The body of a pump is generally more substantial than for an equivalent fan.

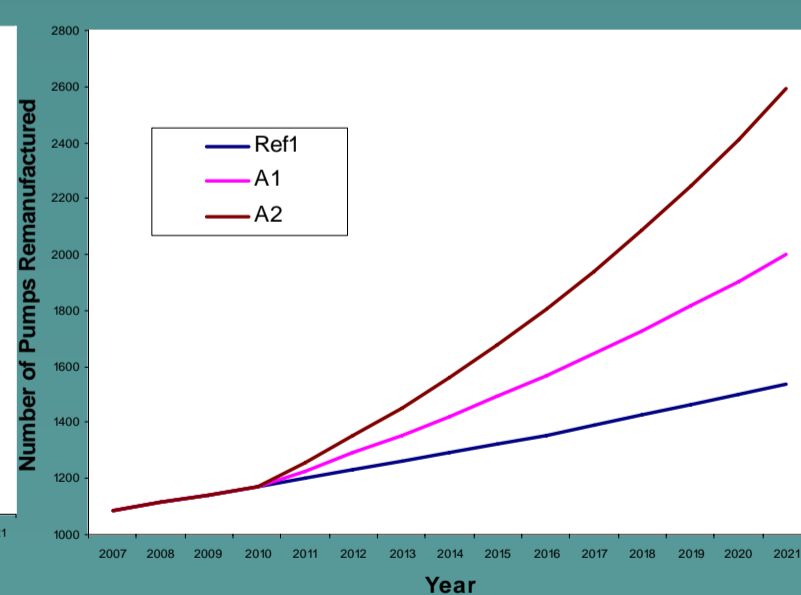
The impeller will be subject to wear, particularly where the fluid / gas is semi solid or contains particles. Thin film coating may help reduce wear. The impeller is driven by a motor which will require remanufacture periodically.

Possible Future Scenarios

Remanufacturing of Industrial Pumps



Remanufacturing of Industrial Fans



	Pumps by 2021			Fans by 2021		
	Tonnage diverted from landfill (kt)	CO2E saved (kt)	£ billions spent on remanufacture	Tonnage diverted from landfill (kt)	CO2E saved (kt)	£ millions spent on remanufacture
Market growth rate	993	1655	3.31	12	24	58
+2.5% growth	1142	1904	3.81	13	27	66
+5.0% growth	1292	2153	4.31	15	31	74

Conclusions

- ◆ The market for pump remanufacture is well developed, far more so than that of fans, which require far less maintenance.
- ◆ OEMs of pumps are keen to reap the profits that remanufacturing and support services can bring.
- ◆ Both pumps and fans are very well suited to remanufacture due to their ease of disassembly, high capital cost, and relatively slow product evolution.
- ◆ Stiff price competition is forcing manufacturers to cut costs, meaning that new models may be less suited to repeated remanufacture.
- ◆ Even older units can be made more efficient by incorporating newer motor technology and thin film coatings.
- ◆ In some cases, remanufacture may be the only option where a bespoke unit is in need of repair and to buy new would incur significant cost and lead-time.
- ◆ Units at the cheaper end of the market are seen as "throw away", with cheap Asian products making remanufacture uneconomical.
- ◆ By extending the ECA tax scheme to include remanufactured industrial equipment, the government could stimulate this sector still further.