

Metso:Outotec

Slurry pumps

7 factors to consider when buying wear and spare parts





Picture this:

You are operating your pumps smoothly when suddenly something fails. A quick check reveals that you need a new part to get you back up and running.

The hunt is on to find the wear or spare part which can be delivered quickest and at the most competitive price. If it is a critical part that's not in your inventory, then the main criteria is **speed**. If you have backup parts on the shelf or the component is

not critical, then the focus shifts to looking at costs — finding the right part at the right price.

Outside of price and delivery, **what else should you be looking at?**

Not all parts are created equal

Although wear and spare parts may look the same from the outside, they may actually be very different in terms of quality and materials. The result of using an incorrect part that does not perform as planned can be very costly – equipment can be damaged, the part's lifetime may be considerably shortened or the equipment could fail catastrophically putting the safety of workers at risk.

This eBook looks at the 7 key factors you should consider when buying wear and spare parts to help you make the right decision.



1. Does it fit?
2. Is it made of the right material?
3. What about support?
4. Is the design correct?
5. Do I have the latest design of the part?
6. What about warranty?
7. Are they a sustainable supplier?



1.

Does it fit?

To the human eye it may look like the right fit but has it been made to the right tolerances? Fractions of a millimeter can make the difference between a correct and an incorrect fit, and between optimal machine performance and equipment failing due to a wrongly sized component.

If a part is too big, it may experience forces it was not designed to support causing unexpected failure. A part that is too small might not properly support its share of the mechanical forces and instead cause other components to fail. Ensuring that replacement parts are made exactly to the specified dimensions is a big part of maintaining your equipment.

The right wear profile and thickness of the wear parts not only improves performance, but also extends the lifetime of both the parts and the pumps, which translates into bigger profits.

Choosing components with incorrect fit

An aggregate customer ran into issues after the replacement of a case liner in their pump. The customer chose to use a case liner with an incorrect fit and profile. Using a part that did not have the proper profile resulted in a drop in performance and increased energy consumption. Eventually the issue caused the wet end to fail prematurely due to internal re-circulation. The initial perceived savings led to large financial losses and affected the customer's production commitments.

2.



Incorrect materials cause excessive wear and extra downtime

A plant maintenance team had been using 3rd party wear parts that were not composed of the correct materials for the application. The increased wear rate to the casing, impeller and back liner drastically reduced the production capacity. The customer needed to change the wear parts sooner than planned and that caused additional maintenance breaks. The unplanned shutdowns and downtime led to considerable production losses, far outweighing the cost of the individual component.

Is it made of the right material?

The proportions of different metals in an alloy determine its characteristics. Different alloys, with combinations of chromium and other elements, may look the same but the wear protection can be dramatically different. The manner in which they fail can also change depending on the material makeup of the component. For example, a part made from a different alloy might have a lower resistance to abrasion, erosion or corrosion

and depending upon the application, could cause more damage than a simple failure. This is why you should always make sure that replacement parts have the same metallurgical properties as the original part or that their performance has been validated. Be prepared to test parts to guarantee compliance and ensure you purchase from a reputable vendor that has taken the metallurgical properties into consideration.

3



What about support?

When pumps are operating smoothly, things like local inventory or technical expertise are not always top of mind. But when a failure strikes, you have to consider who has your back.

Does your supplier have a local presence and are they able to react quickly? Beyond their local footprint, do they have a global presence or access to a larger pool of inventory? When critical components fail, it is important to know that your supplier likely has stock ready and available. For parts that do not fail often, your supplier should also be able to access the needed components quickly. Whether it is close at hand or can be pulled from a larger base of stock.

If a part fails, can your supplier provide technical assistance? Companies that take an OEM approach often have a deep understanding of the slurry pumping process and can understand exactly why a part has failed. They can also recommend ways to avoid a similar failure in the future, saving you problems that can come from repeat component failures and equipment stoppages.

It is important keep the size, reputation and years of experience of your supplier in mind. Always consider if a company has the resources and competences to support you.

Excessive consumption of pumps spare parts

A customer was experiencing an extremely high consumption of spare parts and excessive maintenance costs. They also needed to improve the maintenance and reliability of critical pumps within their process circuit. Metso Outotec was asked for recommendations on ways to help get these cost areas under control. The first step involved a review of all pumps installed to identify and quantify the areas of most frequent concern.

A systematic and focused approach with evaluation of the applications and historical trends identified the key problem areas that needed to be addressed. With the new recommendations in place, including parts stocking guidelines and weekly maintenance inspections, immediate results were achieved. The customer was able to forecast parts expenditure and equipment reliability more accurately, which resulted in a drop in maintenance costs.

4.

Is the design correct?

In any given wear or spare part, there are sometimes small features that seem to be irrelevant or add additional complexity. In most cases, those features are there to ensure the correct operation of the part. Removing those features may prevent the equipment the part is in from functioning correctly or even cause it to fail. In extreme cases, those missing features may be safety features, so it is important to remember that equipment safety can be compromised by using the wrong part. If this happens, a plant owner or those responsible for safety can be criminally and financially liable for any injuries or deaths that occur.

Always look to see if the part has been “simplified”. Sometimes these “simplified” parts do bring functional or operational improvements, but always make sure you are purchasing from a reputable supplier and always determine exactly what has been modified. Small changes can make a big difference in how a part performs.



Incorrect shaft leads to unforeseen breakdown

At a mining customer's plant, the pump was in need of a shaft. Rather than purchasing a genuine OEM shaft, the customer opted to source this part from a local machine shop. The reverse engineered part was not to OEM standards, resulting in loose fitting parts and excessive vibrations during operation. Eventually, the bearing assembly was damaged and rendered unrepairable leading to further delays and costs that far outweighed the cost for the required shaft.



5.

Do I have the latest design of the wear or spare part?

Equipment and part designs are not static, but are continuously refined over time to improve equipment performance and safety. This can result in upgrade kits or revised part designs becoming available that can help you get more from your existing equipment.

Talk to your supplier about whether the equipment design has changed over time and whether they can offer upgrade kits to improve performance. It is also important to ask whether the design they are providing is the latest from a safety perspective.

New design of shaft seal reduces water consumption

A customer was experiencing issues when the gland sealing water requirements fell below specifications. This led to considerable damage, premature failure, downtime, and costly repairs. The customer was able to retrofit a new sealing solution into existing stuffing boxes, reducing water consumption, operating costs, and wear problems on existing pumps. This resulted in higher throughput and allowed the plant's service teams to shift their attention to other areas.

6.

What about warranty?

Most new equipment from reputable suppliers is provided with a warranty that promises to repair or replace equipment if it becomes faulty within a certain period of time as a result of manufacturing errors. For new equipment, which is properly maintained and serviced, this is the most likely form of failure and warranty offers purchasers significant peace of mind. However, most warranties contain clauses that explicitly invalidate the warranty if during the warranty period incorrect components are used. Most reputable equipment manufacturers will investigate in

detail any significant failures to understand why the failure occurred. During this process they are likely to quickly identify substandard parts that have been used. When this occurs, warranties will often be invalidated. Always check your equipment warranty before buying replacement parts to ensure you are not invalidating the manufacturer's policy. If you have to replace the part, check if the part supplier provides a suitable replacement warranty. Making the effort to check this can take time but can save you a lot of money down the road if things go wrong.

Improper bearing results in warranty issues

A customer was looking to save on costs and purchased bearings for their pump from a supplier without OEM experience. The bearing was not designed to withstand the loads required, but the client went ahead with their use. This caused damage to the shaft and resulted in the pump having an unplanned breakdown, which led to inflated costs in terms of lost production. When the pump was inspected, the incorrect bearing was noticed and resulted in warranty issues for the client.

7.

Are they a sustainable supplier?

The wellbeing of people and our natural environment is important to all of us. Do you know enough about your supplier and the practices they use? How would you feel if it was suddenly revealed that your supplier used child labour, had non-existent safety practices or was polluting local water sources? What reputational damage would be done if your company was linked to such a supplier?

These are concerns that reputable companies face every day. They work hard to be sustainable themselves and to ensure they have sustainable suppliers. They do this by having indepth knowledge of their suppliers, following quality systems and by auditing their suppliers. They look to minimize the use of resources in production and they look to support recycling wherever possible.

Ask your supplier what they are doing to make production more sustainable and whether they can prove that their parts and equipment are made in a sustainable way.



Measuring sustainability

Does your supplier have a program in place to measure their sustainability? Do they also have a plan in place to take corrective actions and measure improvements? The checklist below can serve as a starting point to determine what type of program your supplier has in place:

Supplier sustainability checklist

- Health
- Safety and environment
- Product safety
- Labor and human rights
- Supply chain practices

How Metso Outotec helps give you peace of mind



We always make sure that parts meet the specifications – that they are the correct size, made from the correct materials and that all safety features are present. Everything we make for our own equipment is designed and manufactured with an OEM approach. Using processes that make us the leading supplier of equipment for the mining and aggregate industries.



We invest in research and development – our engineering department is always working to see if we can make equipment and parts perform better and more safely. As a result, we frequently update our equipment designs, resulting in the introduction of redesigned parts and upgrade kits.



We provide warranties for all parts we supply – if something goes wrong, we will help you find out why and help make things right. Over 12,000 employees, we are always close by and ready to work with you to find out why things have gone wrong, and we have the resources and expertise to put things right.



Sustainability is important to us – we are constantly investing in ways to make our operations more sustainable and to support the communities we operate in. Our sub-contractors are regularly audited to ensure their operations are also sustainable and ethical.



For more information on Metso Outotec
Slurry pumps, parts and more:
<https://www.mogroup.com/slurry-pumps/>



