

EMC & Circuit Protection

Can extended warranty ever equal reliability?

Does the increasingly common practice of offering an extended warranty with a new EMC or EMP filter make that filter any more reliable or long-lasting? No, argues Paul Currie, sales and marketing director of the EMC, EMP and TEMPEST filter designers and manufacturers MPE Ltd. In this article, Paul highlights the reasons why the answer has to be no, and goes on to discuss the practical implications and real costs of a filter failing in situ at different stages of its life

How many times have you been asked if you would like to purchase an extended warranty for an additional fee? This additional fee is the manufacturer's mechanism for offsetting their additional risk. So what about those 'too good to be true' offers where an extended warranty is included free? This is often because the manufacturer wishes to infer a message of reliability. It is this reason which I wish to explore, and it begs the important question: "Can we therefore infer that an extended warranty equals reliability?"

In the world of EMC and EMP filters, the manufacturer is often asked: "Do you offer an extended warranty?" Invariably the questions underlying this are: "When will I need to replace the filter?" or "How reliable is the filter?"

So because a manufacturer is willing to repair a faulty filter for a longer period of time, is the filter any more reliable? The answer is categorically no. The filter will undoubtedly have been designed and manufactured following the same processes, whatever the warranty period. So this begs the question: "What does an extended warranty actually mean?" It is clear that it does not in itself make the filter more reliable, but does it offer additional security or reduced costs?

To answer this using factual analysis of installed filters in the field, we first need to look at why filters can fail and when this typically occurs.

However controlled manufacturing processes are, there is, as with any produced goods, the possibility of a manufacturing defect. In the case of any filter failure as a result of such a defect, this is almost always identified prior to or during installation.

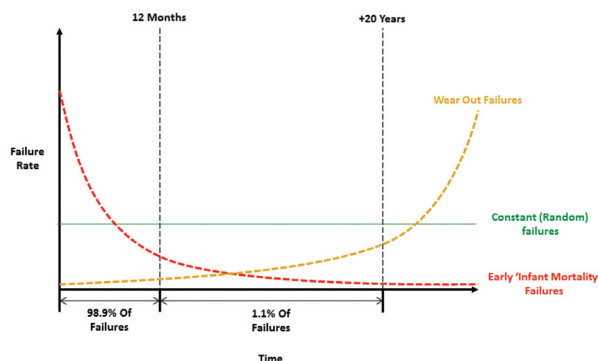
If a filter has been incorrectly specified for its purpose, this can result in the filter not operating as intended. In such an instance, the problem will be identified during installation. In some cases filters are required to be verified against specifications or standards. If the filter were

not to pass verification, this would again be identified prior to site sign-off.

Failure at the point of installation or acceptance

Factual analysis proves that filters are most likely to fail at the time of installation. Is this then okay, because the filter is under warranty? Well, yes and no. Remedial steps must commence with disconnection of power, which may require a site-

Figure 1 – Filter Failure Bath Tub Curve



Filter failure rates over time

approved individual. Once supplies are disconnected, removal of filter covers, disconnection of the filter and dismantling of the filter will be required. Installation accessibility, along with size and weight of the filter, will determine how involved this process is. Such a process is going to require at least two individuals and may call for additional specialist skills such as welding or rope access, and specialist equipment such as hoists or trolleys.

Such remedial tasks will differ from site to site, and so it is impossible to put a generic cost on these actions. But, there is both a financial and time cost and, even in the simplest of installations, these costs will

not be insignificant. So, regardless of the warranty, the important factors are that the filter works first time, the filter is reliable and the filter does not fail.

Failure within manufacturer's standard warranty period

Frequently in this scenario, the installation has been signed off and the installer has handed over the site. We have seen earlier that filters are most likely to fail during installation or acceptance. As such, failures in this situation are far less common. However, if a failure were to occur, the remedial steps that are required are identical to those where the filter fails during installation. Nevertheless the costs will typically increase in terms both of finance and time, depending upon the maintenance contract in place at the time.

Returning to the warranty question, this scenario further reinforces that filter reliability is key and indeed the most critical consideration. Therefore, regardless of warranty, it is undoubtedly better that the filter works, continues to work and does not fail.

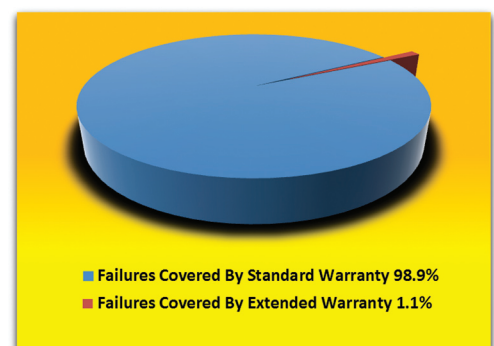
seen, this repair cost is only a small fraction of the overall cost of remedial work. In the event of a failure, the remedial works would be identical to those with the earlier scenarios. However, the time elapsed since installation often means that remedial actions are likely to be a much more protracted process and, in turn, the costs and impact of remedial work are even greater.

So again, this scenario – more than any other – further reinforces that filter reliability is the single biggest factor and the most critical consideration and we can see that an extended warranty, does not improve reliability.

So what does an extended warranty provide?

An extended warranty provides cover for only a small fraction of any remedial work costs and impact and in the scenario where failures are least likely. The analysis puts that small fraction at only 1.1 per cent of filter returns. Put simply, extended warranty marginally mitigates cost, in circumstances where cost mitigation is least likely to be required.

Figure 2 – Filter Failure Pie Chart



Pie chart comparing filter failures covered by standard and extended warranty

Failure outside manufacturer's standard warranty period

The third scenario is one where the site has been operational for a time, the installer has left site and the manufacturer's standard warranty has elapsed. Again, factual analysis proves that failures are least likely in these circumstances (only 1.1 per cent of all returns) and so least common in reality.

However, let's assume that a filter does fail and yet is covered by an extended warranty from the manufacturer. So is everybody happy?

Well, yes and no. Sure, the manufacturer's repair cost is covered, the same cost as in each of the earlier scenarios. But, as we have

In summary: "Is it more important for a site to continue uninterrupted in its operational role, or is it more important to mitigate a minimal percentage of costs in the event that we have a failure?" I think we will all agree that continuing the operational role is by far the most important factor. Therefore whilst we might accept that warranty, extended or otherwise, may be nice to have, in answer to our opening question "Can we infer that an extended warranty equals reliability?" the answer is a resounding "no".

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