CONCLUSION

As Table 4 shows, the annual energy costs are by far the largest costs. The results are very dependent on the efficiency estimates. The efficiency estimates used in this study were gathered from vendors and from the technical literature. Efficiency of AC drives and motors operating as a unit is a subject of ongoing debate as very little factual evidence is available. Efficiency estimates for AC systems usually quote the drive and motor separately. Efficiencies for slip couplings do not take into account the cooling equipment required. Care must be taken in comparing options for your plant.

The results are close enough that all systems, not surprisingly have a comparable cost after five years of operation. However, if a longer term approach is used, the AC and DC options win out economically. The DC option is not favored due to its brush maintenance requirement. The AC option is the preferred choice provided the drive purchased provides reliable operation.

FURTHER CONSIDERATIONS

A comprehensive study commissioned in July 1995 [5] covering users' and manufacturers' experience with medium-voltage AC drives revealed a high degree of satisfaction among the users. The users overwhelmingly stated that criteria for drive selection were reliability, energy efficiency and process efficiency. While it may seem odd that over 66% of users reported failures within the first 12 months, more than 75% of the failures were corrected for less than $5,000 and with less than one day of downtime.

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