



OEM cables are 2.7 times more effective than alternatives.

## Lifetime Costs Report.

# OEM versus Alternative Electric Cabling.

### The overall study:

In 2017, Kalmar commissioned three studies with Tampere University of Technology in Finland to evaluate the claim that even though OEM parts are generally priced higher than alternative parts they are more efficient over the lifetime of the equipment, not the replacement value as in the first two studies. This test looks at electric cabling.

### The test:

The effectiveness of electric cables is dependant of the number of cores and their diameter in each conducting wire within the cable. For this study two different cables were tested:

- OEM cable with 32 cores per conductor cable
- Alternative cable with 12 cores per conductor cable.

Both cables cores were 2mm in diameter.

It was found that alternative cables are 2.7 less efficient at moving power, due to their reduced cable density. It was also found that the alternative cable with its higher loss of power, also increased in temperature significantly versus the OEM cable. Heat is conducted away through the outer surface of the cable, with the power density being 4.4 times greater in the alternative cable with 12 core versus the OEM cable with 32.

### The conclusion.

Heavy mobile equipment needs its electrical systems to be working optimally so the machine itself can operate efficiently and effectively. On this basis it is clear from this test that the OEM cable was able to conduct electricity 2.7 times more effectively than the alternative cable.

It was also shown that OEM cables in comparison are safer, as they do not heat up as quickly and are at less risk of failure. Although not a part of the study, it is widely accepted that overheated cables can lead to both power loss and a safety hazard.