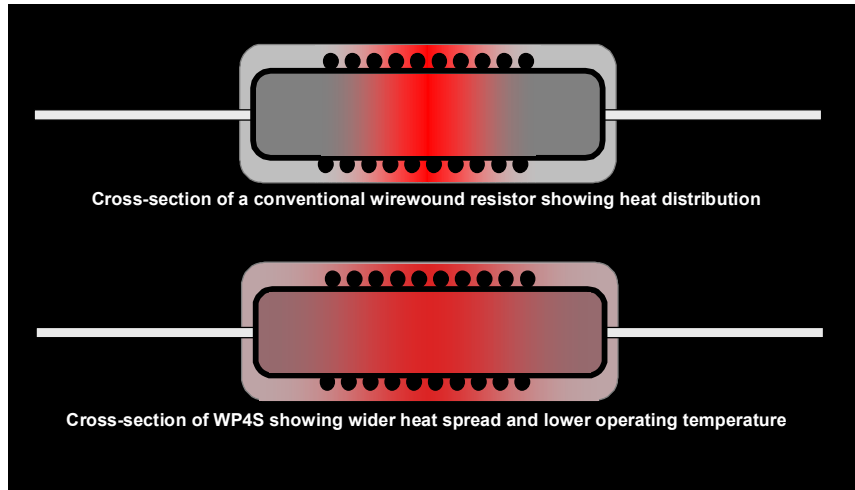


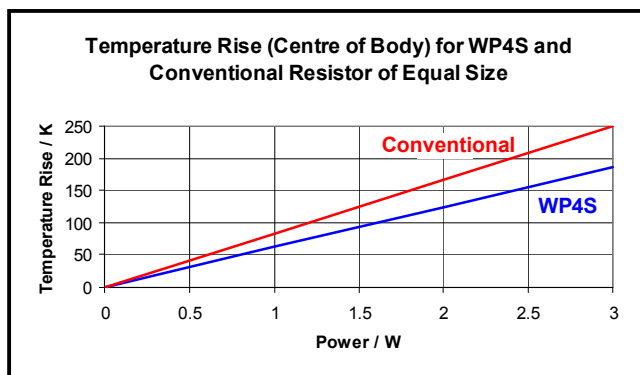
## WP4S Case Study

The drive to miniaturise is becoming as prevalent within industrial process control and circuit breaker products as it is in the consumer sector. For example, there are real benefits to be gained from more compact contactors, including ease of installation and reduced consumption of both material and energy. However, as one leading European manufacturer discovered, this can place particular pressure on power components, calling for innovative solutions.

The project in question called for resistors to restrict coil current after contact closure, but the compact envelope specified for the product placed a minimal distance between the resistors and the plastic casing. Looking at conventional wirewound resistors, a 3W size had excessive temperature rise, whilst the more bulky 4W size would not fit.



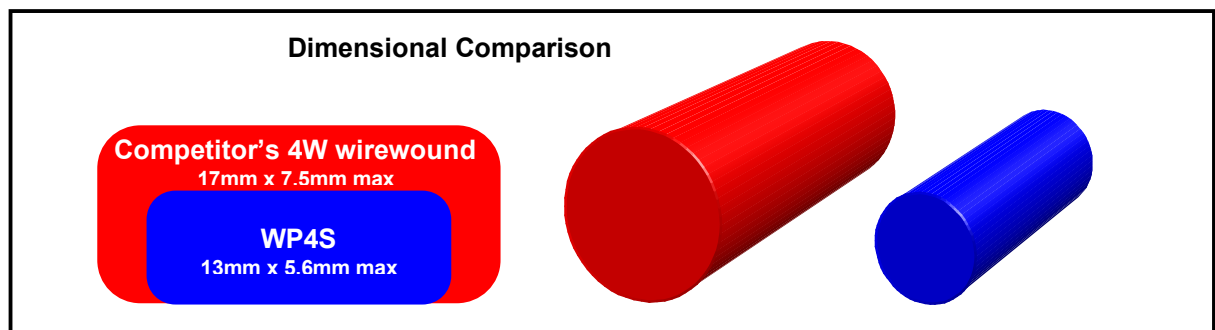
The Welwyn Applications Team was approached for a solution and developed the WP4S. This uses special high thermal conductivity materials to disperse the heat more evenly along the body. A considerable reduction in “hot-spot” temperature is achieved with only a modest rise in termination temperature. The temperature rises obtained from WP4S and from a conventional wirewound resistor of equal physical size are contrasted in the graph below. This solution permitted the



challenging dimensional design goals for the contactor to be achieved without resorting to costly casing materials with a higher temperature rating.

WP4S is a 4W rated part in the body size of a standard 3W part. Competing 4W parts on the market today are between 25% and 100% larger by volume, and correspondingly heavier.

This product has now been joined by a range of other ratings in the newly launched WP-S Series. This contains seven sizes of compact flameproof wirewound power resistors with ratings of 1, 2, 2.5, 3, 4, 5 and 7W. These resistors are ideal for high reliability industrial applications, and failsafe fusing and pulse withstanding variants are available.



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