

Do more with less

The high cost of energy means that it is now much more a consideration when calculating new investments, and suppliers are making clear their technology benefits here, Andrew Allcock explains

Although the oil price has dropped from its recent dizzy heights, energy costs have yet to follow. It is a noticeable trend that new machine tool technology developments are emphasising their energy efficiency aspects more.

Energy cost reduction is playing a part in last month's Last Word author Rodmatic's green plans, as we saw. But three recent items to land on *Machinery's* desk since last month underline yet further how much more important energy cost considerations are becoming. And while we do have a current lull in oil prices, once the global economy gets rolling again they will no doubt rise once more.

Fresh back from EuroBLECH, *Machinery* saw that fibre laser profiling machines were an interesting and increasingly common technology. A major claim for them is that the energy requirement is lower than for CO₂ laser machines. As Air Liquide's product manager for automatic cutting Régis Augeraud explained: The main attraction of the fibre laser is that it is 25 per cent efficient compared to maybe 10 per cent for a CO₂ laser, which reduces power consumption." And Peter Littlejon, director of Eagle, says that the performance of a 2 kW fibre laser is comparable with a 5 kW CO₂ laser. The cutting thickness will be nearly the same but it will draw about 20 kW compared to 60 to 65 kW for the CO₂ laser.

Returning to metalcutting of the chip-making sort, Japanese machine tool manufacturer Brother (Whitehouse Machine Tools) is highlighting its new machine's energy frugality and has undertaken some interesting calculations



Doing more machining or profiling with less energy is in keeping with the times, but this sort of thinking will increasingly figure in investment decisions, suggests Andrew Allcock

to underline its point.

The ISO 30 taper, drilling and tapping machine specialist's TC-S2D uses 60 per cent less electricity to produce the compressed air consumed, compared with the pre-existing Brother TC-S2C; and 70 per cent less than the best of the 30-taper competition. Power consumed by other machine functions is down by 40 per cent. These figures translate into 15 per cent lower CO₂ emissions than the TC-S2C and 45 per cent less than the greenest 30-taper machine from other manufacturers, it is claimed.

Compared with equivalent 40-taper machines, the reduction in this

greenhouse gas is fourfold. Based on annual production of 50,000 components, Brother calculates that whereas the amount of CO₂ emitted by a 40-taper machine would be 6.8 tonnes, a TC-S2D produces just 1.7 tonnes, a saving equivalent to the absorptive capacity of 720 mature cedar trees.

MAG Powertrain's new Specht horizontal 'agile manufacturing centre' is also being heavily promoted as energy efficient. Avoidance of the non-productive warm-up phase equates to a 6 per cent energy saving for single-shift operations, offers development manager for MAG Powertrain, Thomas Bayha. A reduction in the volume of exhaust air moved through the system per hour has been made: 540 m³/h versus a typical 1,400 m³/h. Other areas pointed up by the company are the use of regenerative drives to capture energy under braking; a reduction in the power required to operate magnetic valves from 30 to 8 W; adaptive electrical cabinet cooling as opposed to full load continuous operation; a reduction in standby energy consumption from 50 per cent of full to 20 per cent, with coolant circulation also shut down.

"We realise that, among other things, energy consumption is going to be a key buying criterion for our customers in the future, so we will strongly focus on engineering MAG machines to do more with less as each generation goes forward," concludes Mr Bayha.

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