



PRESS RELEASE No. 5700

July 2006

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Water Jet Sweden first to introduce linear drives

Water Jet Sweden is believed to be the first manufacturer of waterjet cutting machines to incorporate linear drives in this technology for customers who have discerned the technical advantages of this option.

Increasingly already being applied to advanced machine tool designs, linear drive systems are now being taken up by designers of other types of machinery and equipment used in a variety of manufacturing processes throughout the world.

In the case of Water Jet Sweden, the close collaboration enjoyed between themselves and CNC suppliers GE Fanuc over recent years has seen the introduction of a linear drive option across the range of profilers produced at the busy Ronneby factory in southern Sweden.

With the entire linear drive system being sourced from the same supplier as the other drives systems on the machine, plus the CNC control, the whole package is totally integrated and thereby offers assured reliability.

Great accuracy

When applied to a Water Jet Sweden machine, the whole X-axis is fitted with a single flat magnetic plate. The X-axis movement of each cutting head can then be accurately controlled by the CNC with a positioning accuracy as fine as 0.05mm by means of coils fitted to each head.

Lennart Svensson, managing director of Water Jet Sweden, says: "As well as the well-known

advantages of such a drive system, it is especially useful for multi-head profiling".

He cites the many cases where nested items need to be cut using the 'common line' method whereby the intermediate heads of a multi-head arrangement are cutting a line that forms both an 'inside edge' of one component and the 'outside edge' of its companion, thereby simultaneously eliminating the wasteful 'picture frame skeleton' left in the sheet.

Significantly, because each of the heads can be easily re-positioned independently, it is far quicker to replace any one or more nozzles as wear takes place. This nozzle wear can be compensated for automatically which is an attractive time-saving proposition in a busy shop.

Other advantages

Such drive systems cannot be affected by that small element of component wear that might occur over long periods of time with other drive systems. Additionally, there are no backlash or pitch error problems to worry about. The improved long-term positioning accuracies achievable are an added incentive to adopt the linear approach.

The application of a linear drive system to a waterjet profiler is a good one because, unlike other metal cutting machines, there is no swarf or coolant present that might pose a risk to lifelong performance. In any case, the X-axis drive is mounted on top of the cross gantry where it is well above the work interface.

It is, therefore, in the field of multi-head, high-volume work that the linear drive option can really prove its worth, especially when the added advantages of increased positioning

speed and acceleration while profiling are taken into account.

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Editor's note

The Water Jet Sweden AB plant built only 11 years ago at Ronneby, Sweden, has established itself as the leading source worldwide of the ultimate in accuracy in water jet cutting technology, hence its rapid growth to a supplier of standard and custom-built machines around the world, including the USA, Russia and China.

In Europe, in addition to Germany, two new subsidiary companies recently have been established: WJS UK Ltd, United Kingdom, and Water Jet Polska, Poland.

The text of this release and high-resolution photographs can be taken from the disc enclosed or on request.

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PHOTOGRAPH CONTAINED ON CD



Picture shows one of the new WJS four-headed linear drive machines, model NC 4060Q, especially suitable for multi-head, common line cutting