



Search Site:

Go

**T & P Links**

[Advertiser Resources](#)
[Archives](#)
[Buyers Guide](#)
[Contact Us](#)
[Daily News](#)
[Departments](#)
[Events Calendar](#)
[Features](#)
[Machine Tool Search](#)
[Readers Service](#)
[Reprints](#)
[Staff](#)
[Subscriptions](#)

**Machining centers****Machining centers**

New entries deliver processing diversity and productivity to a wide range of users

X-Mill design delivers dual zone or long part machining

Bertsche Engineering has tackled the twin objectives of machining long structural aluminum or steel parts and increasing production of smaller parts on the same machine with its X-Mill vertical machining center. The X-Mill has X travels beginning at 130" with models able to reach 283". For shorter parts, the X-Mill can be divided into two work zones, each with its own automated toolchanger. Machining and load/setup can be performed simultaneously to increase production and minimize downtime.



Design of the X-Mill departs rather significantly from that of a typical C-frame traveling column machine. Bertsche Engineering has taken the traditional low-to-the-floor machine bed design and extended the side walls up higher over the machining area and constructed a large bed cross section. The column has been eliminated. In its place, the YZ carriage that holds the vertical ram and spindle runs on a rigid double rail beam that fully supports carriage and ram while positioning the center of mass very close to the X, Y and Z servomotor and ballscrews.

The effect of the design is that moving mass is minimized, and the structure is compact and very stiff. The axes of motion are very close to the cutting tool, the moved mass is constant, and the weight and size of the part do not affect machine dynamics. Also, the 3-axis carriage is out of the chip-making area and

away from coolant, debris, and other sources of contamination. As a result, complex contours can be cut at high feedrates up to 1,000 ipm (25 mpm) and at high spindle rpms of 15,000 rpm with little or no contour deviation.

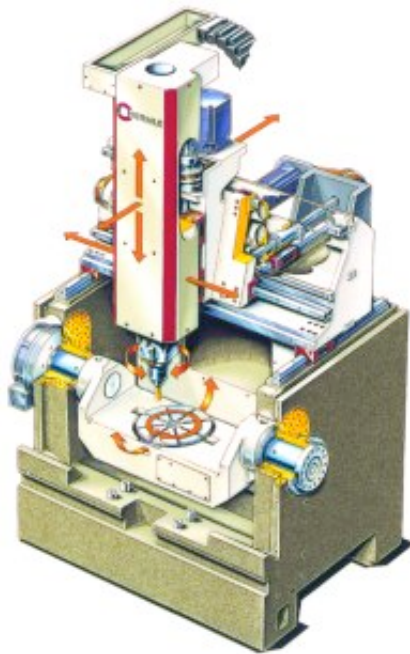
The X-Mill, which features a 15,000-rpm, 30-hp chilled motor spindle is capable of removing 30 cu. in./min of steel and 140 cu. in./min of aluminum. X-axis rapid traverse up to 2,000 ipm. The Y- and Z-axis travels are 20"x20" with rapid traverse of 1,000 ipm.

A Flex-table reconfigurable table feature allows the T-slotted table tops to be mounted either horizontally or vertically. Tables can be lowered or raised and add-ons such as repositionable work support, rotary indexers, and flexible workholding mount directly to the sidewall of the bed providing fixturing flexibility. A traveling mist collection system helps meet new stricter OSHA requirements for particulate-free work environment. Adding an oil-air lubrication system enables parts to be cut dry, reducing the need for coolant.

Bertsche Engineering Corp.,

www.rsleads.com/303tp-175

5-axis machining with production options



Hermle Machine Co. has designed the C 600 U production module for full 5-axis machining of complex workpieces in the medium size range (a 450-mm prismatic cube), as well as offering higher speed and accuracy in multiple part production. Typical applications include moldmaking, aviation, and smaller critical parts production.

Like other members of the Hermle family of 5-axis production modules, the C 600 U is constructed on a mineral casting bed for maximum stability and features its patented gantry design. CNC control is the Heidenhain iTNC 530 with the Siemens S840D available as an option.

Full 5-axis machining is achieved through the C 600 U's trunnion-type tilting table that is equipped with an NC rotary table. For multiple part operations in a single setup, the machine can be equipped with a 4-sided clamping yoke capable of accommodating up to four parts on a side. Featuring small footprint design (about 4.5 m²), the C600 U offers integral storage for up to 30 tools and chip-to-chip change time of 5.5 seconds.

Machine axes are 600x450x450 mm (XYZ). Standard spindle speed is 10,000 rpm with 16,000- and 40,000-rpm spindles optional. Load capacities are 200 kg for the 5-axis rotary table and 50 kg per side for the NC clamping yoke.

Hermle Machine Co.,
www.rsleads.com/303tp-176

Twin-pallet horizontal machining center

At Westec, Fadal Machining Centers will demonstrate a production model of its HMC 400 twin-pallet horizontal machining center announced at IMTS 2002. The HMC 400 is designed for high performance and a 24/7-duty cycle to maximize productivity. Featuring twin 400-mm pallet with 20"x24"x20" (XYZ) travels, the HMC 400 is intended to offer job shops and manufacturers an affordable alternative to the high price tags normally associated with horizontal machining centers, says Fadal.



The HMC 400 features a 10,000-rpm, high-torque spindle with air/oil lubrication and rapid travel rates up to 1,200 ipm. The machine is built with heavy-duty, flame-hardened box ways and heavy-duty, rib-reinforced castings that provide superior rigidity and vibration damping capability for ± 5 arc second accuracy.

A fast 1.2-second tool-to-tool change time is accomplished with a 40-pocket Dual Arm Automatic Tool Changer (ATC). The ATC utilizes a synchronous swing motion, picking up the new tool and the old tool simultaneously to make the tool change with continuous and smooth motion. Tools are loaded from the back of the machine.

CNC control is provided by a Siemens Sinumerik 810D digital control, which delivers comprehensive control of high-speed machining with look-ahead, dynamic feed forward, and programmable acceleration. As a result, the HMC 400 delivers a smoother surface finish when contouring at high spindle speeds. The Fadal MP CNC control is also available for the HMC 400.

Fadal's exclusive Cool Power refrigerated cooling system maintains a constant temperature and ensures positioning accuracy, reducing thermal growth and position repeatability problems.

Fadal Machining Centers,

www.rsleads.com/303tp-177

[View our Machine Tool Source Book here](#)

Would You Like A Reprint of this Article?
[CLICK HERE!](#)

[Home](#) [Mfg Resources](#) [Designfax](#)
[Modern Applications News](#) [Tooling & Production](#)

Tooling & Production

6001 Cochran Rd., Suite 104 Solon, OH 44139 Phone: 440.248.1125 Fax: 440.248.0187

To request a media kit or back issues click [here](#).

(US & Canadian requests only)

Please report problems with this site to the Tooling & Production [site manager](#).

Copyright © 2007 by [Nelson Publishing, Inc.](#). All rights reserved. Reproduction Prohibited.

View our terms of use and [privacy policy](#).

