





<p><b>Touch probe Renishaw OMP40</b></p> <p>Used for measuring finished parts, or for taking a reference on an existing part</p>		<p><b>5-axis milling head</b></p> <p>Milling head with an integrated A and B-axis, for 5-axis simultaneous interpolation.</p>	
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SOFTWARE OPTIONS	
CAM software	<p><b>ShopMill PC :</b> This is a software that has to be installed on a separate PC. It gives you exactly the same Graphical User Interface as the machine. The software allows to read dxf-files, and to prepare NC-programs, very much like a CAM-software. The software has 2.5D possibilities (pockets can be programmed, but cannot be used for complex 3D-surfaces).</p> <p><b>3D CAM software :</b> We can supply 3D CAM software, to generate programs for milling complex surfaces (either for a machine with 3-axes or for a 5-axis machine).</p>
Nesting software	<p><b>Automatic rectangular nesting :</b> Vaskon can supply automatic rectangular nesting software, designed to maximize material usage and reduce machine setup time. It is a cost-effective way for fabricators to meet JIT manufacturing requirements. Add your parts to a "part-queue". The software generates an operation sheet for the nest that includes a listing of the parts and their quantities, and the number of duplicate sheets to be produced. The software allows you to store remnant sheets, in order to use these remnants in the future.</p> <p><b>Automatic truetype nesting :</b> Same as above, but the nesting is based on the <i>real</i> shape of the part, not on a rectangular shape. This further improves material usage.</p>
Full integration with your ERP system	<p>We can supply state-of-the-art software, which allows you to automate your preparation. Your ERP-system knows what parts are required, how many you require of them, and at what time you require them. Our software can automatically :</p> <ul style="list-style-type: none"> <li>- load the appropriate dxf-files</li> <li>- generate nested files, according to the quantities required by the ERP system, and taking into account priorities in your production</li> <li>- organise the production in order to meet required delivery times (production scheduling : the software predicts at what time each part will be available)</li> <li>- calculate costs for each part</li> <li>- report the current status of your production</li> <li>- print production reports, helping the operator to find out what parts are being produced, and what orders they belong to</li> </ul>



Example 1 : Double-spindle machine, with several options :

- vacuum segmentation
- pendulum operation
- renishaw touch probe
- protection bellows



Example 2 : Machine for 5-sided milling of cabinets :

- Aggregates + special vacuum cups
- Pneumatic location pins

The machine is also used for milling 'normal' sheets material using special vacuum jigs for improved clamping of small parts.

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## CNC milling machine (for milling large size sheet material)



### Introduction :

Vaskon has a standard line of vertical CNC Milling Machines. Furthermore Vaskon's team of engineers is able to offer custom solutions for your specific manufacturing requirements.

Vaskon machines are used for milling sheet material (typical thickness up to 250mm) in the following materials :

- aluminium & light alloys
- plastic
- wood
- phenolics & fibreglass
- rigid foam material

The machine is available in the following dimensions (other dimensions upon request) :

VARIOUS MODELS & DIMENSIONS					
Travel (XxY)	2500x1500	3000x1500	3000x2000	4000x2000	6000x2000
Vertical travel	300 mm	300 mm	300 mm	300 mm	300 mm
Machine dims (*)	3400x2600	3900x2600	3900x3100	4900x3100	6900x3100


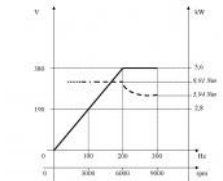

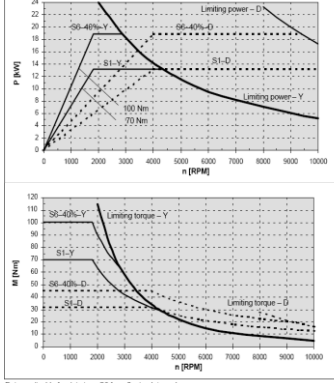
(\*)indicative dimensions, not including protection/security zone, electrical cabinet, refrigerating equipment nor options, if any.






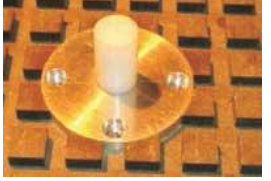








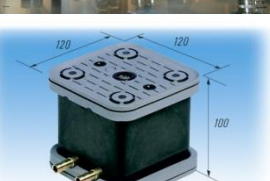


**Main characteristics :**

- Rigid steel frame (thermally stabilised)
- Powerful vacuum table & vacuum pumps, for easy part clamping
- High-dynamic servo drives (Siemens)
- Automatic Tool Change
  - o Standard : static pick-up tool changer (number of tools to be discussed)
  - o Option : disk magazine or chain magazine (for faster tool-changing)
- Preloaded backlash-free ballscrew, or rack & pinion (depending on table dimensions)
- Max speed :  $v_x = v_y = 40\text{m/min}$ ,  $v_z = 15\text{ m/min}$
- Max acceleration :  $a_x = a_y = a_z = 3\text{m/s}^2$  (option :  $a_z = 10\text{ m/s}^2$ )
- Vertical stroke : 300mm (option : up to 500 mm)
- Accuracy :  $10\mu\text{m}$  (ISO230-2), assuming constant temperature for both machine and material ( $T=20^\circ$ )
- Safety : 3-beam light curtain (option : safety laser scanner, or fully closed cabinet)
- Siemens controller
- Ethernet connection
- Shop Mill – Siemens : this is a shop floor-oriented operator software for milling machines. It provides skilled workers with an easy start into CNC technology, and can be operated without any great programming effort and without any extensive CNC skills. ShopMill offers 3 ways to programme your machine :
  - o G-code programs (written by the operator at the machine)
  - o ShopMill operational step programming (using standard cycles, and the Graphical User Interface)
  - o G-code programs, generated by external CAD/CAM-software (or by ShopMill PC, see options)

**Spindle selection according to your specific needs :**

A broad range of spindles is available, depending on your requirements :

	<p><b>High frequency spindle (M-series = router)</b></p> <ul style="list-style-type: none"> <li>- Power range from 2.5 to 35 kW</li> <li>- up to 40.000 rpm or even more</li> <li>- tapping is possible using special thread milling tools (tapping at high rpm)</li> <li>- ISO or HSK tool mounts</li> <li>- Air cooled or water cooled</li> </ul> <p>Typically used for plastics, wood, aluminium. The high rpm allows high feed rate and guarantees very smooth cutting quality.</p>	<p>Typical spindle characteristic :</p> 
	<p><b>Universal spindle (V-series)</b></p> <ul style="list-style-type: none"> <li>- power range from 12 to 35 kW</li> <li>- rated speed up to 4.300 rpm, maximum speed up to 18.000 rpm</li> <li>- Direct drive</li> <li>- Rigid tapping</li> <li>- ISO or HSK tool mounts</li> <li>- Water cooled</li> </ul> <p>Typically used for aluminium &amp; light alloys. The universal spindle (direct drive) guarantees a high torque at high as well as low speeds, allowing to use larger tool diameters, or to tap holes up to M16 in Aluminium (rigid tapping).</p>	 <p><small>Data applicable for duty type S0 for a 2 min. duty cycle</small></p>

HARDWARE OPTIONS			
<p><b>Dust extraction system</b></p> <p>For collecting most of the chips through aspiration. Not suited for steel chips</p>		<p><b>Automatic Lubrication</b></p> <p>Automatic re-lubrication of the linear guideways, ballscrews,... This makes maintenance easier.</p>	
<p><b>Protection bellows</b></p> <p>To protect the linear guideways against chips, dust and dirt</p>		<p><b>Electronic hand wheel</b></p> <p>For easy set-up of the machine</p>	
<p><b>Additional tool locations (pick-up magazine)</b></p> <p>The number of tools in the standard pick-up magazine can be chosen freely</p>		<p><b>Pneumatic part locator pins</b></p> <p>Used for quick setup and positioning of sheet stock</p>	
<p><b>Tool changing options : disk magazine or chain magazine</b></p> <p>(for faster tool changing)</p>		<p><b>Division of vacuum table into compartments</b></p> <p>For improved clamping of small parts. Vacuum in every compartment is activated through the NC-code</p>	
<p><b>Coolant mist system</b></p> <p>Required for milling non-ferrous metals</p>		<p><b>Special fixtures</b></p> <p>Custom-made vacuum fixtures for improved clamping of small parts (for mass production). Custom-made mechanical fixtures</p>	
<p><b>Pendulum operation</b></p> <p>Allows to load on one side of the table while the machine is milling sheet material on the other side of the table</p>		<p><b>Automatic tool measurement</b></p> <p>For measuring the tool length, and saving this value to the tool library. Optionally also measures tool diameter.</p>	
<p><b>Aggregates</b></p> <p>For horizontal machining</p>		<p><b>Multi-spindle machine</b></p> <p>allows to double, triple,... the number of produced parts.</p>	
<p><b>Special vacuum cups</b></p> <p>For horizontal machining with aggregates</p>		<p><b>C-axis</b></p> <p>To rotate aggregates in all directions</p>	
<p><b>Fully closed safety cabinet</b></p> <p>Protects the operator against projection of a part</p>		<p><b>Bar code scanner</b></p> <p>For automatic selection of the appropriate NC program</p>	