VirtualGrind®Pro / unlimited programming solutions

The GrindSmart®629XS comes standard with Rollomatic’s latest generation of programming software, VirtualGrind®Pro. This powerful and flexible software offers total freedom of design while its user-friendly interface enables programming of standard or specialty tools in only a few clicks using the programming wizard. In addition, you can choose to program directly on the machine or on a networked PC, and all software updates from Rollomatic are free of charge.

A powerful, stable and extremely fast simulator enables generation of 3D images from the programmed tool. With this off-line software, you can visualize the movements of the machine before grinding in order to reduce setup time and enable verification and avoidance of possible collisions while increasing production time.

- Complete software package included as standard
- Free software updates during the entire machine life time
- Reduced setup time with 3D machine animation and collision check
- Integrated 3D simulator
- Programming of tools in only 5 clicks with the Wizard assistant
- Open source program structure for ISO programming possibilities

**GRINDING RANGE**

Ø 0.1 – 16.0 mm (.004” – .63”)

**CONTROL**

- Fanuc 30iMB
- X axis Stroke 300 mm (11.8”)
- Fast travel 12 m/min. (473”/min.)
- Encoder type Absolute linear scale
- Resolution 0.00001 mm (.0000004”)
- Y axis Stroke 220 mm (8.6”)
- Fast travel 12 m/min. (473”/min.)
- Encoder type Absolute linear scale
- Resolution 0.00001 mm (.0000004”)
- Z axis Stroke 180 mm (7”)
- Fast travel 12 m/min. (473”/min.)
- Encoder type Absolute linear scale
- Resolution 0.00001 mm (.0000004”)
- A axis Stroke -195° to 30° (225°)
- Fast rotation 6480°/min.
- Encoder type Rotary glass scale
- Resolution 0.0000125°
- B axis Stroke -75° to 135° (210°), direct drive
- Fast rotation 8640°/min.
- Encoder type Rotary measuring encoder
- Resolution 0.00005°
- C axis Stroke Tool rotation
- Fast rotation 300 r.p.m.
- Encoder type Rotary, on AC motor
- Resolution 0.0001°

**GRINDING MOTOR**

- Power 7 kW (10 HP), direct drive
- Peak Power 11 kW (16 HP)
- Rotation speed 500 – 10000 r.p.m.
- Grinding wheels Up to 8 wheels
- Ø Max. 200 mm (7.9”)

**CLAMPING**

- Clamping system Adapters Schaublin and Nann
- Range 0.5 – 20.0 mm (.02” – .75”)
- Type Pneumatic

**ROBOT LOAD & UNLOAD**

- Number of tools Up to 1000 (3 cassettes)
- Shank diameter 1.0 – 20.0 mm (.04” – .75”)
- Max.overall length 300 mm (12”)
- Speed 65 m/min (2560”/min.)
- Clamping Hydraulic

**TOOL SUPPORTS**

- Shank support «V» clamping, Hydraulic
- Cutting portion support «V» or Half moon

**MACHINE**

- L x W x H 2180 x 1600 x 2167 mm
  (85.8” x 63” x 85.3”)
- Weight 3200 kg  (7040 lbs)
- Total power Maximum 18 kW
  3 x 400V/25A

*Specifications are subject to change without notice*
The GrindSmart®629XS is a 6-axis super-precision tool grinder for the manufacturing of high performance and standard cutting tools which offer high added-value to end users. With a diameter range of Ø 0.1 – 16.0 mm (.004” – 5/8”) this machine model is the ideal choice for grinding superior quality tools. Maximum uptime and unmatched productivity make this 6-axis tool grinder ideal for manufacturing a wide variety of high precision cutting tools with minimum setup time. The GrindSmart®629XS offers maximum productivity as well as an exceptional level of accuracy in comparison with standard 5 axis tool grinders.

The production of high quality tools has always driven the machine design methodology at Rollomatic. In order to offer enhanced precision and superior surface finish quality as well as maximum power – our proven shank guiding systems, linear/rotary scales on machine axes and a direct drive 11kW spindle motor are part of the standard equipment included on the GrindSmart®629XS.

Environmental issues continue to be of great concern and Rollomatic has been working continuously at reducing CO₂ emissions and at optimizing energy efficiency. Through its commitments, our company follows the global initiative agreed upon by Switzerland with the United Nations in regard to the objectives of the Kyoto Protocol. In this respect, the GrindSmart®629XS is manufactured using mainly recyclable materials and has been designed with specific dimensions of the mechanical and electrical components enabling an optimal reduction of energy usage.
with the GrindSmart®629XS universal precision tool grinder

VirtualGrind®Pro / unlimited programming solutions

The GrindSmart®629XS comes standard with Rollomatic’s latest generation of programming software, VirtualGrind®Pro. This powerful and flexible software offers total freedom of design while its user-friendly interface enables programming of standard or specialty tools in only a few clicks using the programming wizard. In addition, you can choose to program directly on the machine or on a networked PC, and all software updates from Rollomatic are free of charge.

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The production of high quality tools has always driven the machine design methodology at Rollomatic. In order to offer enhanced precision, advantages of the 6th axis, compared with previous models in the range, the GrindSmart®629XS is equipped standard with high-accuracy scales on each linear axis as well as on the grinding wheel spindle rotary axis, thus offering optimum precision for both large and small tool dimensions.

1. Above the X axis, the Y axis, the B axis, the C axis, the Z axis and the A axis are the six axes of the machine.
2. The X axis: tool horizontal displacement
3. The Y axis: tool vertical displacement
4. The Z axis: tool horizontal displacement
5. The B axis: workpiece angular inclination
6. The C axis: workpiece angular inclination
7. The A axis: workpiece angular inclination

Advantages of the 6th axis

1. The 6th axis enables inclination of the relieving wheel when grinding the end of the tool without damaging the adjacent tooth. Even more important, this process ensures optimum accuracy of the tool geometry as programmed clearance angles, which makes it easier to grind past center of surface finish, especially on tools with corner radii and ball shape.
2. Angular inclination of the wheels increases the flexibility and freedom of traveling around the grinding wheel and altering the point of contact thereby achieving superior performance features. The 6th axis enables this for both large and small tools.
3. The production of high precision tools with surface finish particularly improves on tools with corner radii and ball shape. Also standard, is a reliable, high-speed robot loader which allows for unattended production of up to 1000 tools. Blank diameters up to 20 mm (3/4") can be loaded automatically in just over 8 seconds. With a machine utilization rate that can reach 99%, the GrindSmart®629XS offers an average productivity output superior to other brands of machines on the market, achieving an average productivity output superior to other brands of machines on the market.

Environmental issues continue to be of great concern and Rollomatic has been working continuously at reducing CO2 emissions and at optimizing energy efficiency. Through its commitments, our company follows the energy efficiency guidelines set by the Kyoto Protocol. In this respect, the main components of electrical components enabling an optimal reduction of energy usage.

The GrindSmart®629XS is truly multi-talented. Clever tool clamping and stick smart system for in-between cycle sticking of grinding wheels are part of the standard equipment included on the GrindSmart®629XS. The GrindSmart®629XS is equipped standard with high-accuracy scales and superior surface finish quality as well as maximum power – our proven shank guiding systems, linear/rotary scales on machine axes and high-performance servo tuning which provides a very high quality and stability during production.

Compared to previous models in the range, the GrindSmart®629XS is an exceptional level of accuracy in a faster time to always keep your GrindSmart®629XS up to date and give you a competitive edge.

Machine Solutions

• Acoustic emission device
• In-process gauging
• Tailstock
• 3D touch probe
• On board grinding wheel dresser
• StickSmart system for in-between cycle sticking of grinding wheels
• CCD camera to locate blanks with micro coolant holes
• High frequency grinding spindle
• Tooling for inserts and replaceable head tips
• Tooling for surgical and dental tool applications
• Replaceable-tip tools, reamers, taps, step tools, surgical tools, dental tools, specialty tools including form tools, indexable and non-indexable inserts, and much more, all with full automation from the integrated tool handling solutions enable you to expand and compete in various market segments. With the same basic machine it is possible to grind

Rollomatic is the world leader in high precision grinding solutions.
Unmatched productivity, reliability and accuracy

The GrindSmart®629XS is equipped standard with high-accuracy scales on each linear axis as well as on the grinding wheel spindle rotary axis, thus offering optimum precision for both large and small tool dimensions. In addition, the machine kinematic has been designed to minimize axis displacements between operations resulting in greater stability and accuracy during production.

Compared to previous models in the range, the GrindSmart®629XS is equipped with a torque motor on the rotary B axis. This technology enables high-performance servo tuning which provides a very high quality of surface finish, especially on tools with corner radii and ball shape.

Also standard, is a reliable, high-speed robot loader which allows for unattended production of up to 1000 tools. Blank diameters up to 20 mm (3/4") can be loaded automatically in just over 8 seconds. With a machine utilization rate that can reach 99%, the GrindSmart®629XS offers an average productivity output superior to other brands of machines on the market, and within very tight tolerances without any human intervention.

Advantages of the 6th axis

For applications like ballnose or corner radii endmills with 3 flutes or more, the 6th axis enables inclination of the relieving wheel when grinding the programmed clearance angles, which makes it easier to grind past center on the end of the tool without damaging the adjacent tooth. Even more important, this process ensures optimum accuracy of the tool geometry as the contact point on the wheel remains constant over the entire path instead of traveling around the grinding wheel and altering the point of contact as with the standard grinding cycle of a 5-axis machine. In addition, the angular inclination of the wheels increases the flexibility and freedom of movements, especially when grinding tools with complex shapes.

Maximum Versatility

The GrindSmart®629XS is truly multi-talented. Clever tool clamping and tool handling solutions enable you to expand and compete in various market segments. With the same basic machine it is possible to grind specialty tools including form tools, indexable and non-indexable inserts, replaceable-tip tools, reamers, taps, step tools, surgical tools, dental tools, and much more, all with full automation from the integrated tool handling robot. Current and future tooling solutions can be easily retrofitted at any time to always keep your GrindSmart®629XS up to date and give you a competitive edge.

- 3D touch probe
- On board grinding wheel dresser
- Tailstock
- StickSmart system for in-between cycle sticking of grinding wheels
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- Acoustic emission device
- Tooling for inserts and replaceable head tips
- Tooling for surgical and dental tool applications
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- Open source program structure for ISO programming possibilities

**Grinding Range**

| Ø 0.1 – 16.0 mm (0.004” – .63”) |

**Control**

<table>
<thead>
<tr>
<th>X axis</th>
<th>Stroke</th>
<th>300 mm (11.8&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fast travel</td>
<td>12 m/min. (473&quot;/min.)</td>
<td></td>
</tr>
<tr>
<td>Encoder type</td>
<td>Absolute linear scale</td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td>0.00001 mm (.0000004&quot;)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Y axis</th>
<th>Stroke</th>
<th>220 mm (8.6&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fast travel</td>
<td>12 m/min. (473&quot;/min.)</td>
<td></td>
</tr>
<tr>
<td>Encoder type</td>
<td>Absolute linear scale</td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td>0.00001 mm (.0000004&quot;)</td>
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</table>

<table>
<thead>
<tr>
<th>Z axis</th>
<th>Stroke</th>
<th>180 mm (7&quot;)</th>
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<tbody>
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<td>Fast travel</td>
<td>12 m/min. (473&quot;/min.)</td>
<td></td>
</tr>
<tr>
<td>Encoder type</td>
<td>Absolute linear scale</td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td>0.00001 mm (.0000004&quot;)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A axis</th>
<th>Stroke</th>
<th>-195° to 30° (225°)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fast rotation</td>
<td>6480°/min.</td>
<td></td>
</tr>
<tr>
<td>Encoder type</td>
<td>Rotary glass scale</td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td>0.0000125°</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B axis</th>
<th>Stroke</th>
<th>-75° to 135° (210°), direct drive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fast rotation</td>
<td>8640°/min.</td>
<td></td>
</tr>
<tr>
<td>Encoder type</td>
<td>Rotary measuring encoder</td>
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</tr>
<tr>
<td>Resolution</td>
<td>0.000005°</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C axis</th>
<th>Tool rotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fast rotation</td>
<td>300 r.p.m.</td>
</tr>
<tr>
<td>Encoder type</td>
<td>Rotary, on AC motor</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.0001°</td>
</tr>
</tbody>
</table>

**Grinding Motor**

<table>
<thead>
<tr>
<th>Power</th>
<th>7 kW (10 HP), direct drive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Power</td>
<td>11 kW (16 HP)</td>
</tr>
<tr>
<td>Rotation speed</td>
<td>500 – 10000 r.p.m.</td>
</tr>
<tr>
<td>Grinding wheels</td>
<td>Up to 8 wheels</td>
</tr>
<tr>
<td>Ø Max.</td>
<td>200 mm (7.9&quot;)</td>
</tr>
</tbody>
</table>

**Clamping**

<table>
<thead>
<tr>
<th>Clamping system</th>
<th>Adaptaters Schaublin and Nann</th>
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</thead>
<tbody>
<tr>
<td>Range</td>
<td>0.5 – 20.0 mm (0.02&quot; – .75&quot;)</td>
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<tr>
<td>Type</td>
<td>Pneumatic</td>
</tr>
</tbody>
</table>

**Robot Load & Unload**

<table>
<thead>
<tr>
<th>Number of tools</th>
<th>Up to 1000 (3 cassettes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shank diameter</td>
<td>1.0 – 20.0 mm (0.04&quot; – .75&quot;)</td>
</tr>
<tr>
<td>Max. overall length</td>
<td>300 mm (12&quot;)</td>
</tr>
<tr>
<td>Speed</td>
<td>65 m/min (2560&quot;/min.)</td>
</tr>
<tr>
<td>Clamping</td>
<td>Hydraulic</td>
</tr>
</tbody>
</table>

**Tool Supports**

<table>
<thead>
<tr>
<th>Shank support</th>
<th>&quot;V&quot; clamping, Hydraulic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting portion support</td>
<td>&quot;V&quot; or Half moon</td>
</tr>
</tbody>
</table>

**Machine**

<table>
<thead>
<tr>
<th>L x W x H</th>
<th>2180 x 1600 x 2167 mm (85.8&quot; x 63&quot; x 85.3&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>3200 kg (7040 lbs)</td>
</tr>
<tr>
<td>Total power</td>
<td>Maximum 18 kW</td>
</tr>
<tr>
<td>Maximum</td>
<td>1800 V/25A</td>
</tr>
</tbody>
</table>

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