Flexible High Tech Solutions for Industry
“Those who look a little harder discover a lot more”
## FLYMILL Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Interpolated axes</th>
<th>&quot;X&quot; Stroke mm</th>
<th>&quot;X&quot; Stroke in</th>
<th>&quot;Y&quot; Stroke mm</th>
<th>&quot;Y&quot; Stroke in</th>
<th>&quot;Z&quot; Stroke mm</th>
<th>&quot;Z&quot; Stroke in</th>
<th>&quot;X&quot; - &quot;Y&quot; Axes rapid feedrate m/min</th>
<th>&quot;X&quot; - &quot;Y&quot; Axes rapid feedrate ipm</th>
<th>&quot;Z&quot; Axis rapid feedrate m/min</th>
<th>&quot;Z&quot; Axis rapid feedrate ipm</th>
<th>&quot;A&quot; Axis rotation</th>
<th>&quot;C&quot; Axis rotation</th>
<th>&quot;A&quot; Axis rapid feedrate rpm</th>
<th>&quot;C&quot; Axis rapid feedrate rpm</th>
<th>Spindle power S6(40%) / S1 kW</th>
<th>Spindle torque S6(40%) / S1 Nm ft-lb</th>
<th>Spindle speed rpm</th>
<th>DIN 69893-1 milling tool taper</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLYMILL 1000</td>
<td></td>
<td>2.000 - 3.000</td>
<td>78.7 - 118</td>
<td>2.500 - 4.000</td>
<td>98.4 - 157.5</td>
<td>1.000</td>
<td>39.4</td>
<td>60</td>
<td>2,360</td>
<td>40</td>
<td>1,575</td>
<td>-105° ÷ +120° ÷ 0° ÷ +135°</td>
<td>continuous</td>
<td>50</td>
<td>100</td>
<td>40/40 or 53/53 or 41/37 or 85/75*</td>
<td>137/100 or 101/73.7 or 66/47 or 480/300*</td>
<td>18.000 or 28.000</td>
<td>HSK-A63</td>
</tr>
<tr>
<td>FLYMILL 1300</td>
<td></td>
<td>2.000 - 3.000</td>
<td>78.7 - 118</td>
<td>2.500 - 4.000</td>
<td>98.4 - 157.5</td>
<td>1.300</td>
<td>51.1</td>
<td>60</td>
<td>2,360</td>
<td>40</td>
<td>1,575</td>
<td>-105° ÷ +120° ÷ 0° ÷ +135°</td>
<td>continuous</td>
<td>50</td>
<td>100</td>
<td>40/40 or 53/53 or 41/37 or 85/75*</td>
<td>137/100 or 101/73.7 or 66/47 or 480/300*</td>
<td>18.000 or 28.000</td>
<td>HSK-A63</td>
</tr>
<tr>
<td>FLYMILL 1600</td>
<td></td>
<td>3.000 - 6.000</td>
<td>118 - 177</td>
<td>4.000</td>
<td>157.5</td>
<td>1.600</td>
<td>63</td>
<td>60</td>
<td>2,360</td>
<td>40</td>
<td>1,575</td>
<td>-105° ÷ +120° ÷ 0° ÷ +135°</td>
<td>continuous</td>
<td>50</td>
<td>100</td>
<td>40/40 or 53/53 or 41/37 or 85/75*</td>
<td>137/100 or 101/73.7 or 66/47 or 480/300*</td>
<td>18.000 or 28.000</td>
<td>HSK-A63</td>
</tr>
<tr>
<td>FLYMILL 2000</td>
<td></td>
<td>4.500 - 6.000</td>
<td>177 - 236.2</td>
<td>3.500</td>
<td>137.8</td>
<td>2.000</td>
<td>78.7</td>
<td>60</td>
<td>2,360</td>
<td>40</td>
<td>1,575</td>
<td>-105° ÷ +120° ÷ 0° ÷ +135°</td>
<td>continuous</td>
<td>50</td>
<td>100</td>
<td>40/40 or 53/53 or 41/37 or 85/75*</td>
<td>137/100 or 101/73.7 or 66/47 or 480/300*</td>
<td>18.000 or 28.000</td>
<td>HSK-A63</td>
</tr>
</tbody>
</table>

* Only HD version

### Diagrams

**"W"**

- "X" stroke
- "Y" stroke

**"L"**

- "X" stroke

**"X" Stroke mm in**
- 2.000 - 3.000 - 4.500 - 6.000 - 8.000
- 78.7 - 118 - 177 - 236.2 - 315

**"Y" Stroke mm in**
- 2.500 - 4.000
- 98.4 - 157.5

**"Z" Stroke mm in**
- 1.000
- 39.4

**"X" - "Y" Axes rapid feedrate m/min**
- 60
- 2,360

**"Z" Axis rapid feedrate m/min**
- 40
- 1,575

**"A" Axis rotation**
- -105° ÷ +120° ÷ 0° ÷ +135°

**"C" Axis rotation**
- continuous

**"A" Axis rapid feedrate rpm**
- 50

**"C" Axis rapid feedrate rpm**
- 100

**Spindle power S6(40%) / S1 kW**
- 40/40
- 53/53
- 41/37
- 85/75*

**Spindle torque S6(40%) / S1 Nm ft-lb**
- 137/100
- 101/73.7
- 66/47
- 480/300*

**Spindle speed rpm**
- 18.000 or 28.000 or 14.000*

**DIN 69893-1 milling tool taper**
- HSK-A63
- HSK-A100*
- HSK-A63
- HSK-A100*
- HSK-A63
A solution to meet all your needs: from carbon fiber to titanium
High-performance and precision machining centre for milling complex three-dimensional workpieces which require accurate machining and 5 continuous axis interpolation. FLYMILL is the ideal solution for any application in the aerospace, automotive, gear and mould sectors since it can machine a variety of materials, from composite to aluminium, steel and titanium.

Wide choice of configurations for customized performances
Various solutions for the best machine configuration to satisfy any need:
- standard version with one work area
- two work areas for pendulum machining
- model with pallet change system or with integrated milling table.

Easy access and clear view
Excellent accessibility and a clear view of the work area thanks to the machine gantry structure with moving bridge and wide frontal/back doors.

High precision, dynamics and flexibility with 5 continuous axis, high-speed machining
In order to always ensure high performances, FLYMILL is provided with heavy-structured shoulders manufactured using the ground-breaking Metalquartz® technology that ensures a very high structural rigidity and vibration damping, which guarantees a better surface finish and a longer service life of the cutting tools.
Three high-performance Direct Drive heads
Electrospindles always offer the best machining performance thanks to the cast-iron fork designed head which offers structural rigidity and efficient vibration damping. FLYMILL can be equipped with the Tornado HD head capable of housing a 75 kW (in S1 duty) spindle with 14,000 rpm in order to perform roughing and finishing operations.

High-Speed, Dynamics and Precision
The carriage and beam travel on well dimensioned, double recirculating roller guides ensuring machining precision and stability. All axes are moved by systems with double preloaded pinion and rack. Maximum precision is achieved thanks to the position detection through optical scales. Axes are controlled by digital drives with latest generation brushless servomotors.

Wide choice of electrospindles
FLYMILL machining centre can be supplied with a wide range of electrospindles depending on the type of machining required. Machining precision is always guaranteed by the spindle thermal stabilizing system and a software designed to compensate natural thermal expansions of the Electrospindle when machining conditions change.

Simple and reliable tool magazines
According to the various models, wheel-type or chain-type tool magazines with fast manipulator to reduce tool changing times are available. Installed outside the work area and therefore free of dirt, these tool magazines ensure the greatest reliability over the time. They can be equipped with an automatic coding system containing tool data and chip reading.
Top-roof bellows and dust extraction
Ideal for machining composite materials and aluminium, FLYMILL can be fitted with an efficient dust extraction system which is installed on the spindle nose and top-roof bellows that enclose the machine thus isolating the work area from the immediate surroundings. Different models of dust extraction and fume intake systems are available to satisfy any specific customers’ needs.

The ideal tool cooling system
Depending on the need of machining, the coolant system can use external or through the spindle coolant with fixed or variable internal pressure (up to 70 bar), or incorporate a spray mist system, or simply use compressed air.

Monitoring and in-process inspections
FLYMILL can be supplied with a laser/touch tool presetter and a radio controlled probe to acquire the size and coordinates of the workpiece and position it more easily.
Breton S.p.A. reserves the right to improve the products specifications and design, even during the execution of contracts. Therefore, every figure supplied, has to be regarded as an indicative and approximate figure.

All right reserved. Any unauthorized reproduction, publication, execution, loan, or other public performance of this catalogue is peremptorily forbidden and may constitute civil responsibility. Trespassers will be prosecuted by law.