Highly productive automatic turning with linear Direct Drives

SPRINT linear Series

SPRINT 20 | 8 linear
SPRINT 42 | 8 linear
SPRINT 42 | 10 linear
SPRINT 32 / 42 linear CLASSIC

www.dmgmori.com
SPRINT linear Series

Fastest cycle times through linear and Direct Drive technology.

The SPRINT linear Series stands for maximum productivity in bar machining of midsize to large batches up to 1.7 in. diameter. This is highlighted by the various stages of expansion with up to 10 axes, linear technology for up to 32.8 ft/s² acceleration and a large number of tool pockets. With the SWISSTYPEkit the SPRINT 20 | 8 linear, the SPRINT 42 | 8 linear and the SPRINT 42 | 10 linear can switch from short to long turning, so that both applications can be covered on one machine.

Short turning

1: Hydraulics – steel sleeve, 75 sec. machining time
2: Electronics – aluminum drive plate, 60 sec. machining time
3: Electronics – aluminum body, 180 sec. machining time

Long turning with SWISSTYPEkit

4: Electrical – steel shaft, 80 sec. machining time
5: Construction machinery – steel bar, 45 sec. machining time
6: Hydraulics – steel piston, 110 sec. machining time
Highlights

- **Linear drive for 1g. acceleration**
  + Linear drive in the X1-axis with 1g. acceleration for highest dynamics and consistent precision
  + SPRINT 42|10 linear with an additional linear drive in the X3-axis

- **Integrated spindle drive with max. 10,000 rpm.**
  + Highest dynamics with Direct Drive technology and direct measuring systems for the main and counter spindle as well as for the turret on the SPRINT 42|10 linear = highest precision

- **0.3 sec. chip-to-chip time**
  + Short downtime with linear drive featuring 1g. acceleration
  + Up to 30 tools and up to 10 driven tools on the SPRINT 20|8 linear
  + Double turret for up to 16 driven tools on the SPRINT 42|10 linear

- **Automatic workpiece unloading**
  + Automatic unloading on the counter spindle including pneumatic ejector and workpiece unloading belt
  + Shaft unloading device for workpieces up to 31.5 in. through the counter spindle (optional)

- **SWISSTYPEkit, short and long turning on one machine**
  + < 15 min. switchover from short to long turning
  + SPRINT 20|8 linear: spindle travel extended from 3.1 to 9.4 in.
  + SPRINT 42|10 linear: spindle travel extended from 4.7 to 12.6 in.
100% production optimized design.

<table>
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<tr>
<th>Machine and technology</th>
<th>Overview</th>
<th>Control technology</th>
<th>Technical data</th>
</tr>
</thead>
</table>

### Applications and parts

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**SPRINT linear Series**

Max. bar passage ø in. | Spindle travel in Z1-axis in. | NC-controlled axes
---|---|---
SPRINT 20 linear ø 0.8 (1.0*) | 3.1 / 9.4 | 8
SPRINT 42/18 linear ø 1.7 | 4.7 / 12.6 | 8
SPRINT 42/10 linear ø 1.7 | 4.7 / 12.6 | 10

**Short turning**

SPRINT 32 linear CLASSIC ø 1.3 (1.4*) | 4.7 | 6 (8*)
SPRINT 42 linear CLASSIC ø 1.7 | 4.7 | 6 (8*)

* Optional

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**SPRINT 2018 linear**

SWISSTYPE-kit

44.1 ft.² footprint including the chip conveyor
1: Vertical or steep steel covers in the work area
2: Automatic workpiece unloading comes standard
3: Up to 22 pockets for driven tools

Highlights

+ **Optimal chip fall** due to vertical or steep covers in the work area; designed for wet, oil and dry machining

+ **2 Y axes come standard and up to 22 pockets for driven tools**; for the machining of complex workpieces

+ **Driven tools on the main and counter spindle with up to 7.4 hp. and 21.4 ft./lbs.** – for the best cutting performance

+ **6-sided complete machining** of bars in two setups on the main and counter spindle through synchronous transfer without speed reduction

+ **Automatic workpiece unloading and chip conveyor come standard** – complete solution for your production
SPRINT linear Series

Highest stability and consistent precision – highly dynamic drives in all axes for short machining times and minimal downtime.

Highly stable machine design*

- **Highest stability**
  Constant rigidity through robust and widely-spaced ball bearing guides (main and counter spindle: X1 / X2: 14.8 / 17.7 in.)

- **Optimal chip fall**
  Steep covers and free downward chip fall – no thermal effects

- **Thermal stability**
  Thermally stable cast iron base in a flatbed design

- **Maximum precision**
  Direct measuring systems for the main and counter spindle, including for the turret on the SPRINT 42|10 linear

- **Highest consistent precision**
  Linear drive in the X1-axis with 1 g. acceleration for highest dynamics and consistent precision; SPRINT 42|10 linear with an additional linear drive in the X3-axis

* Note: performance may vary on CLASSIC machines
Linear drive – minimal maintenance costs, maximum precision and productivity

+ **60-month warranty**
on the linear drives

+ **Highest consistent precision,**
  hardly any wearing parts

+ **Fastest acceleration,**
  no mechanical transmission elements

+ **Lower service costs,**
  less maintenance

+ **Less maintenance,**
  fewer wearing parts

+ **Lower production costs,**
  through less maintenance

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1: *0.65 sec. spindle acceleration* for the main and counter spindle from 0 to 5,000 rpm., 10,000 rpm. max. speed on the SPRINT 20 linear

2: Up to *0.3 sec. chip-to-chip time* due to fast linear gang tool slides, or turret with Direct Drive on the SPRINT 42 | 10 linear

3: Up to *6,800 rpm. driven tools*, up to 21.4 ft./lbs. torque and 7.4 hp. (40% DC)

4: *0.5 to 1 g. acceleration* and 1,574.8 ipm. rapid traverse for highest dynamics and fastest positioning through the linear drive in the X1-axis; additional linear drive in the X3-axis on the SPRINT 42 | 10 linear
### Applications and parts

**Machine and technology**
- SWISSTYPE kit

**Control technology**

**Technical data**

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**Short turning**

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**Long turning with SWISSTYPE kit**
SPRINT linear Series

SWISSTYPEkit: < 15 min. switchover from short to long turning.

Highlights

+ Highest flexibility through short and long turning on one machine
+ Vibration-free machining with driven guide bush and spindle synchronization
+ Easy retooling: assembly of the guide bush and control adjustments via menu navigation
+ SPRINT 20|8 linear: 9.4 in. spindle travel instead of 3.1 in.
+ SPRINT 42|8 and 42|10 linear: 12.6 in. spindle travel instead of 4.7 in.

Short turning

1: Automotive – connector, ø 1.0 × 2.2 in., 120 sec. machining time
2: Fluid / Hydraulic – nozzle, ø 1.7 × 2.8, 150 sec. machining time

Long turning with SWISSTYPEkit

3: Automotive – torsion bar spring, ø 0.5 × 5.5 in., 40 sec. machining time
4: Engineering – shaft, ø 1.4 × 6.3 in., 150 sec. machining time
SPRINT linear Series

Practical tool solutions – Polygon turning to thread whirling.

Special tools

+ Polygon turning through synchronization between the main and counter spindle and a polygonal rotary disk that comes standard

+ High-frequency unit with up to 80,000 rpm., e.g. for milling a Torx profile in screw heads, drilling of micro-holes or whirling of internal threads

+ Patented unit for external thread whirling with Direct Drive
  • Machining of up to 0.6 in. diameters, adjustable angle ±15°
  • Cooled Direct Drive motor with 5.9 ft./lbs. of torque and 2.7 hp. (10% DC), speed range of 1,500 to 4,000 rpm.

1: Medical – bone screw made of titanium, 40 sec. machining for the T15 Torx profile
2: High-frequency unit for milling with up to 80,000 rpm.
3: Medical – bone screw made of titanium, 140 sec. machining time for thread whirling (ø 0.2 x 1.8 in.), 280 sec. total machining time
4: Thread whirling unit with Direct Drive for the shortest machining time
5: Hydraulics – connector, ø 1.0 x 2.2 in., 75 sec. machining time incl. polygonal turned hexagonal profile
6: Polygon turning tool with 3 cutting edges for a hexagonal profile

Work area of the SPRINT 2018 linear with 80,000 rpm. high-frequency unit and special tools for thread whirling.
SPRINT 20|8 linear and SPRINT 42|8 linear

Up to three linear gang tool slides for up to 30 tools.

+ **Linear drive in X1** with 1 g. acceleration for highest dynamics and consistent precision
+ **6 + 2 axes**, two Y axes come standard
+ **Up to 2 tools can be used simultaneously**
+ **Automatic unloading** for workpieces up to 6.7 in. comes standard (4.7 in. on the SPRINT 20|8 linear)
+ **0.3 sec. chip-to-chip time** with a linear drive featuring 1 g. acceleration for short downtimes
+ **Energy efficiency**: automatic machine shut-off

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**SPRINT 20|8 linear Highlights**

+ **Integrated spindle drives** with up to 10,000 rpm. for the main and counter spindle
+ **Bar machining up to ø 1.0 in.** (standard = 0.8 in.)
+ **2 gang tool slides for up to 30 tools:**
  5 driven tools for the main spindle (slide 1)
  5 driven tools (optional) for the counter spindle (slide 2)
+ **SWISSTYPEkit** for short and long turning on one machine, spindle travel extended from 3.1 to 9.4 in.

* with SWISSTYPEkit

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**Applications and parts**
**Machine and technology**
- Highlights
**Control technology**
**Technical data**

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**Work area of the SPRINT 20|8 linear**
with 2 gang tool slides for up to 30 tools.
SPRINT 42 | 8 linear Highlights

+ **Integrated spindle drives** with 6,500 rpm. for the main and counter spindle

+ **Bar machining up to ø 1.7 in.**

+ Up to **3 gang tool slides for up to 26 tools**:
  4 driven tools for the main spindle (slide 1)
  4 driven tools for the counter spindle (slide 2)
  2 driven tools (optional) for machining on the main spindle

+ **SWISSTYPEkit** for short and long turning on one machine, spindle travel lengthened from 4.7 to 12.6 in.

* with SWISSTYPEkit

Work area of the SPRINT 42 | 8 linear with 3 gang tool slides for up to 26 tools.

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X1 = 2.0 in.
Y1 = 13.8 in.
Z1 = 4.7 in. / 12.6 in.**
Y2 = 11.8 in.
X2 = 12.2 in.
Z2 = 13.8 in.
Two linear drives and up to 38 driven tools.

- Linear drive in X1 and X3 with 1 g. acceleration for highest dynamics and consistent precision
- 8 + 2 axes, two Y axes come standard
- Integrated spindle drives with 6,500 rpm. for the main and counter spindle
- Bar machining up to ø 1.7 in.
- 2 linear gang tool slides for up to 14 tools,
  4 driven tools for the main spindle
  2 driven tools (optional) for the counter spindle
- Double turret with 16 pockets for driven tools, up to 32 tools
  with double tools possible (turret driven with torque drive)
- Up to 3 tools can be used simultaneously for quick cycle times
- Automatic unloading for workpieces up to 6.7 in. comes standard
- Energy efficiency: automatic machine shut-off
- SWISSTYPEkit for short and long turning on one machine,
  spindle travel extended from 4.7 to 12.6 in.
Work area of the SPRINT 42 linear with 2 linear gang tool slides and double turret for up to 46 tools.

* with SWISSTYPEkit

X1 = 2.0 in.

Y1 = 13.8 in.

Z1 = 4.7 in. / 12.6 in.

Z2 = 12.6 in.

Z3 = 5.9 in.

X2 = 12.2 in.
SPRINT 32 | 42 linear CLASSIC

With up to 8 driven NC axes.

+ **Linear drive in X1** with 1 g. acceleration for highest dynamics and consistent precision
+ **6 + 2* axes**, two Y axes come standard
+ **3 gang tool slides for up to 26 tools**:  
  - 4 driven tools for the main spindle (slide 1)  
  - 4 driven tools for the counter spindle (slide 2)  
  - 3 driven tools (optional) for machining on the main spindle (slides X2/Z2)
+ **Automatic workpiece unloading** for workpieces up to 4.7 in. comes standard  
  * Optional

Design

**SPRINT linear CLASSIC**

- **Constant rigidity**  
  with the highly stable machine bed in the monoBLOCK® design
- **Optimal chip fall**  
  through steep covers and free chip fall directly downward – no thermal effects
- **Highest precision**  
  via the direct measuring system in the X1 axis with a linear drive
- **Highest dynamics**  
  through the linear drive in the X1 axis with 1 g. acceleration for highest dynamics and consistent precision
SPRINT 32 linear CLASSIC

+ **Spindle drives** with up to 8,000 rpm. for the main and counter spindle
+ **Bar machining up to ø 1.4" (1.3) in.**

SPRINT 42 linear CLASSIC

+ **Spindle drives** with 6,500 rpm. for the main and counter spindle
+ **Bar machining up to ø 1.7 in.**

Work area of the SPRINT 42 linear with 3 linear gang tool slides for up to 26 tools.
**SPRINT linear Series**

Main drives with Direct Drive technology for best cutting performance.

### Performance turning 9SMnPb28

<table>
<thead>
<tr>
<th>Speed</th>
<th>Main spindle (rpm)</th>
<th>6,300 (8,000)</th>
<th>Counter spindle (rpm)</th>
<th>6,300 (8,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar diameter</td>
<td>0.8</td>
<td>1.7</td>
<td>1.7</td>
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</tr>
<tr>
<td>Metal removal rate</td>
<td>7.0</td>
<td>11.6</td>
<td>8.5</td>
<td></td>
</tr>
<tr>
<td>Cutting depth</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>Feed rate</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
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</tr>
<tr>
<td>Spindle speed</td>
<td>2,800</td>
<td>1,600</td>
<td>1,800</td>
<td></td>
</tr>
<tr>
<td>Metal removal rate</td>
<td>4.0</td>
<td>7.0</td>
<td>7.3</td>
<td></td>
</tr>
<tr>
<td>Cutting depth (radial)</td>
<td>0.2</td>
<td>0.3</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>Feed rate</td>
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<td>0.004</td>
<td>0.004</td>
<td></td>
</tr>
<tr>
<td>Spindle speed</td>
<td>2,500</td>
<td>1,600</td>
<td>1,800</td>
<td></td>
</tr>
<tr>
<td>ø U drill</td>
<td>0.6</td>
<td>1.3</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Feed rate</td>
<td>0.003</td>
<td>0.004</td>
<td>0.004</td>
<td></td>
</tr>
</tbody>
</table>
**SPRINT linear Series**

**Performance diagrams**

<table>
<thead>
<tr>
<th>Speed (rpm.)</th>
<th>Main- / counter spindle</th>
<th>Main spindle</th>
<th>Counter spindle</th>
<th>Counter spindle</th>
<th>Counter spindle</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,000</td>
<td>6,500</td>
<td>6,500</td>
<td>8,000</td>
<td>8,000</td>
<td></td>
</tr>
<tr>
<td>6,500</td>
<td>6,500</td>
<td>8,000</td>
<td>8,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Power (30 min / 100 % DC) (hp.)</th>
<th>7.4 / 5.0</th>
<th>10.1 / 7.4</th>
<th>7.4 / 5.0</th>
<th>10.1 / 7.4</th>
<th>7.4 / 5.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torque (30 min / 100 %) (ft./lbs.)</td>
<td>10.3 / 6.9</td>
<td>37.8 / 27.7</td>
<td>21.5 / 14.5</td>
<td>24.0 / 17.6</td>
<td>21.5 / 14.5</td>
</tr>
<tr>
<td>Acceleration (sec. (rpm.))</td>
<td>0.6 (5,000)</td>
<td>0.4 (3,250)</td>
<td>0.3 (3,250)</td>
<td>0.6 (4,000)</td>
<td>0.4 (4,000)</td>
</tr>
<tr>
<td>Max. turning diameter (in.)</td>
<td>0.8 (1.0)*</td>
<td>1.7</td>
<td>1.5</td>
<td>1.3 (1.4)*</td>
<td>1.3</td>
</tr>
</tbody>
</table>

* Optional

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**SPRINT 2018 linear**

10,000 rpm. // Main / Counter spindle

**SPRINT 32 linear CLASSIC**

8,000 rpm. // Main spindle

**SPRINT linear 42 | 8, 42 | 10, 42 CLASSIC**

6,500 rpm. // Main spindle

**SPRINT linear 42 | 8, 42 | 10, 32 | 42 CLASSIC**

6,500 (8,000) rpm. // Counter spindle
SPRINT linear Series

Up to 38 driven tools – up to 6,800 rpm., or 21.4 ft./lbs. torque.

SPRINT 2018 linear

6,000 rpm., 1.7 hp., 2.1 ft./lbs.

SPRINT linear 42|8, 42|10

6,800 rpm., 6.2 hp., 4.8 ft./lbs.

SPRINT linear 42|8, 32 / 42 CLASSIC

6,500 rpm., 7.4 hp., 21.5 ft./lbs.

SPRINT 42|10 linear

6,000 rpm., 1.5 hp., 2.6 ft./lbs.
<table>
<thead>
<tr>
<th>Type</th>
<th>Gang tool slide 1</th>
<th>Gang tool slide 2</th>
<th>Gang tool slide 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SPRINT linear 2018</strong></td>
<td>2 × 6,000 rpm. 1.7 hp. // 2.1 ft./lbs.</td>
<td>2 × 6,800 rpm. 6.2 hp. // 4.8 ft./lbs.</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>3 × 3,450 rpm. 1.7 hp. // 3.7 ft./lbs.</td>
<td>2 × 4,550 rpm. 6.2 hp. // 7.2 ft./lbs.</td>
<td>(16-pocket turret) 16 × 5,000 rpm. 2.9 hp. // 5.2 ft./lbs. (double tools possible)</td>
</tr>
<tr>
<td><strong>SPRINT linear 4218</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 × 6,000 rpm. 1.7 hp. // 2.1 ft./lbs.</td>
<td>2 × 6,000 rpm. 1.5 hp. // 3.2 ft./lbs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 × 3,450 rpm. 1.7 hp. // 3.7 ft./lbs.</td>
<td>2 × 5,000 rpm. 1.5 hp. // 4.9 ft./lbs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SPRINT linear 4210</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 × 6,000 rpm. 1.7 hp. // 2.1 ft./lbs.</td>
<td>2 × 5,000 rpm. 1.5 hp. // 3.2 ft./lbs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 × 3,450 rpm. 1.7 hp. // 3.7 ft./lbs.</td>
<td>2 × 3,300 rpm. 1.5 hp. // 4.9 ft./lbs.</td>
<td></td>
</tr>
<tr>
<td><strong>SPRINT linear 32 / 42 CLASSIC</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 × 2,500 rpm. 1.5 hp. // 3.2 ft./lbs.</td>
<td>2 × 5,000 rpm. 1.5 hp. // 3.2 ft./lbs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 × 3,300 rpm. 1.5 hp. // 4.9 ft./lbs.</td>
<td>2 × 3,300 rpm. 1.5 hp. // 4.9 ft./lbs.</td>
<td></td>
</tr>
</tbody>
</table>

* Optional

SPRINT 42 linear
5,000 rpm., 2.9 hp., 5.2 ft./lbs.

SPRINT linear 32 / 42 CLASSIC
5,000 / 3,300 rpm., 1.5 hp., 3.2 ft./lbs.
## SPRINT linear Series

Technology expertise

**SPRINT linear – short turning.**

<table>
<thead>
<tr>
<th>1: Disc // SPRINT 2018 linear</th>
<th>Industry / Material</th>
<th>Machine construction / CK45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar diameter</td>
<td>1.0 in. (h11)</td>
<td></td>
</tr>
<tr>
<td>Workpiece dimensions</td>
<td>ø 0.9 x 2.0 in.</td>
<td></td>
</tr>
<tr>
<td>Machining time</td>
<td>85 sec.</td>
<td></td>
</tr>
<tr>
<td>Highlight</td>
<td>Heavy machining on the main spindle</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2: Connector // SPRINT 42/8 linear</th>
<th>Industry / Material</th>
<th>Electrical / aluminum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar diameter</td>
<td>1.1 in. (h11)</td>
<td></td>
</tr>
<tr>
<td>Workpiece dimensions</td>
<td>ø 1.1 x 2.6 in.</td>
<td></td>
</tr>
<tr>
<td>Machining time</td>
<td>75 sec.</td>
<td></td>
</tr>
<tr>
<td>Highlight</td>
<td>Polygon turning on the counter spindle</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3: Distributor body // SPRINT 42/8 linear</th>
<th>Industry / Material</th>
<th>Fittings / brass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar diameter</td>
<td>1.7 in. (h11)</td>
<td>ø 1.6 x 2.6 in.</td>
</tr>
<tr>
<td>Workpiece dimensions</td>
<td></td>
<td>210 sec.</td>
</tr>
<tr>
<td>Machining time</td>
<td></td>
<td>Heavy machining with driven tools</td>
</tr>
<tr>
<td>Highlight</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4: Clamping part // SPRINT 42/10 linear</th>
<th>Industry / Material</th>
<th>Hydraulics / 16MnCr5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar diameter</td>
<td>1.2 in. (h11)</td>
<td>0.6 x 1.0 x 1.4 in.</td>
</tr>
<tr>
<td>Workpiece dimensions</td>
<td></td>
<td>110 sec.</td>
</tr>
<tr>
<td>Machining time</td>
<td></td>
<td>Parallel machining with 2 Y-axes</td>
</tr>
<tr>
<td>Highlight</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5: Shaft with teeth // SPRINT 42/10 linear</th>
<th>Industry / Material</th>
<th>Hydraulics / CK45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar diameter</td>
<td>1.4 in. (h11)</td>
<td>ø 1.3 x 5.5 in.</td>
</tr>
<tr>
<td>Workpiece dimensions</td>
<td></td>
<td>170 sec.</td>
</tr>
<tr>
<td>Machining time</td>
<td></td>
<td>Gear hobbing</td>
</tr>
<tr>
<td>Highlight</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6: Distributor // SPRINT 42/10 linear</th>
<th>Industry / Material</th>
<th>Hydraulics / CK45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar diameter</td>
<td>1.5 in. (h11)</td>
<td>ø 1.5 x 3.0 in.</td>
</tr>
<tr>
<td>Workpiece dimensions</td>
<td></td>
<td>120 sec.</td>
</tr>
<tr>
<td>Machining time</td>
<td></td>
<td>Parallel machining with 2 Y-axes on the main spindle</td>
</tr>
<tr>
<td>Highlight</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# SPRINT linear Series

## Technology expertise

**SPRINT linear – long turning.**

<table>
<thead>
<tr>
<th></th>
<th>Industry / Material</th>
<th>Bar diameter</th>
<th>Workpiece dimensions</th>
<th>Machining time</th>
<th>Highlight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Screw // SPRINT 2018 linear</td>
<td>Medical technology / titanium</td>
<td>0.4 in. (h9)</td>
<td>ø 0.4 x 2.6 in.</td>
<td>210 sec.</td>
</tr>
<tr>
<td>2</td>
<td>Axis // SPRINT 2018 linear</td>
<td>Hydraulics / CK45</td>
<td>0.6 in. (h9)</td>
<td>ø 0.6 x 4.5 in.</td>
<td>250 sec.</td>
</tr>
<tr>
<td>3</td>
<td>Control piston // SPRINT 2018 linear</td>
<td>Hydraulics / 16MnCr5</td>
<td>0.6 in. (h9)</td>
<td>ø 0.6 x 7.1 in.</td>
<td>120 sec.</td>
</tr>
<tr>
<td>4</td>
<td>Carrier // SPRINT 4218 linear</td>
<td>Machine construction / AlSi 304</td>
<td>0.8 in. (h9)</td>
<td>ø 0.7 x 4.9 in.</td>
<td>210 sec.</td>
</tr>
<tr>
<td>5</td>
<td>Spindle // SPRINT 4210 linear</td>
<td>Machine tools / ETG100</td>
<td>0.6 in. (h9)</td>
<td>ø 0.6 x 8.9 in.</td>
<td>65 sec.</td>
</tr>
<tr>
<td>6</td>
<td>Spindle // SPRINT 4210 linear</td>
<td>Machine construction / CK45</td>
<td>1.6 in. (h11)</td>
<td>ø 1.5 x 7.9 in.</td>
<td>280 sec.</td>
</tr>
</tbody>
</table>
SPRINT linear Series

DMG SLIMline®
control panel with Fanuc 310i.

Highlights

+ 8 controlled NC axes with 2 channels, or 10 NC axes with 3 channels on the SPRINT 42110 linear
+ 15" screen with status icons and softkey menu
+ ASCII keyboard and mouse
+ Ethernet interface
+ USB interface
+ Tool wear monitoring system (Tool Monitor) for FANUC*
+ Software for managing sister tools*

* Optional
Up to 30% energy savings – energy efficiency of DMG machines.

Efficient – Optimal construction
+ Optimal drive configuration
+ Regenerative drives
+ Regulated units*
+ Minimized friction

Efficient – Intelligent control
+ Process optimization
+ DMG AUTOfire

Energy Saving
Intelligent technology saves you up to 30% in energy costs over the life of your DMG machine tool.

DMG AUTOfire:
Intelligent standby control to avoid unnecessary energy consumption during idle times.
SPRINT linear Series

Work areas

**SPRINT 20\|8 linear** // 44.1 ft.² footprint including chip conveyor
Front view with bar loader

**SPRINT linear 42\|8, 42\|10** // 76.4 ft.² footprint including chip conveyor
Front view with bar loader

**SPRINT linear 32 / 42 CLASSIC** // 95.8 ft.² footprint including chip conveyor
Front view with bar loader
## Technical data

<table>
<thead>
<tr>
<th></th>
<th>SPRINT linear 2018</th>
<th>SPRINT linear 4218</th>
<th>SPRINT linear 42110</th>
<th>SPRINT linear 32 / 42 CLASSIC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of axes</strong></td>
<td>6 + 2</td>
<td>6 + 2</td>
<td>8 + 2</td>
<td>6 + 2*</td>
</tr>
<tr>
<td><strong>Main spindle</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z1 travel (spindle stroke)</td>
<td>3.1 / 9.4**</td>
<td>4.7 / 12.6**</td>
<td>4.7 / 12.6**</td>
<td>4.7</td>
</tr>
<tr>
<td>Max. bar passage</td>
<td>in. 0.8 (1.0°)</td>
<td>1.7</td>
<td>1.7</td>
<td>1.3 (1.4°) // 1.7</td>
</tr>
<tr>
<td>Drive as an integrated spindle motor (ISM)</td>
<td>C-axis (0.001°)*</td>
<td>C-axis (0.001°)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td>rpm. 10,000</td>
<td>6,500</td>
<td>6,500</td>
<td>8,000 // 6,500</td>
</tr>
<tr>
<td>Drive power (S2 30 min / 100 % DC)</td>
<td>hp. 7.4 / 5.0</td>
<td>10.1 / 7.4</td>
<td>10.1 / 7.4</td>
<td>10.1 / 7.4</td>
</tr>
<tr>
<td>Torque (S2 30 min / 100 % DC)</td>
<td>ft./lbs. 10.3 / 6.9</td>
<td>51.2 / 37.5</td>
<td>37.8 / 27.7</td>
<td>24.0 / 17.6 // 37.8 / 27.7</td>
</tr>
<tr>
<td>Acceleration</td>
<td>rpm. / sec. 5,000 / 0.6</td>
<td>3,250 / 0.4</td>
<td>3,250 / 0.4</td>
<td>3,250 / 0.4</td>
</tr>
<tr>
<td><strong>Counter spindle</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. bar passage</td>
<td>in. 0.8 (1.0°)</td>
<td>1.5</td>
<td>1.5</td>
<td>1.3 // 1.5</td>
</tr>
<tr>
<td>Drive as an integrated spindle motor (ISM)</td>
<td>C-axis (0.001°)*</td>
<td>C-axis (0.001°)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td>rpm. 10,000</td>
<td>6,500</td>
<td>6,500</td>
<td>8,000 // 6,500</td>
</tr>
<tr>
<td>Drive power (S2 30 min / 100 % DC)</td>
<td>hp. 7.4 / 5.0</td>
<td>7.4 / 10.1</td>
<td>7.4 / 10.1</td>
<td>7.4 / 5.0</td>
</tr>
<tr>
<td>Torque (S2 30 min / 100 % DC)</td>
<td>ft./lbs. 10.3 / 6.9</td>
<td>21.5 / 14.5</td>
<td>1.5 / 14.5</td>
<td>1.5 / 14.5</td>
</tr>
<tr>
<td>Acceleration</td>
<td>rpm. / sec. 5,000 / 0.6</td>
<td>3,250 / 0.3</td>
<td>3,250 / 0.3</td>
<td>3,250 / 0.3</td>
</tr>
<tr>
<td><strong>Work area / Travels</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rapid traverse speed of the linear axes</td>
<td>ipm. 1,574.8 (Y1 = 1,181.1)</td>
<td>1,574.8</td>
<td>1,574.8 (Y1 = 1,181.1)</td>
<td>1,181.1 (X2 = 708.7)</td>
</tr>
<tr>
<td>Acceleration of the linear axes (linear / conventional)</td>
<td>ft./s² 32.8 / 16.4</td>
<td>32.8 / 16.4</td>
<td>32.8 / 16.4</td>
<td>32.8 / 16.4</td>
</tr>
<tr>
<td><strong>Gang tool slide 1</strong></td>
<td>X1 (linear) / Y1 travel</td>
<td>in. 2.0 / 13.8</td>
<td>2.0 / 13.8</td>
<td>32.8 / 16.4</td>
</tr>
<tr>
<td><strong>Gang tool slide 2</strong></td>
<td>Y2 travel</td>
<td>in. 4.7</td>
<td>11.8</td>
<td>fix</td>
</tr>
<tr>
<td><strong>Counter spindle</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X2 / Z2 travel</td>
<td>in. 9.4 / 11.8</td>
<td>12.2 / 13.8</td>
<td>12.2 / 12.6</td>
<td>10.4 / 12.6</td>
</tr>
<tr>
<td><strong>Turret tool carrier</strong></td>
<td>X3 (linear) / Y3 / Z3 travel</td>
<td>in. –</td>
<td>–</td>
<td>3.1 / 2.4 (± 1.2) / 5.9</td>
</tr>
<tr>
<td><strong>Tool carrier / Tool holder Gang tool slide 1</strong></td>
<td>Fixed turning tools / Front tools</td>
<td>6 / 6</td>
<td>6 / –</td>
<td>6 / –</td>
</tr>
<tr>
<td>Driven tools</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Maximum speed</td>
<td>rpm. 6,000</td>
<td>6,800</td>
<td>6,800</td>
<td>5,000</td>
</tr>
<tr>
<td>Maximum power / Torque (40 % DC)</td>
<td>hp. // ft./lbs. 1.7 / 3.7</td>
<td>6.2 / 7.2</td>
<td>1.5 / 2.6</td>
<td>1.1 / 6.6</td>
</tr>
<tr>
<td><strong>Tool carrier / Tool holder Gang tool slide 2</strong></td>
<td>Fixed turning tools / Front tools</td>
<td>4 / 4</td>
<td>4 / 6</td>
<td>1 / 3</td>
</tr>
<tr>
<td>Driven tools</td>
<td>5*</td>
<td>4</td>
<td>4</td>
<td>4***</td>
</tr>
<tr>
<td>Maximum speed</td>
<td>rpm. 6,000</td>
<td>6,800</td>
<td>6,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Maximum power / Torque (40 % DC)</td>
<td>hp. // ft./lbs. 1.7 / 3.7</td>
<td>6.2 / 7.2</td>
<td>6.2 / 7.2</td>
<td>1.5 / 4.9</td>
</tr>
<tr>
<td><strong>Tool carrier / Tool holder Gang tool slide 3 (on the counter spindle)</strong></td>
<td>Standard: fixed front tools</td>
<td>–</td>
<td>–</td>
<td>3</td>
</tr>
<tr>
<td>Alternative* fixed / driven front tools</td>
<td>–</td>
<td>1 / 2</td>
<td>–</td>
<td>2 / 3</td>
</tr>
<tr>
<td>Maximum speed</td>
<td>rpm. 6,500</td>
<td>6,000</td>
<td>6,500</td>
<td>6,500</td>
</tr>
<tr>
<td>Maximum power / Torque (30 min / 40 % DC)</td>
<td>hp. // ft./lbs. –</td>
<td>7.4 / 21.5</td>
<td>–</td>
<td>7.4 / 21.5</td>
</tr>
<tr>
<td><strong>Tool holder turret</strong></td>
<td>Tool pockets / for driven tools</td>
<td>–</td>
<td>–</td>
<td>16 (2 x 8) / 16</td>
</tr>
<tr>
<td>Maximum speed</td>
<td>rpm. 5,000</td>
<td>–</td>
<td>–</td>
<td>5,000</td>
</tr>
<tr>
<td>Maximum power / Torque (40 % DC)</td>
<td>hp. // ft./lbs. –</td>
<td>2.9 / 5.2</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

* Optional, ** Optional with SWISSTYPE kit, *** Standard on machines with C-axes
### Control

**DMG SLIMline® featuring a 15” screen and Fanuc 310i**

- Number of spindles (C-axes): 2
- Number of linear axes: 6
- Number of channels: 2

* Optional

### Options

#### Tools

5 driven tools on gang tool slide 2, incl. 5 spindles with collet chuck

| SPRINT linear 2018 | SPRINT linear 42|8 | SPRINT linear 42|10 | SPRINT linear 32 / 42 CLASSIC |
|-------------------|-----------------|-----------------|-----------------|-----------------------------|
| Machine footprint incl. chip conveyor (ft.²) | 44.7 | 76.0 | 76.0 | 95.6 |
| Chip conveyor discharge height (in.) | 15.0 | 23.6 | 23.6 | 45.5 |
| Machine height (in.) | 72.0 | 77.9 | 77.9 | 76.1 |
| Machine weight (lbs.) | 9,920.8 | 14,550.5 | 15,211.9 | 12,125.4 |

Bar machining

- **SWISSTYPEkit** – conversion kit from short turning to long turning, incl. guide bush with spindle synchronization
- Bar machining up to ø 1.0 in., hexagons up to max. 0.8 in., squares up to max. 0.7 in.
- Bar loading magazine for max. bar lengths of 10.5 to 14.4 ft.
- Spindle liner for the main spindle
- Shaft unloading device through the counter spindle: up to 23.6 or 31.5 in. workpiece lengths
- Shaft unloading device: spindle liner for counter spindle

Coolant and chip disposal

- Hinged chip conveyor, chip ejection height: 33.5 in. (not compatible with shaft unloading device)
- Rinsing of the counter spindle chuck with coolant
- 290.1 psi. internal coolant system for oil and emulsion, 158.5 gal., 0.002 in. filtration, cooling unit
- Oil mist extraction device

#### Control

- Tool wear monitoring
- Sister tool management system
- DMG Netservice // DMG Service Agent

#### Also available

- Machine adaptation for high environmental temperatures up to 122° F (tropical package)

* Optional, – Not available
Parallel machining with up to three tools for maximum productivity.