Servo-Torq® Mini in-line rotary cutter
Compact in-line rotary cutter & Accra-Feed™ caterpillar infeeder/puller belt

The Servo-Torq® Mini in-line combines advanced AC servo rotary cutting and pulling with a very compact design. It is ideal for users looking for a compact, high accuracy, in-line extrusion cutting system.

The main benefits to the user are:
- Lenze AC servo control for better cut length accuracy & speed.
- A faster blade speed for an improved cut quality.
- Full colour 6” touch-screen panel with easy-to-use screens.
- High cut rates possible; up to 2,000 pieces per minute.
- Slide-away cutter makes in-line start-up much easier. Floor base as standard.
- Very compact design; ideal for medical clean-room use.

Mode of Operation
Servo-Torq® Mini in-line rotary cutter and caterpillar infeeder

The Servo-Torq® Mini uses a rotary ‘flying knife’ method to cut through the extrudate. The ultra-thin knife blade is rotated at high speed through 360°. During part of this rotation the blade slices through the extrudate. Inlet & outlet bushes guide the blade & the extrudate during the cutting operation.

The signal to activate the cut comes from the integral length counter. This is linked to the encoder which measures the amount of extrudate that passes through the caterpillar belts.

When the encoder pulse input equals the pre-set cut length, the cut is activated. On receipt of the signal to cut, the servo motor accelerates from rest to full speed. When the blade hits the material it is travelling at approx. 2000 RPM.

The ability of the blade to cut through the extrudate is assisted by the way the servo motor can apply three times it’s rated torque for the fraction of a second it takes to cut through the material. After the cut has been completed, the knife blade decelerates to a stop and awaits the next cut signal.

The integral Accra-Feed™ twin belt caterpillar infeeder/puller is also driven by a servo motor. The motor power is transmitted to the poly-vee belts via two spiral-bevel gearboxes. These are in constant mesh, thus avoiding back-lash problems.

Both belts move simultaneously around the centre-line of the product. A single hand-wheel controls this movement. Inlet guide rollers are provided to direct the extrudate onto the belts at the correct point. The belts themselves are coated in heavy-duty micro-cellular polyurethane.

Servo-Torq® Mini In-line Cutter System

<table>
<thead>
<tr>
<th>Capacity (mm)</th>
<th>Motor size (Nm)</th>
<th>Drive rating (Amp)</th>
<th>Maximum speeds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Servo-Torq® Rotary cutter Model ST-M/30A - SB</td>
<td>30 max. outer diameter 3.1</td>
<td>7</td>
<td>350 - 2000 cuts/minute*</td>
</tr>
<tr>
<td>Accra-Feed™ Caterpillar infeeder Model 2000AS</td>
<td>50 wide x 250 long belts 1.5</td>
<td>3</td>
<td>70 m/min** linespeed</td>
</tr>
</tbody>
</table>

* Figures quoted refer to maximum on-demand & SpeedCut™ cutting with one blade fitted.
** Maximum selectable linespeed. Other maximum linespeeds are 11, 18, 27, 36, 44 or 55 m/min.
## Servo-Torq® Mini in-line rotary cutter

### Mechanical specification
- Floor-standing base with swivel castors & floor locks.
- Right-to-left product feed. Left-to-right not available.
- Cast aluminium cutter block with stainless steel clam-shell cutter lid.
- Heavy-duty knife shaft assembly with aluminium blade holder fitted with hardened steel pins.
- Slide-away cutter head designed for in-line cutting.
- Twin poly-vee caterpillar belts covered in heavy-duty foam micro-cellular polyurethane.
- Adjustment of both belts around the centre-line.
- Robust fabricated steel base frame fitted with an integral lockable cupboard for storing spare knife blades & cutter guide bushes.

### Physical specification
- Approx. 825 mm long x 600 mm wide x 1660 mm high (1000 mm line height - without options fitted).
- Approx. 110 Kgs net weight without options fitted.

### Power
- 230V 1 phase 50 Hz supply, with neutral & earth.
- 13A supply. Must be protected with 100 mA industrial circuit breakers. Domestic 30 mA circuit breakers are not suitable.

### Support
- One years parts warranty with express delivery during warranty period. Consumables excluded.

## Colour touch-screen interface

### The Menu Screen
- The Main Control screen for all normal machine operations.
- The Tools screen for setting the cutter mode & blade speed.
- The Set-up screen for adjusting the length calibration & blade angle.

### The Control Screen
- Batch & total cuts counters with re-set & stop-start button.
- Cut length & linespeed, with toggle switches for fine adjustment. Lengths from 1.0 to 100,000.0 mm can be entered.

### The Tools Screen
- Blade speed adjustment from 50% to 100% of full speed.
- Cutting mode selection.

### The Set-up Screen
- To precisely calibrate the cut length.
- To adjust the blade datum position.
- To set batch alarms.

### The Security Screen
- To set access levels & passwords.

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### Cutting speed & modes
- Selectable cutting modes from 1 - 2000 cuts/min.
- Blade rotation speed adjustable up to 2,000 RPM.

### Operator control panel
- Red Lion G306A 6" colour touch-screen panel.
- Robust IP65 protected front panel.
- Programmable 5-key membrane.
- TFT screen - 320 x 240 pixel resolution.
- Front panel size 225 mm x 180 mm.
- Emergency stop push button.
- Safety guards okay indicator lamp (blue).
- Safety relay re-set button (illuminated blue).

### Software, PLC & motion control
- Red Lion Crimson® HMI operating software.
- Lenze servo motion control software.
- Embedded PLC functions in Lenze servo drives.
- Integrated twin-axis servo motion controller.

### Communications
- Ethernet 10 Base-T & 100 Base-TX.

### Safety
- Coded magnetic interlock on cutter lid.
- Coded magnetic interlock on exit cutter bush.
- Coded magnetic interlock on caterpillar access door.
- Inlet tunnel guard with 2 vertical & 1 horizontal rollers.
- Internal safety relay with external re-set push button.
- Two emergency stop push buttons.
- Guards painted RAL 2004 bright orange.
- In compliance with EN292 parts 1 & 2 and EN294.
- CE Certificate of Conformity or Incorporation®.

### Tooling & blades
- Pair stainless steel cutter guide bushes - pilot bore.
- Light-weight aluminium Chirp® blade holder.
- 8 off 0.38 mm thick stainless steel Chirp® blades.

### Blade lubrication system
- Cast aluminium lubrication reservoir.
- Lubrication level indicator to front & drain tap to rear.
- Lubrication improves cut quality & extends blade life.

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