



Servo-Torq® Plus extrusion rotary cutter

Plus version - with integral UA caterpillar infeeder

Data Sheet

02—2009



Version shown above features optional equipment

The Servo-Torq® **plus version** is our premier cutting machine. The advanced AC servo rotary cutting system is combined with an integral caterpillar in-feeder & a high level touch-screen operator panel with PLC control.

The main benefits to the user are:

- No clutch/brake to wear out. This substantially reduces servicing costs.
- A faster blade speed for improved cut quality.
- Better length accuracy. The integral caterpillar has direct servo drive to both belts for optimum cut length control product feed into the cutter.
- A powerful cut thanks to the three times rated motor torque available when cutting through the extrusion.
- New technology reduces maintenance downtime significantly.
- Easy-to-use monochrome touch-screen control panel.
- Innovative Windows CE based software.

Mode of Operation

Servo-Torq® rotary cutter with integral UA caterpillar infeeder/haul-off

The Servo-Torq® 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 as it is feed forward by the integral caterpillar infeeder. Inlet & outlet bushes guide the blade & the extrudate during the cutting operation.



Twin direct drive AC servo motors improve cut length accuracy.

On receipt of a signal to cut, the AC brushless servo motor accelerates from rest to full speed. When the blade hits the material it is travelling at 3000 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.

Twin AC servo motors drive the belts of the integral caterpillar infeeder; one for each belt. The extrudate is measured as it passed through the belts to a resolution of 0.025 mm. A 3-axis controller then compares the measured length to the required cut length and then activates the cutting action.

The whole machine is controlled via the latest Siemens touch-screen control panel. Gillard have configured the software to create a very user friendly operator interface.

Further details are on the rear of this data sheet.



The latest touch-screen is now standard.

Servo-Torq® Range - Plus version - with caterpillar infeeder

Model - Rotary cutter & infeeder	Capacity (mm)	Motor (Nm)	Torque (Nm)	Infeed belt size W x L (mm)
Servo-Torq LT+ Accra-Feed UA75	40, 75	7.0	24	75 x 550
Servo-Torq HD+ Accra-Feed UA95	40, 100	11.0	37	100 x 600 (800)
Servo-Torq XHD+ Accra-Feed UA95L	40, 100	21.0	48	100 x 800 (1000)



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Specification - Servo-Torq® extrusion rotary cutter - Plus version - Combination base¹

Mechanical specification	<ul style="list-style-type: none"> • 1000 mm ± 50 mm line height. Alternatives available • Right-to-left product feed. Left-to-right available • Cast aluminium cutter bush holder with mild steel cutter guide bushes (stainless steel bushes as option) • Heavy-duty knife shaft assembly with aluminium blade holder fitted with hardened steel pins • Slide-away cutter head for easy line start-up • Poly-vee caterpillar belt covered in heavy-duty neoprene • Adjustment of both belts around centre-line • Robust fabricated steel base fitted with 75 mm diameter plastic swivel castors and plated steel floor locks
Blade & caterpillar infeed control method	<ul style="list-style-type: none"> • Brushless AC servo motors with integral resolver feedback control • Fully digital servo amplifiers with on-board EMC filters • Twin axis servo positioning controller for stop-start blade operation relative to caterpillar feed of material • Low inertia servo motors for dynamic performance • Three times peak torque available for extra cutting power. IP 65 protected motor enclosure • Temperature sensors fitted into motor windings for protection against over-heating • Quick release EMC connectors on motors
Cutting speed & modes	<ul style="list-style-type: none"> • Adjustable blade speed from 375 to 2,000 rpm • 2,000 cuts/minute maximum cut rate • Five cutting modes selectable; on-demand (stop-start), Cam, SpeedCut™, remote sensor & time.
Operator control panel	<ul style="list-style-type: none"> • Siemens TP170 touch-screen control panel • Robust IP65 protected front panel • Backlit display 116 x 87 mm • Power connected indicator lamp (white) • Cutter & caterpillar motor on/off push buttons with orange indicator lamps • Test cut push button • Icon identification of control functions
Software & PLC	<ul style="list-style-type: none"> • Windows CE standard operating software • Siemens S-7 226 PLC • 256 Kbytes flash memory with external EPROM/battery back-up • Communication facilities via Siemens MPI & Profibus. ProfibusRS232 serial interface
Encoder type	<ul style="list-style-type: none"> • Bi-directional encoder with length measuring resolution of 0.025 mm increments • Located on rear of infeed servo motor for maximum protection
Safety guarding	<ul style="list-style-type: none"> • Class 3 coded magnetic interlocks on clam-shell cutter lid, outlet guide bush & caterpillar access door. All IP 65 protected • Inlet and outlet safety tunnel guards • 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 • Fitted with a CE plate and provided with a Certificate of Conformity or Certificate of Incorporation²
Tooling & blades	<ul style="list-style-type: none"> • One pair mild steel cutter guide bushes - un-bored • Two straight edged knife blades 0.46 & 0.6 mm thick • Blade spring steel coated with Titanium Nitride

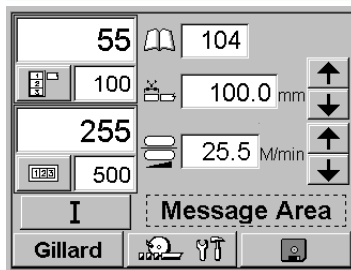
Physical specification	<ul style="list-style-type: none"> • Approximately 1600 mm long x 835 mm deep x 1460 mm high (based on 1000 mm line height) • Approximately 450 KG without options fitted
Power	<ul style="list-style-type: none"> • 400V three phase 50 Hz supply with neutral and earth lines. 25 Amp supply. Alternatives available
Support	<ul style="list-style-type: none"> • One year parts warranty with express delivery during warranty period. Consumables excluded

Touch-screen control screens



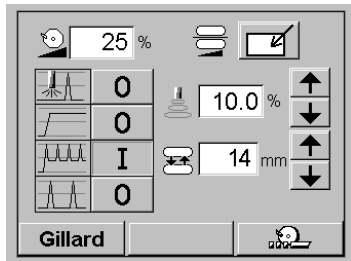
The Start-up Screen - from here you can access:

- The **diagnostic screen** for help with fault finding
- The **control screen** for all normal machine operations
- The **set-up screen** for access to various calibration functions



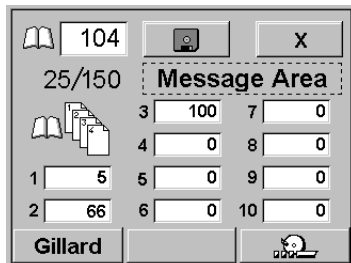
The Control Screen - for entry of normal machine instructions:

- 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
- Current part number display



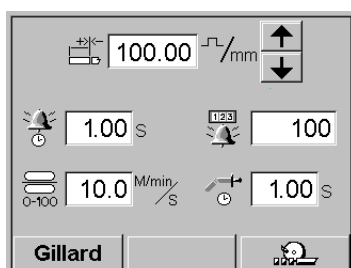
The Cutter Screen - for adjustment of cutter performance:

- Blade speed adjustment from 10% to 100% of full speed
- Cut mode selection (on-demand, Cam, SpeedCut, sensor & time)
- Caterpillar local/remote speed control selection



The Parts Screen - for saving parts & setting cascades:

- Up to 100 parts can be saved within the standard memory
- Each part can contain cut length, linespeed, batch & total quantity & blade speed
- A cascade of up to 10 consecutive parts can be set-up



The Set-up Screen - for changing the machine settings:

- Calibration of encoder pulses for each mm of cut length. This fine-tunes the measured length to the actual cut length
- Alarm output duration and batch complete pre-warning
- Caterpillar ramp-up speed
- Broken blade timer (option)

Many options are available. Please contact us for details.

¹ Specifications subject to change without notice. Please consult the factory for details of any changes.
² Which Certificate will depend upon the exact configuration of the machine and the way it is installed.
 Servo-Torq® is a registered trademark of Peter Gillard & Co. Limited