



Servo-Torq® extrusion rotary cutter

Standard version - Free-standing

Data Sheet

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Version shown above features optional equipment

The Servo-Torq® *standard version* combines advanced AC servo rotary cutting with an economically priced general-purpose control system.

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. The speed is over three times that of many normal rotary cutters.
- Better length accuracy. There is no clutch to slip or wear. Instead, the brushless AC servo motor is controlled by a fully digital drive system.
- A powerful cut thanks to the three times rated motor torque available when cutting through the extrusion.
- New technology reduces maintenance downtime significantly.
- Price structure which makes other servo cutters look expensive.

Mode of Operation

Servo-Torq® extrusion rotary cutting



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. Inlet & outlet bushes guide the blade & the extrudate during the cutting operation.

The signal to activate the cut normally comes from the integral length counter. This is linked to the encoder which measures the amount of extrudate that passes into the cutter. However, various other signals can be supplied as options, e.g. photo-eye end sensing.

When the encoder pulse input equals the pre-set cut length, the counter sends a signal to the servo motor positioning controller. This controller is the 'brain' of the cutter. It ensures that the knife blade stops & starts accurately. It also controls the rapid servo motor acceleration and deceleration required to achieve up to 400 stop/start or 800 Cam (slow/fast) cuts per minute.

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 3000 RPM. The ability of the blade to cut through the extrudate is assisted by the way the servo motor can apply three times its 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 mechanical assembly of the cutter drive is ultra robust. The servo motor is linked to the cutter knife shaft by a synchronous timing belt drive. The knife blade is held onto the end of the shaft by a light-weight aluminium holder. The knife blade area is easily accessed by opening the interlocked lid.

Please see over the page for a full specification of the machine.

Servo-Torq® Range - Standard version

Model	Capacity (mm)	Motor size (Nm)	Torque rating (Nm)	Max. cut rate (cuts/min)*
Servo-Torq LT	40,100	7.0	24	400 - 2000
Servo-Torq HD	40,100, 150	11.0	37	400 - 2000
Servo-Torq XHD	40, 100, 150, 200	21.0	48	400 - 2000

* Figures quoted refer to maximum on-demand (stop/start) & SpeedCut™ (continuous) cutting with one blade fitted.



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Specification - Servo-Torq[®] extrusion rotary cutter - Standard version - Free-standing 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 Heavy-duty knife shaft assembly with aluminium blade holder fitted with hardened steel pins Robust fabricated steel base fitted with 75 mm diameter plastic swivel castors and plated steel floor locks Base painted semi-gloss RAL 7035 light grey Integral electrical cabinet painted RAL 7032 grey 	Power	<ul style="list-style-type: none"> 400V three phase 50 Hz supply with neutral and earth lines. 25 Amp supply. Alternatives available Low voltage control circuit
Blade control method	<ul style="list-style-type: none"> Brushless AC servo motor with integral resolver feedback control Fully digital servo amplifier with on-board EMC filter Single axis servo positioning controller for stop-start blade operation 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 motor 	Support	<ul style="list-style-type: none"> One year parts warranty with express delivery during warranty period. Consumables excluded Lifetime telephone support (normal office hours only)
Cutting speed	<ul style="list-style-type: none"> Variable blade speed up to 2,000 rpm 400 cuts/minute max. in on-demand mode (stop/start) 600 cuts/minute max. in Cam mode (slow/fast cutting) 2,000 cuts/minute max. in SpeedCut mode (continuous) 	Popular Optional Items	
Length & parts control	<ul style="list-style-type: none"> Six digit length counter with LED display Cut length input in 0.1 mm increments Maximum cut length 99.999 metres 2000 pulse per revolution heavy duty shaft encoder. Unidirectional with 0.1 mm scale Support bracket and measuring wheel to suit encoder Eight digit total cuts counter with manual re-set 	A-1 Blade lubrication system	<ul style="list-style-type: none"> Cast aluminium lubrication reservoir with cast aluminium lid. Level indicator to front of reservoir. Drain tap to rear Stainless steel drip tray beneath reservoir Designed to improve cut quality & keep blade clean
Safety guarding	<ul style="list-style-type: none"> Class 3 coded magnetic interlock on clam-shell cutter lid. IP 65 protected Class 3 coded magnetic interlocks on inlet and outlet cutter guide bushes. IP 65 protected Inlet and outlet safety tunnel guards Internal safety relay with external re-set push button Emergency stop push button on front panel 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 	B-2 Blade heater	<ul style="list-style-type: none"> Heating of knife blade when it is stationary waiting to cut Thermocouple with temperature control unit Recommended for thinner wall rigid extrusions
Operator controls and indicator lamps	<ul style="list-style-type: none"> Power connected indicator lamp (white) Cutter motor on/off push buttons with orange indicator lamp Test cut and cutting mode selector switch Blade speed control potentiometer (10-turn) 	C-2 Bush heater	<ul style="list-style-type: none"> Heating of inlet cutter guide bush Thermocouple with temperature control unit Recommended for thinner wall rigid extrusions
Tooling	<ul style="list-style-type: none"> One pair mild steel cutter guide bushes - un-bored One straight edged knife blade 0.6 mm thick Blade spring steel coated with Titanium Nitride 	D-1 Fibre optic photo-eye	<ul style="list-style-type: none"> High performance optical sensor mounted on a bar which is fitted to the front of the cutter. Complete with micrometer style location adjustment Suitable for rigid extrusions up to 600 mm in cut length
Documentation	<ul style="list-style-type: none"> Operating manual and wiring diagrams Design drawing of cutter guide bushes 	E-1 Speed-Cut continuous rotation cutting	<ul style="list-style-type: none"> Ability to operate cutter in continuous rotation mode from 400 to 2000 cuts per minute Ten-Turn potentiometer adjustment of motor speed in on-demand mode & continuous mode Digital readout of cut rate Designed for high speed cutting of flexible extrusions.
Physical specification	<ul style="list-style-type: none"> Approximately 700 mm wide x 835 mm deep x 1375 mm high (based on 1000 mm line height) Approximately 300 Kgs without options fitted 	F-1 Batch counter linked to buzzer	<ul style="list-style-type: none"> Batch counter linked to buzzer located on top of the cutter. Buzzer features variety of user selectable sounds. Buzz length also user selectable On batch complete buzzer sounds Designed as an automatic reminder of batch complete
		F-2 Batch counter linked to flashing beacon	<ul style="list-style-type: none"> Batch counter linked to flashing beacon located on top of the cutter. On batch complete beacon flashes Designed as an automatic reminder of batch complete
		G-1 Cut rate indicator	<ul style="list-style-type: none"> Digital readout of cut rate in cuts per minute Standard feature with option E-1 SpeedCut mode
		G-2 Hours run indicator	<ul style="list-style-type: none"> Digital readout of hours cutter has been running. Non-reset type.
		G-3 Broken blade sensor	<ul style="list-style-type: none"> Sensor detection of broken blade Automatic stop of cutter with warning beacon
		J-1 Razor blade holder	<ul style="list-style-type: none"> Designed to fit 0.25 mm thick razor blades (50 supplied) Recommended for flexible extrudate up to 10 mm OD
		J-2 Chip blade holder	<ul style="list-style-type: none"> Designed to fit 0.38 mm thick chip blades (8 supplied) Recommended for flexible extrudate up to 20 mm OD
		O-1 Slide-away cutter head	<ul style="list-style-type: none"> Ability to slide cutter head by 200 mm. With lock This feature makes it much easier to thread-up the cutter when it is located in close proximity to a caterpillar unit

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.
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Many more options are available. Please contact us for more details.