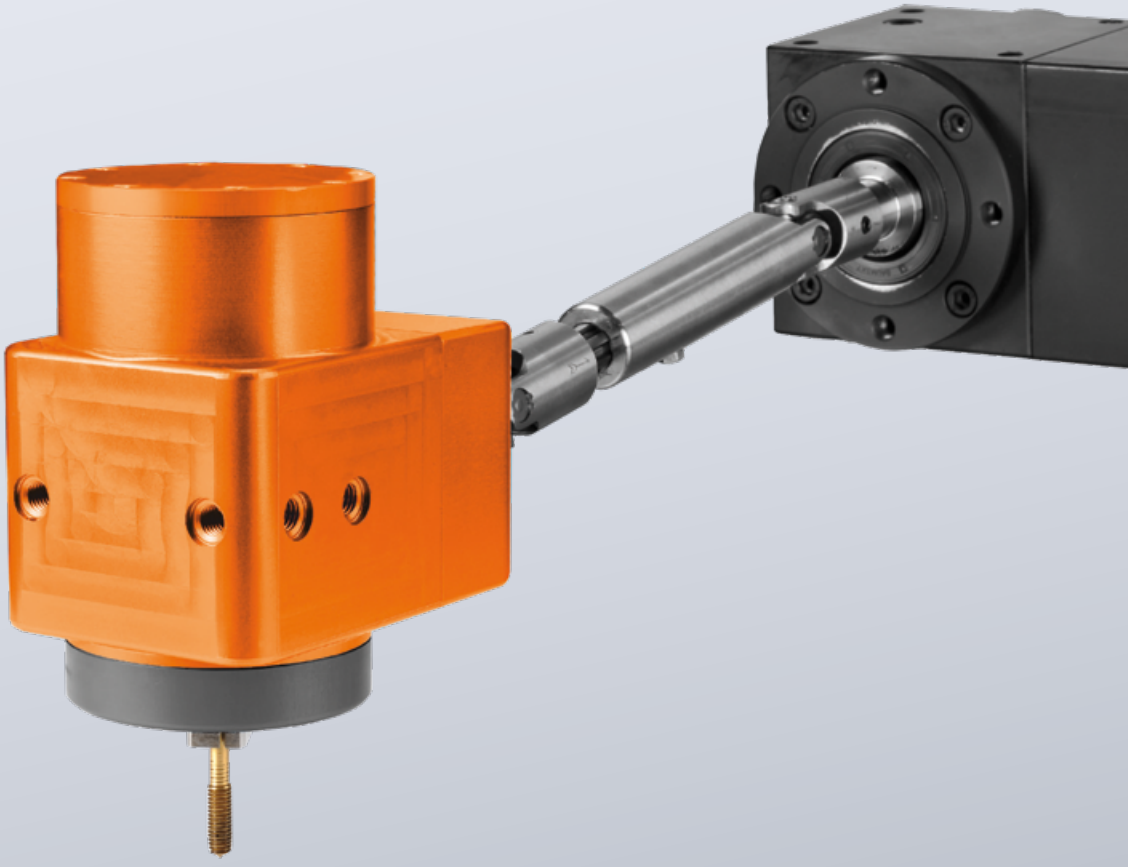
ELECTRONIC THREAD MOULDING

PATENTED

further information on request



ELECTRONIC THREAD MOULDING

The electronic thread moulding unit, specially designed for punching and forming processes, stands out thanks to its excellent process integration. Regardless of whether the electronic thread moulding unit is used in progressive dies or progression tools, in presses or in automatic punching and bending machines, the desired threads are created in a reliable and controlled fashion. This improves thread quality, increases reliability and ensures quick, cost-effective production.

Flexibility

The electronic thread moulding unit can be used in a wide variety of presses, progressive dies and automatic punching machines thanks to its independent drive and versatile control unit. If required, a thread cutter can also be operated instead of the non-cutting thread moulder. The compact design allows for the greatest possible flexibility.
Integration takes place through installation in existing equipment. The control unit of the electronic thread moulding unit is coupled with the equipment according to requirements. The simple programming facilitates quick calibration of all parameters.

Quality

The thread moulding unit produces high quality threads in sizes M2-M24. The threads stand out thanks to:

- great strength and stability
- high surface quality

The quality test includes an ongoing check of the thread moulding cycle. The condition of the thread tool, the tolerance of the core hole and the quality of the resulting thread are inferred from the monitored parameters. If limit values are fallen short of or are exceeded, a stop signal is sent to the press or equipment and a corresponding error message is produced. Furthermore, all data sets can be read out from the controls and summarised externally as a report, for instance within a quality assurance system.

Cost effectiveness

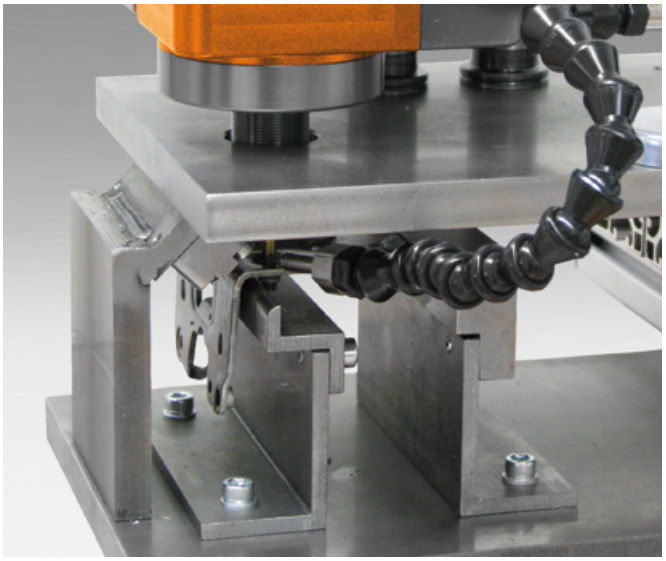
In addition to producing high quality threads, the thread creation is above all extremely cost effective. Cost savings can be achieved through:

- long service life of the tools
- faster processing times
- avoiding rejects
- eliminating the feeding of parts and additional production stages
- a high level of investment security

At a glance

- Versatile and flexible application
- Autonomous system
- Large spectrum of thread sizes M2-M24 (larger upon request)
- Simple programming and control
- High quality
- Stability and strength
- Surface quality
- Integrated quality control
- Cost effectiveness
- Cost savings
- Short production times
- A high level of investment security

Application examples



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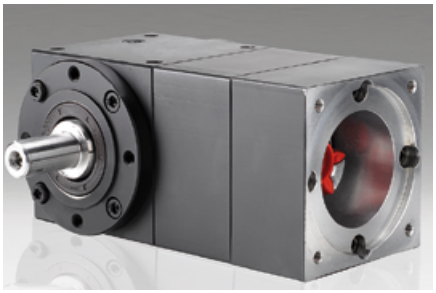
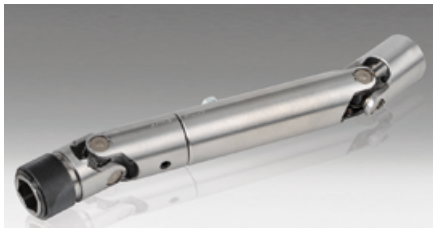
The controls and the servo regulator for the drives are located in the control box. The size of the control box varies according to the number of systems that must be controlled. The control unit can regulate up to 6 independent drives. 10 programmes per unit allow unrestricted programming of the parameters (rotation speed of the leader, limitation of the torque, number of rotations of the leader, cycle time, batch counter, process data monitoring). Data storage may also take place, which serves to record all the torque values.

The moulding head transforms horizontal rotation into vertical rotation. The feed motion is carried out by a leader. The thread pitch of the leader corresponds to the pitch of the thread to be moulded. The moulding tool is operated with maximum precision with the help of the head spindle sleeve. A clamping sleeve is used to clamp the thread moulder.



The bevel gear serves to limit the length of the installation space required by the drive. Using the bevel gear is optional.

A flexible and compact micro dosing unit with a volumetric dosing pump allows for precise and reliable lubrication. The nozzle technology was developed for punching and forming processes.



The drive shaft transfers the drive's torque to the moulding head. By evening out differences in height and length, the moulding head can be installed in every position within the tool. It is also manoeuvrable on holding-down plates. The maximum clearance between the drive and the moulding head is 500 mm.

The drive consists of one synchronous servomotor for each moulding head that must be powered. The servomotor is configured according to the thread size. This makes it possible to create different thread sizes in a tool using one control. Thanks to the constant cutting speed, significantly longer service lives are achieved than is the case with mechanical, forced piloted systems. The drive is independent from the press stroke and press motion. The maximum rotation speed is 6000 U/min.

Process comparison

++ excellent + good • satisfactory – adequate – – inadequate	electronic thread moulding	thread cutting*	threaded/ punched nut	weld nut
Possible uses				
Thread sizes	+	++	+	+
Tensile strength of the material	•	•	++	++
Flexibility	++	– –	– –	– –
Quality				
Surface	++	•	•	•
(Pull-out) resistance	++	–	–	–
Load capacity	++	+	+	+
Reliability	++	++	– –	– –
Time				
Number of process stages	++	+	– –	– –
Processing time	++	•	– –	– –
Cost				
Production costs	++	–	•	– –

* as a discrete, downstream process stage