



Screwdriving technology

Automation

Air motors

Air tools

# DEPRAG

**Handheld Screwdriver electric**

## MINIMAT-EC-Servo Screwdriver

**Maximum flexibility and processing reliability**

**Angle head design – torque ranges between 7 - 120 Nm**

- flexible
- documentation features
- high precision
- sensor control

The hand-held MINIMAT EC servo screwdriver enables free programming of the screw tightening process and features maximum flexibility and processing reliability. Within the performance range of the screwdriver, torque, speed, stand-by and turn-direction may be individually adapted to fit the required tightening process.

The integrated sensor controlled torque- and angle measurement permits the exact control and supervision of the tightening process, as well as the documentation of important processing parameters.

Thus, the highest possible precision during the tightening process is guaranteed.

The EC servo screwdriver is used in applications with high safety requirements in which a direct measurement system is required.

The brushless EC-motor is the reason for the maintenance-free operation, eliminating wear-and-tear parts. It also achieves a high motor dynamics and is capable of reaching the necessary high peak-torque required for fastener tightening.

The DEPRAG screwdrivers based on EC-Servo technology enable torque accuracy  $< \pm 1\%$  standard deviation, which is adhered to each after millions of cycles. Under suitable conditions the DEPRAG screwdrivers based on EC-Servo technology fulfil a Cmk value of  $\geq 1.67$  with  $\pm 5\%$  tolerance in reference to 6 Sigma in accordance with ISO 5393. In other words a Cmk value of 1.67 means that there is an error rate of 0.6 per million screw assemblies.



To operate the screwdriver, a sequence controller AST30 with integrated power supply and a motor cable is necessary. The motor cable is available in different lengths.

Comprehensive software addition modules enable data registration and graph display for statistic evaluation and screw joint analysis.

Position dependent programme selection, monitoring of the screw sequence and further functions for increased processing reliability are realisable in combination with a position control stand.

The sequence controller already contains ready-to-use basic programs with common tightening processes, so that the operation can take place using just a few steps.

This necessitates the connection to a standard PC with the supplied, very user-friendly Windows®-Software TC 30-PC. Current software-updates (statistics, etc.) can be supplied as options on special request.

The integrated display- and operating keypad visualizes the operating conditions and screwdriving results and it also allows the direct changing of screwdriving parameter (i.e. speed, shut-off torque) required for the production-process - without having a PC-connection.

Over the operating keypad or the I/O-port of the controller it is possible to change the two available default screwdriving programs. Once the cycle finishes, a status signal is optically displayed on the screwdriver and also reported back to the PLC, if a PLC is used.

When using this EC-system with a PLC, then the communication can be made using the standard supplied Profibus port.

When using either bus-ports, Profibus or Ethernet (optional) and if those ports are connected with an IP-system, then the complete assembly process (screwdriving-curve, statistics, archiving) and the data-exchange between computers is possible.

When the data logger program (optional equipment) is used, it is possible to transfer the measuring data of several controllers to a PC using different ports (i.e. USB, Ethernet).

## TECHNICAL DATA

Screwdriver reversible	Type part no.	315EWT58-0350-E10 399853 B	315EWT58-0600-E12 399853 A	315EWT58-1200-E12 399853 C
Line voltage (DC)	V	300	300	300
Torque min.	Nm / in.lbs	7 / 62	12 / 106.2	25 / 221.3
Torque max.	Nm / in.lbs	35 / 310	60 / 531	120 / 1062
Speed min.	rpm	50	25	15
Speed max.	rpm	800	550	250
Diameter	mm / in.	58 / 2 <sup>9</sup> / <sub>32</sub>	58 / 2 <sup>9</sup> / <sub>32</sub>	58 / 2 <sup>9</sup> / <sub>32</sub>
Length	mm / in.	550 / 21 <sup>21</sup> / <sub>32</sub>	550 / 21 <sup>21</sup> / <sub>32</sub>	590 / 23
Weight	kg / lbs	2.4 / 5.28	2.4 / 5.28	3.2 / 7.01
Noise level	dB (A)	62	62	62
External sqare drive	DIN 3121	E 10 (3/8")	E 12.5 (1/2")	E 12.5 (1/2")
Torque measuring system DMS (strain gage) fully bridged accuracy classification		yes 1	yes 1	yes 1
Angle encoder channel resolution	degree	A-B 1	A-B 1	A-B 1

Please also find suitable tool inserts in our brochure D 3320 E.



It is necessary to use a torque support (e.g. stand, handgrip) for maximum torque: over 60 Nm for angle design.

Suitable torque supports can be found in our brochure D 3340 E.

## REQUIRED ACCESSORIES

<b>Sequence controller 230 V</b>	<b>Type</b> part no.	<b>AST30-31-O-230 V</b> 385455 C
<b>Sequence controller 115 V</b>	<b>Type</b> part no.	<b>AST30-31-O-115 V</b> 385455 D
Power unit (AC)	V / Hz V / Hz	230 / 50 (60) 115 / 50 (60)
Insulation		IP 54
LC-display		4 lines
Membrane keyboard		yes
USB interface		yes
Profi bus		yes
Ethernet		optional
Amount of connectable drivers		1
Dimensions (W x H x D)	mm / in.	170 x 295 x 340 / 6 11/16 x 11 39/64 x 13 3/8
Weight	kg / lbs. kg / lbs.	9.5 / 20.9 (EU) 9.7 / 21.3 (US)

Programming kit no. 385426 C (consisting of operating manual, software package and programming cable) is a single standard component of the sequence controller.

<b>Motor cable</b> (screwdriver – sequence controller)		
Length 5 m / 16.4 ft. (standard)	<b>Type</b> part no.	<b>KMO-AST30-31-5 m</b> 404908 A
Length 8 m / 26.2 ft.	<b>Type</b> part no.	<b>KMO-AST30-31-8 m</b> 404908 B
Length 12 m / 39.4 ft.	<b>Type</b> part no.	<b>KMO-AST30-31-12 m</b> 404908 C

## OPTIONAL EQUIPMENT

PC-Software	<b>Type</b> part no.	<b>TC 30-PC</b> 828560
TC 30-PC statistic	part no.	828634
TC 30-PC data logger (additional modules at request)	part no.	829085
TC 30-PC to QS-STAT conversion program**)	part no.	830458
<b>Software Extension:</b>		
Shut-off at effective torque	part no.	829613
Friction dependent tightening torque	part no.	829614
<b>Ethernet-Module</b>	<b>Type</b> part no.	<b>AST30-EN</b> 388729 A
Programming cable PC to AST30-31 (USB)	part no.	831420
<b>Printer</b>	<b>Type</b> part no.	<b>ND 100 *)</b> 823476
Cable AST30-31 to ND 100	part no.	385419 A
Data cable AST30-31 to PC	part no.	385423 A
Support stand for AST30-31	part no.	947405 A
Suspension ring	part no.	406767 A

\*) for additional technical data please see our catalog D3022 E

\*\*) only in connection with data logger program

# DEPRAG

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