



Screwdriving technology

Automation

Air motors

Air tools

DEPRAG



**NEW
MICROMAT-E**
for lowest torque ranges

MICROMAT-E

straight handle design - torque ranges between 0.03 - 0.8 Nm

MINIMAT-E

straight handle design - torque ranges between 0.06 - 18 Nm

pistol-grip design - torque ranges between 0.06 - 4 Nm

angle head design - torque ranges between 0.4 - 6 Nm

EC-Screwdriver for manual use

The DEPRAG EC Screwdrivers allow free programming of the screw tightening process. Within the power range of the selected tool, the torque value, speed, stand-by and direction of rotation can be adjusted individually to the assembly requirement.

The new MICROMAT-E is able to reach even the lowest possible torque ranges.

Outstanding features of hand-held EC-screwdrivers are their torque precision and the large range of control functions – perfect conditions for process security and control on highest level.

The brushless electric motors provide nearly maintenance-free operation. They are ideally suited for the tightening of screws due to their outstanding dynamics and an achievement of high peak torque values.

Integrated monitoring of torque and angle values allow the exact control of the screw tightening process, as well as the documentation of all important process parameters.



MICROMAT-E

MINIMAT-E

MINIMAT-E angle head

MINIMAT-E
pistol grip



The operation of the screwdriver requires a programmable sequence controller (AST 10) with integrated amplifier and a motor cable*) (available in different lengths). The sequence controller offers standard screwdriving programs for tightening screws to a specific torque value respectively loosening at a specific angle value. Their parameters are adjustable directly via the controller's keyboard. Special screwdriving sequences are easy to create: standard assembly steps, already stored in the controller, can be selected and comfortably built up to form a complete assembly process.

This happens via the integrated web-server's PC operator board. No special PC software is required – only a normal web browser (such as MS explorer) and an Ethernet port. Optionally available is an update service for the AST 10 which provides continuous update of the controller's function and control software. The controller's integrated display and operating unit indicates the operating mode and assembly status. It also allows a direct change of parameters (speed, torque and angle values, etc..) within the assembly process and without the need of a PC connection.

The screwdriving sequence will be initiated by either push-to-start or trigger start, depending on the type of screwdriver. Selection resp. change of the screwdriving sequence can be done via a menu function. Applications with frequently changing screwdriving parameters can be controlled via an input/out-put communication of a PLC.

A higher level of process security is offered with the use of a position checking stand in conjunction with a PLC. The selection of screwdriving programs or the series of screw assemblies is possible in conjunction with the XY-coordinates of this stand.

*) The standard motor cable (2.5-meter long) is part of the MICROMAT-E Screwdriver. Additional cable lengths are available.

Technical Data

MICROMAT-E straight handle design

Screwdriver Push-to-start	type order no.	320EGA19-0002 402030 A	320EGA19-0005 402030 C	320EGA19-0008 402030 B
Torque min.	Nm / in.lbs	0.03 / 0.3	0.08 / 0.7	0.15 / 1.5
Torque max. *)	Nm / in.lbs	0.2 / 2	0.5 / 4.4	0.8 / 8
Speed min.	rpm	150	120	100
Speed max. *)	rpm	1500	1200	1000
Length	mm / in.	190 / 7 ³¹ / ₆₄	190 / 7 ³¹ / ₆₄	190 / 7 ³¹ / ₆₄
Weight	kg / lbs.	0.25 / 0.55	0.25 / 0.55	0.27 / 0.59
Noise level	dB (A)	60	60	60
Line Voltage (DC)	V	48	48	48
Internal hex drive DIN 3126		B3 (3 mm)	B3 (3 mm)	B3 (3mm)
Suitable inserting tools and connection parts with inserting end DIN 3126		A3 (3 mm)	A3 (3 mm)	A3 (3mm)

*) as per VDI/VDE 2647 Directive

The motor cable, 2.5-meters long, is solidly connected to the Screwdriver

Optional equipment:	Spring-Sleeve cpl., without screw suction*)	order no. 403280 A
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*) An internal vacuum chamber is already integrated into the MICROMAT-E

Technical Data

MINIMAT-E straight handle design

Screwdriver Push-to-start	type order no.	320EGA27-0004 399515 A	320EGA27-0010 399515 B	320EGA27-0022 399515 C	320EGA27-0040 399515 D
Screwdriver Trigger-start	type order no.	320EGT27-0004 404149 A	320EGT27-0010 404149 B	320EGT27-0022 404149 C	320EGT27-0040 404149 D
Torque min.	Nm / in.lbs	0.06 / 0.6	0.15 / 1.5	0.4 / 4	0.7 / 7
Torque max. *)	Nm / in.lbs	0.4 / 4	1 / 9	2.2 / 19.5	4 / 35.4
Speed min.	rpm	60	50	50	40
Speed max. *)	rpm	1200	1000	700	400
Diameter	mm / in.	27 / 1 ¹ / ₁₆	27 / 1 ¹ / ₁₆	27 / 1 ¹ / ₁₆	27 / 1 ¹ / ₁₆
Length	mm / in.	218 / 8 ³⁷ / ₆₄	230 / 9 ¹ / ₁₆	229 / 9 ³ / ₆₄	242 / 9 ¹⁷ / ₃₂
Weight	kg / lbs	0.48 / 1.05	0.54 / 1.2	0.54 / 1.2	0.58 / 1.3
Noise level	dB (A)	60	60	60	60
Line voltage (DC)	V	48	48	48	48
Internal hex drive DIN 3126		B3 (3 mm)	B3 (3mm)	F6.3 (1/4")	F6.3 (1/4")
Suitable inserting tools and connection parts with inserting end DIN 3126		A3 (3 mm)	A3 (3mm)	E6.3 (1/4")	E6.3 (1/4")
Optional equipment:					
Spring-Sleeve cpl. without screw suction	order no.		403280 A		364672 A
Spring-Sleeve cpl. with screw suction	order no.		403280 B		364672 C
Support ring	order no.		389775 C		389775 C
Screwdriver Push-to-start	type order no.		320EGA36-0060 404866 B	320EGA36-0120 404866 C	320EGA36-0180 404866 D
Screwdriver Trigger-start	type order no.		320EGT36-0060 408324 B	320EGT36-0120 408324 C	320EGT36-0180 408324 D
Torque min.	Nm / in.lbs		1 / 9	2 / 18	3 / 27
Torque max. *)	Nm / in.lbs		6 / 53	12 / 106	18 / 159
Speed min.	rpm		70	35	25
Speed max. *)	rpm		740	380	280
Diameter	mm / in.		36 / 1 ²⁷ / ₆₄	36 / 1 ²⁷ / ₆₄	36 / 1 ²⁷ / ₆₄
Length	mm / in.		260 / 10 ¹⁵ / ₆₄	260 / 10 ¹⁵ / ₆₄	260 / 10 ¹⁵ / ₆₄
Weight	kg / lbs		0.84 / 1.8	0.84 / 1.8	0.89 / 1.9
Noise level	dB (A)		62	62	62
Line voltage (DC)	V		48	48	48
Internal hex drive DIN 3126			F6.3 (1/4")	F6.3 (1/4")	F6.3 (1/4")
Suitable inserting tools and connection parts with inserting end DIN 3126			E6.3 (1/4")	E6.3 (1/4")	E6.3 (1/4")
Optional equipment:					
Spring-Sleeve cpl. without screw suction	order no.		364672 A		364672 A
Spring-Sleeve cpl. with screw suction	order no.		364672 C		364672 C
Support ring	order no.		389775 C		389775 C

*) as per VDI/VDE 2647 Directive

Technical Data

MINIMAT-E pistol grip

Screwdriver Trigger-start	type order no.	320EPT27-0004 403636 A	320EPT27-0010 403636 B	320EPT27-0022 403636 C	320EPT27-0040 403636 D
Torque min.	Nm / in.lbs	0.06 / 0.6	0.15 / 1.5	0.4 / 4	0.7 / 7
Torque max. *)	Nm / in.lbs	0.4 / 4	1 / 9	2.2 / 19.5	4 / 35.4
Speed min.	rpm	60	50	50	40
Speed max. *)	rpm	1200	1000	700	400
Weight	kg / lbs.	0.58 / 1.28	0.62 / 1.36	0.64 / 1.41	0.68 / 1.5
Noise level	dB (A)	60	60	60	60
Line Voltage (DC)	V	48	48	48	48
Internal hex drive DIN 3126		B3 (3 mm)	B3 (3mm)	F6.3 (1/4")	F6.3 (1/4")
Suitable inserting tools and connection parts with inserting end DIN 3126		A3 (3 mm)	A3 (3mm)	E6.3 (1/4")	E6.3 (1/4")
Optional equipment:					
Spring-Sleeve cpl. without screw suction	order no.	403280 A	403280 A	364672 A	364672 A
Spring-Sleeve cpl. with screw suction	order no.	403280 B	403280 B	364672 C	364672 C

*) as per VDI/VDE 2647 Directive

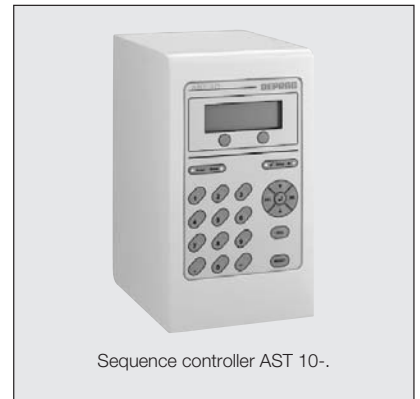
MINIMAT-E angle head

Screwdriver Lever start	type order no.	320EWT27-0022-E6 400580 B	320EWT27-0035-E6 400580 C	320EWT27-0060-E6 400580 E
External square drive	DIN 3121	E6.3 (1/4")	E6.3 (1/4")	E6.3 (1/4")
Connection parts with inserting end	DIN 3121			
Internal square drive		G6.3 (1/4")	G6.3 (1/4")	G6.3 (1/4")
Screwdriver Lever start	type order no.	320EWT27-0022-E10 409902 B	320EWT27-0035-E10 409902 C	320EWT27-0060-E10 409902 E
External square drive	DIN 3121	E10 (3/8")	E10 (3/8")	E10 (3/8")
Connection parts with inserting end	DIN 3121			
Internal square drive		G10 (3/8")	G10 (3/8")	G10 (3/8")
Screwdriver Lever start	type order no.	320EWT27-0022-F6 409903 B	320EWT27-0035-F6 409903 C	320EWT27-0060-F6 409903 E
Internal hex drive with quick change chuck	DIN 3126	F6.3 (1/4")	F6.3 (1/4")	F6.3 (1/4")
Connection parts with inserting end	DIN 3126			
External hex drive		E6.3 (1/4")	E6.3 (1/4")	E6.3 (1/4")
Screwdriver Lever start	type order no.	320EWT27-0022-D6 409900 B	320EWT27-0035-D6 409900 C	320EWT27-0060-D6 409900 E
Internal hex drive for bits	DIN 3126	D6.3 (1/4")	D6.3 (1/4")	D6.3 (1/4")
Connection parts with inserting end	DIN 3126			
External hex drive		C6.3 (1/4")	C6.3 (1/4")	C6.3 (1/4")
Screwdriver Lever start	type order no.	320EWT27-0022-DM6 409901 B	320EWT27-0035-DM6 409901 C	320EWT27-0060-DM6 409901 E
Internal hex drive for bits with magnet	DIN 3126	D6.3 (1/4")	D6.3 (1/4")	D6.3 (1/4")
Connection parts with inserting end	DIN 3126			
External hex drive		C6.3 (1/4")	C6.3 (1/4")	C6.3 (1/4")
Torque min.	Nm / in.lbs	0.4 / 4	0.7 / 7	1 / 9
Torque max. *)	Nm / in.lbs	2.2 / 19.5	3.5 / 31	6 / 53
Speed min.	rpm	80	50	30
Speed max. *)	rpm	800	500	300
Weight	kg / lbs	0.8 / 1.76	0.8 / 1.76	0.83 / 1.8
Noise level	dB (A)	60	60	60
Line voltage (DC)	V	48	48	48

*) as per VDI/VDE 2647 Directive

Required Accessories

Sequence Controller for screwdriver types 320EGA19-..., 320EGA27-..., 320EGT27-..., 320EPT27-..., 320EWT27..	type order no.	AST 10-1-P 385440 B
Sequence Controller for screwdriver types 320EGA36-..., 320EGT36-.. u. 320EWT36-..	type order no.	AST 10-2-P 385441 B
Power unit (AC)	V / Hz	230 / 50 (60)
optional	V / Hz	115 / 50 (60)
Power consumption AST 10-1	VA	350
Power consumption AST 10-2	VA	600
Insulation		IP 54
LC display		4 x 20
Membrane keyboard		yes
RS 232 interface		yes
Ethernet		yes
Amount of connectable Screwdrivers		1
Dimension (W x H x D)	mm / in.	160 x 295 x 200 / 6 ¹⁹ / ₆₄ x 11 ³⁹ / ₆₄ x 7 ⁷ / ₈
Weight (AST 10-1 / AST 10-2)	kg / lbs	5.8/6 / 12.8/13.2



Sequence controller AST 10-.

Motor cable for MINIMAT®-E *) (Screwdriver to sequence controller)		
standard	type	KMO AST10-2,5m
Length 2.5 m / 8.2 ft.	order no.	385442 A
alternativ	type	KMO AST10-5m
Length 5 m / 16.4 ft	order no.	385442 B
	type	KMO AST10-8m
Length 8 m / 26.2 ft.	order no.	385442 C
	type	KMO AST10-12m
Length 12 m / 39.4 ft	order no.	385442 D

*) The MICROMAT-E contains the 2.5-meter long motor cable as a standard component. Extension cables are available; please refer to the accessories offered as optional equipment.

Power supply cable (Sequence controller)		
Length 1.8 m / 5.9 ft.	type	KN AST10-EU
	order no.	385443 A
Length 1.8 m / 5.9 ft.	type	KN AST10-US
	order no.	385443 B

Optional Equipment



Toolbox



Printer ND 100

Toolbox	type order no.	TB 7 - AST 10 *) 398097 B
Technical data:		
Tool holders		7
Tool size	mm / in.	upto Ø 24 / 0.9 (AF 19)
Voltage	V	DC 24
Amperage	mA	100
Input/output interface		SUB-D 15-pin connector
Start signal		4-pin connector
Dimensions (W x H x D)	mm / in.	225 x 50 x 120 / 8.8 x 1.9 x 4.7
Weight	kg / lbs.	1.2 / 2.6
Connection cable AST 10-Toolbox	order no.	385451 A

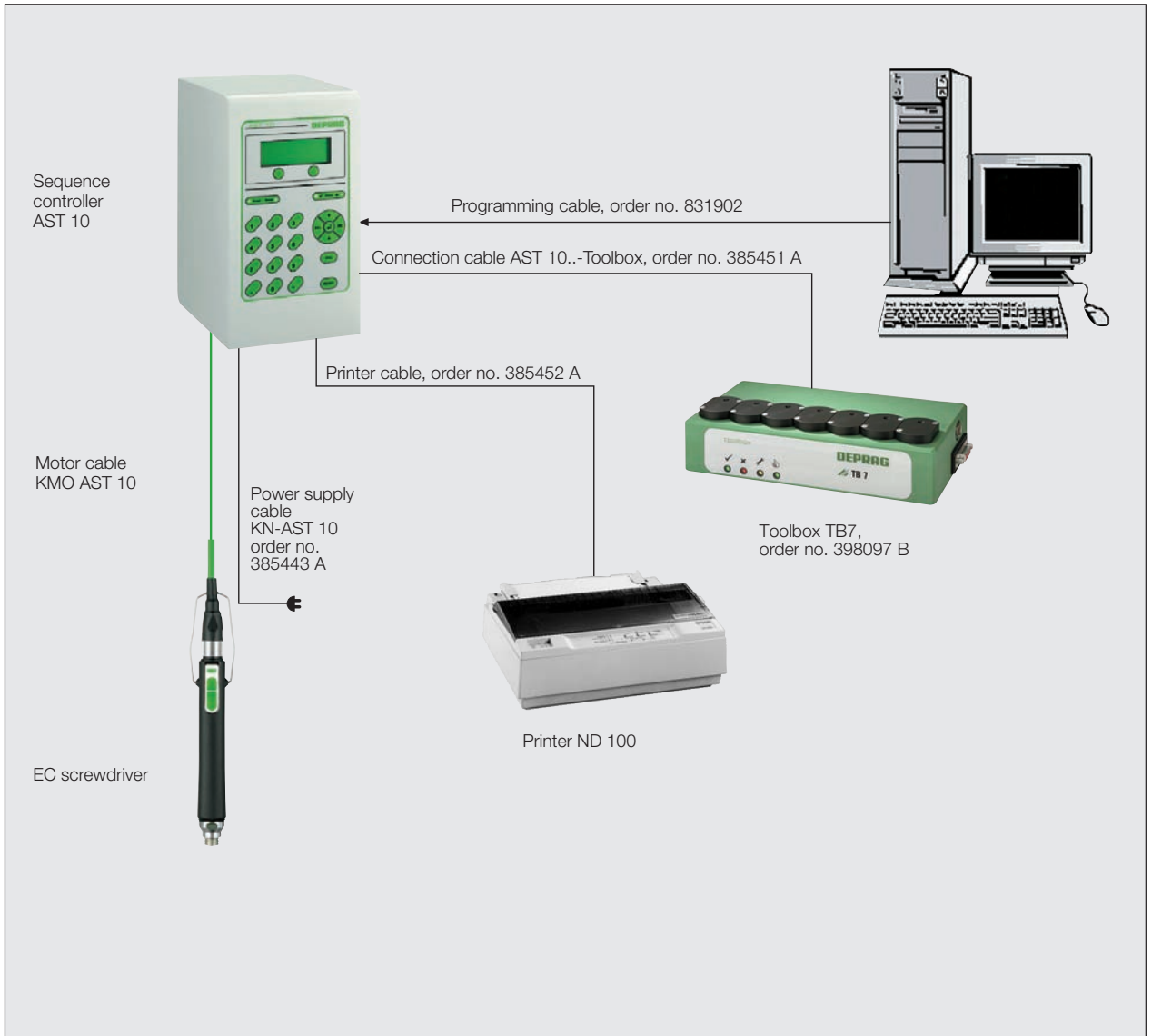
*) the toolbox is an available accessory and it may be connected to a PLC:
type TB 7 - PLC, order no. 398097 C

Programm. cable (PC to AST 10)	order no.	831902
Plug RJ45-IP54	order no.	385453 A
Cable AST 10 to printer ND 100	order no.	385452 A
Printer	type order no.	ND 100 823476
Part sensor capacitive M18	order no.	354841 C
Stand	order no.	405278 A

Motor Cable - Extension for MICROMAT-E			
Length	2.5 m / 8.2 ft.	order no.	385478 A
Length	5.5 m / 18.0 ft.	order no.	385478 B
Length	9.5 m / 31.2 ft.	order no.	385478 C

AST 10 SPS Remote Interface for fully automatic Screwdriving graph storing			
Interface LPT-24 V	order no.	200788	
PC Software AST 10 RCPC	order no.	200790	

Example



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CERTIFIED AS PER DIN EN ISO 9001
