



Screwdriving technology

Automation

Air motors

Air tools

DEPRAG

MICROMAT-EC

straight handle design - torque ranges between 0.03 - 0.8 Nm

MINIMAT-EC

straight handle design - torque ranges between 0.06 - 18 Nm

pistol-grip design - torque ranges between 0.06 - 18 Nm

angle head design - torque ranges between 0.4 - 25 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-EC 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 low maintenance 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 exact control of the screw tightening process, as well as the documentation of all important process parameters.



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 and if necessary 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-EC Screwdriver. Additional cable lengths are available.



It is necessary to use a torque support (e.g. stand, handgrip) for maximum torque: over 4 Nm for straight design, over 10 Nm for pistol grip and over 60 Nm for angle design. Suitable torque supports can be found in our brochure D 3340 E.

TECHNICAL DATA MICROMAT-EC STRAIGHT HANDLE DESIGN, SIZE 19

Screwdriver Push-to-start	Type order no.	320EGA19-0002 402030 A	320EGA19-0005 402030 C	320EGA19-0008 402030 B
Screwdriver Trigger-start	Type order no.	320EGT19-0002 412030 A	320EGT19-0005 412030 C	320EGT19-0008 412030 B
Torque min.	Nm / in.lbs	0.03 / 0.27	0.08 / 0.7	0.15 / 1.3
Torque max. *)	Nm / in.lbs	0.2 / 1.8	0.5 / 4.4	0.8 / 7.1
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:	
Suitable for MICROMAT-EC with Push-to-start	Spring-Sleeve cpl., without screw suction*) order no. 403280 A
Suitable for MICROMAT-EC with Trigger-start	Spring-Sleeve cpl., with and without screw suction order no. 403280 B

*) An internal vacuum chamber is already integrated into the MICROMAT-EC with Push-to-start

TECHNICAL DATA MINIMAT-EC STRAIGHT HANDLE DESIGN, SIZE 27 AND 36

Screwdriver Push-to-start	Type order no.	320EGA27-0004 399515 A	320EGA27-0010 399515 B	320EGA27-0018 399515 F	320EGA27-0022 399515 C	320EGA27-0040 399515 D
Screwdriver Trigger-start	Type order no.	320EGT27-0004 404149 A	320EGT27-0010 404149 B	320EGT27-0018 404149 F	320EGT27-0022 404149 C	320EGT27-0040 404149 D
Torque min.	Nm / in.lbs	0.06 / 0.5	0.15 / 1.3	0.4 / 3.5	0.4 / 3.5	0.7 / 6.2
Torque max. *)	Nm / in.lbs	0.4 / 3.5	1 / 8.85	1.8 / 15.9	2.2 / 19.5	4 / 35.4
Speed min.	rpm	60	50	100	50	40
Speed max. *)	rpm	1200	1000	1000	700	400
Diameter mm / in.		27 / 1 ¹ / ₁₆	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	229 / 9 ³ / ₆₄	242 / 9 ¹⁷ / ₃₂
Weight kg / lbs		0.48 / 1.05	0.54 / 1.2	0.54 / 1.2	0.54 / 1.2	0.58 / 1.3
Noise level	dB (A)	60	60	60	60	60
Line voltage (DC)	V	48	48	48	48	48
Internal hex drive DIN 3126		B3 (3 mm)	B3 (3mm)	F6.3 (1/4")	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")	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.	320EGA36-0040 404866 A	320EGA36-0060 404866 B	320EGA36-0120 404866 C	320EGA36-0180 404866 D	
Screwdriver Trigger-start	Type order no.	320EGT36-0040 408324 A	320EGT36-0060 408324 B	320EGT36-0120 408324 C	320EGT36-0180 408324 D	
Torque min.	Nm / in.lbs	0.8 / 7	1 / 8.85	2 / 17.7	3 / 26.6	
Torque max. *)	Nm / in.lbs	4 / 35.4	6 / 53.1	12 / 106.2	18 / 159.3	
Speed min.	rpm	100	70	35	25	
Speed max. *)	rpm	1000	740	380	280	
Diameter	mm / in.	36 / 1 ²⁷ / ₆₄	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	260 / 10 ¹⁵ / ₆₄	
Weight	kg / lbs	0.84 / 1.8	0.84 / 1.8	0.84 / 1.8	0.89 / 1.9	
Noise level	dB (A)	62	62	62	62	
Line voltage (DC)	V	48	48	48	48	
Internal hex drive DIN 3126		F6.3 (1/4")	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")	E6.3 (1/4")	
Optional equipment:						
Spring-Sleeve cpl. without screw suction	order no.	364672 A				
Spring-Sleeve cpl. with screw suction	order no.	364672 C				

*) as per VDI/VDE 2647 Directive

TECHNICAL DATA MINIMAT-EC PISTOL GRIP, SIZE 27

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 / 0.5	0.15 / 1.3	0.4 / 3.5	0.7 / 6.2
Torque max. *)	Nm / in.lbs	0.4 / 3.5	1 / 8.85	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

TECHNICAL DATA MINIMAT-EC ANGLE HEAD, SIZE 27

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 / 3.5	0.7 / 6.2	1 / 8.85
Torque max. *)	Nm / in.lbs	2.2 / 19.5	3.5 / 31	6 / 53.1
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

TECHNICAL DATA MINIMAT-EC PISTOL GRIP, SIZE 36

Screwdriver Trigger-start	Type order no.	320EPT36-0040 400532 A	320EPT36-0060 400532 B	320EPT36-0120 400532 C	320EPT36-0180 400532 D
Torque min.	Nm/in.lbs	0.8 / 7.1	1 / 8.85	2 / 17.7	3 / 26.6
Torque max. *)	Nm/in.lbs	4 / 35.4	6 / 53.1	12 / 106.2	18 / 159.3
Speed min.	rpm	100	70	35	25
Speed max. *)	rpm	1000	740	380	280
Weight	kg/lbs.	1 / 2.2	1 / 2.2	1 / 2.2	1.05 / 2.3
Noise level	dB (A)	62	62	62	62
Line Voltage (DC)	V	48	48	48	48
Internal hex drive DIN 3126		F 6.3 (1/4")	F 6.3 (1/4")	F 6.3 (1/4")	F 6.3 (1/4")
Suitable inserting tools and connection parts with inserting end DIN 3126		E 6.3 (1/4")	E 6.3 (1/4")	E 6.3 (1/4")	E 6.3 (1/4")
Optional equipment:					
Spring-Sleeve cpl. without screw suction	order no.	364672 A	364672 A	364672 A	364672 A
Spring-Sleeve cpl. with screw suction	order no.	364672 C	364672 C	364672 C	364672 C
Handle	order no.	410971	410971	410971	410971

*) as per VDI/VDE 2647 Directive

TECHNICAL DATA MINIMAT-EC ANGLE HEAD, SIZE 36

Screwdriver Lever start	Type order no.	320EWT36-0060-E6 405646 B	320EWT36-0120-E6 405646 C		
External square drive	DIN 3121	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")		
Screwdriver Leverstart	Type order no.	320EWT36-0060-E10 410932 B	320EWT36-0120-E10 410932 C	320EWT36-0180-E10 405646 D	320EWT36-0250-E10 405646 E
External square drive	DIN 3121	E10 (3/8")	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")	G10 (3/8")
Screwdriver Lever start	Type order no.	320EWT36-0060-F6 411307 B	320EWT36-0120-F6 411307 C		
Internal hex drive with quick change chuck	DIN 3126	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")		
Screwdriver Lever start	Type order no.	320EWT36-0060-D6 410934 B	320EWT36-0120-D6 410934 C		
Internal hex drive for bits	DIN 3126	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")		
Screwdriver Lever start	Type order no.	320EWT36-0060-DM6 411301 B	320EWT36-0120-DM6 411301 C		
Internal hex drive for bits with magnet	DIN 3126	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")		
Torque min.	Nm/in.lbs	1 / 8.85	2 / 17.7	3 / 26.6	5 / 44.3
Torque max. *)	Nm/in.lbs	6 / 53.1	12 / 106.2	18 / 159.3	25 / 221.3
Speed min.	rpm	75	40	20	15
Speed max. *)	rpm	750	400	240	180
Weight	kg / lbs	1.25 / 2.75	1.25 / 2.75	1.25 / 2.75	1.3 / 2.9
Noise level	dB (A)	60	60	62	62
Line voltage (DC)	V	48	48	48	48

*) as per VDI/VDE 2647 Directive

REQUIRED ACCESSORIES



Sequence Controller prepared for Profibus with integrated Profibus module for screwdriver types 320EGA19-..., 320EGT19-..., 320EGA27-..., 320EGT27-..., 320EPT27-..., 320EWT27..		Type order no. order no.	AST 10-1-P 385440 B 385440 P
Sequence Controller prepared for Profibus with integrated Profibus module for screwdriver types 320EGA36-..., 320EGT36-..., 320EWT36-.. and 320EPT36..		Type order no. order no.	AST 10-2-P 385441 B 385441 P
Power unit (AC)	V	100 - 240	
	Hz	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	

Motor cable for MINIMAT-EC *) (Screwdriver to sequence controller)			
Length 2.5 m / 8.2 ft. (standard)		Type order no.	KMO AST10-2.5m 385442 A
Length 5 m / 16.4 ft		Type order no.	KMO AST10-5m 385442 B
Length 8 m / 26.2 ft.		Type order no.	KMO AST10-8m 385442 C
Length 12 m / 39.4 ft		Type order no.	KMO AST10-12m 385442 D
alternativ Motor cable with 90° angle connection for MINIMAT-EC (Screwdriver to sequence controller)			
Length 2.5 m / 8.2 ft. (standard)		Type order no.	KMO AST10-2.5m-W 385442 E
Length 5 m / 16.4 ft		Type order no.	KMO AST10-5m-W 385442 F
Length 8 m / 26.2 ft.		Type order no.	KMO AST10-8m-W 385442 G
Length 12 m / 39.4 ft		Type order no.	KMO AST10-12m-W 385442 H

*) The MICROMAT-EC 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 order no.	KN AST10-EU 385443 A
Length 1.8 m / 5.9 ft.		Type order no.	KN AST10-US 385443 B
Length 2.5 m / 8.2 ft.		Type order no.	KN AST10-China 385443 C

OPTIONAL EQUIPMENT

Toolbox	Type order no.	TB 7 - AST 10 *) 398097 B
Technical data:		
Tool holders		7
Tool size	mm / in.	up to 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
Connection cable (AST 10 to PC)	order no.	380449 B
Plug RJ45-IP54	order no.	385453 A
Cable AST 10 to printer ND 100	order no.	385452 B
Printer	Type order no.	ND 100 823476
Part sensor capacitive M18	order no.	354841 C
Stand	order no.	405278 A
Expansion Kit Profibus	order no.	385501 A



Motor Cable - Extension for MICROMAT-EC		
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

Software		
Activation code Graph 10E	order no.	202698
Activation code AST 10 Datalogger	order no.	202699
Activation Code		
Friction value screw assembly	order no.	201820
Emergency stop module (E-stop without rebooting operation system)	order no.	385521 A
Module RCPC-USB (for automatic graph transmittal)	order no.	202770
Firmware Update AST10 year subscription		203184

EXAMPLE



DEPRAG

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