



Screwdriving technology

Automation

Air motors

Air tools

DEPRAG

**Screwdriver Spindles
pneumatic**

MICROMAT-C / MINIMAT-C Screwdriver Spindles

The Shut-off Screwdriver with Measurement Transducer

Straight design – torque ranges between 0.05 Nm - 24 Nm

- documentation features
- back-up system
- long-life
- suitable for use in small spaces

MICROMAT-C / MINIMAT-C measurement screwdrivers combine all the advantages of the MICROMAT and MINIMAT spindle screwdrivers with the measurement and evaluation of piezo-electric or strain gauge measurement technology.

In combination with the highly accurate shut-off clutch this back up system provides optimal processing reliability even for the fastest screw cycles.

The MICROMAT/MINIMAT clutch works with the tried and tested principle of a mechanical disengagement and shut-off clutch.

This extremely accurate shut-off clutch allows torque precision of $< \pm 3\%$ standard deviation, which is maintained for millions of assemblies.

When used under the correct conditions DEPRAG pneumatic screwdrivers with shutoff clutch conform with a C_{mk} value of ≥ 1.67 with $\pm 10\%$ tolerance in relation to 6 Sigma according to ISO 5393. In other words a C_{mk} value of 1.67 means that there is a failure rate of 0.6 per million screw assemblies.

Our angle decoder with integrated quick change chuck is additionally mounted to measure torque and angle.

The torque and angle values measured are displayed conveniently on the DEPRAG measurement electronic (see brochure D 3024 E).

The DEPRAG spindles are extremely small and can be integrated easily.



TECHNICAL DATA

Screwdriver Style		Motor Size 0	
Spindle, right rotation Push-To-Start	Type Part no.	345C-508-31 376088 A	345C-708-31 376088 C
Torque min.	Ncm / in.oz.	5 / 7.1	12 / 17
Torque max.	Ncm / in.oz.	70 / 99.4	70 / 99.4
Speed, idling	rpm	350	650
Air consumption	m ³ /min / cfm	0.1 / 3.5	0.1 / 3.5
Weight	kg / lbs	0.34 / 0.75	0.34 / 0.75
Push-to-start pressure	N / lbs	11 / 2.4	11 / 2.4
Pressure at max. screwdriver stroke	N / lbs	20 / 4.4	20 / 4.4
Air hose dia.	mm / in.	3 / 1/8	3 / 1/8
Hose dia. for function control	mm / in.	3 / 1/8	3 / 1/8
Measuring cell connector plug at piezo ring		10-32 NEG	10-32 NEG
Measuring method		piezo-electric	piezo-electric
Internal hex. drive	DIN 3126	B3 (3 mm/.118")	B3 (3 mm/.118")
Suitable tool inserts and connecting components with a drive as per DIN 3126		A3 (3 mm/.118")	A3 (3 mm/.118")

Performance data relate to an air pressure of 6.3 bar (90 PSI)

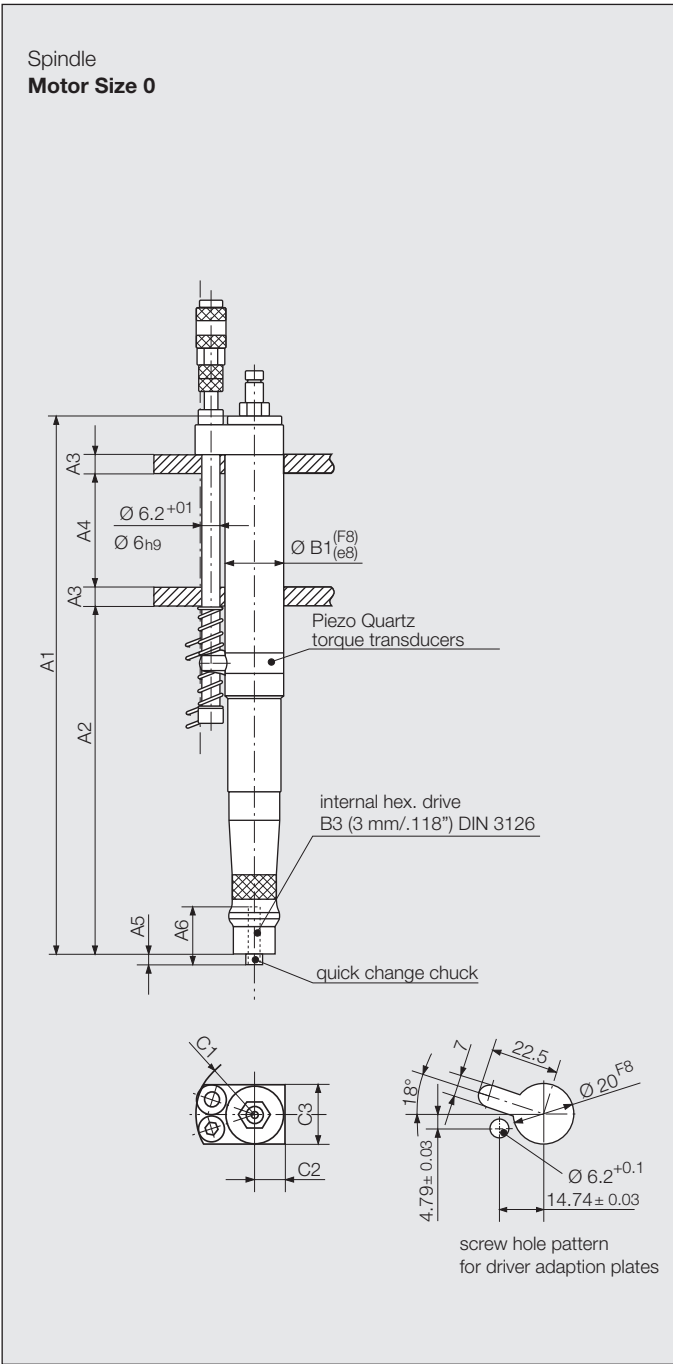
Standard Equipment: Set of coupler and connector plug · Set of torque adjustment tools · Set of clutch springs

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

Current dimensional drawings of our screwdriver spindles are available in the Internet.

Our address: **www.deprag.com**

The drawings are also available as dxf-files for processing with your CAD-system.



Motor Size 0	Dimensions (mm)										
	A1	A2	A3	A4	A5	A6	B1	C1	C2	C3	
Type											
345C-508-31	178.5	115.5	6	38	3.5	19	20	20	9.75	19.5	
345C-708-31											

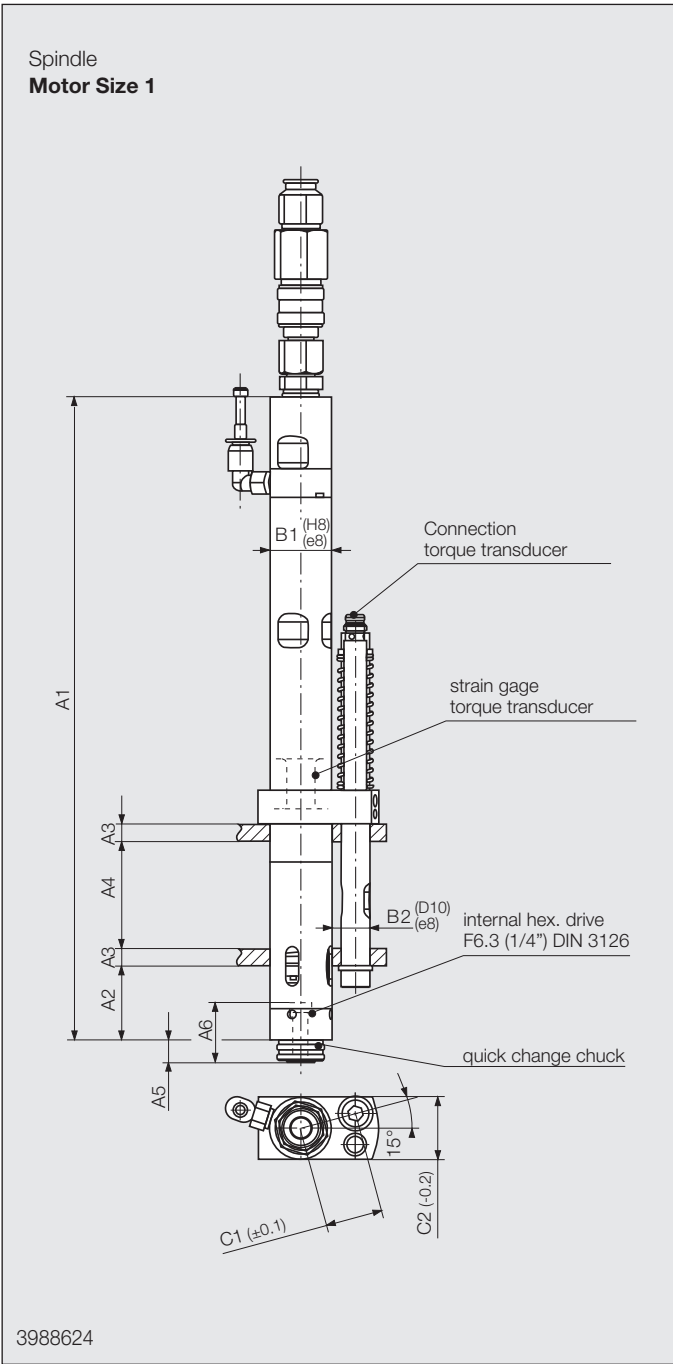
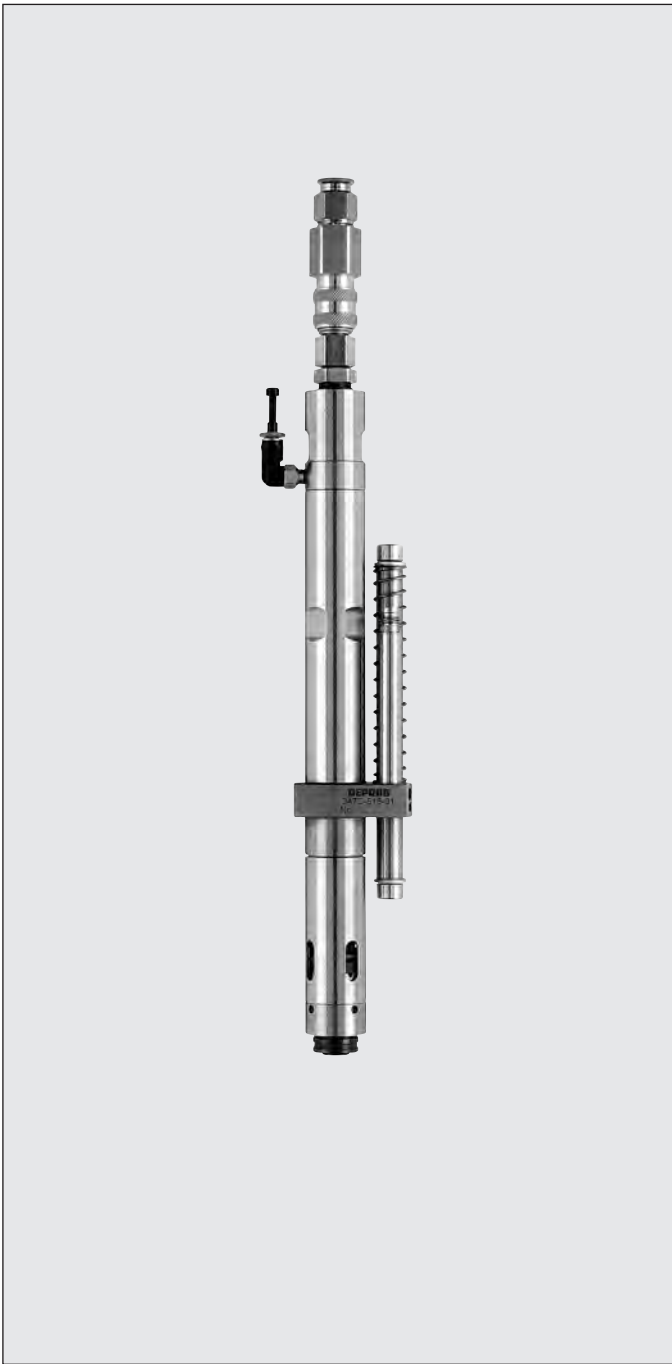
TECHNICAL DATA

Screwdriver Style		Motor Size 1	
Spindle, right rotation Push-To-Start	Type Part no.	347C-518-31 397070 C	347C-618-31 397070 D
Spindle, left rotation Push-To-Start	Type Part no.	347C-518-31 L 397072 C	347C-618-31 L 397072 D
Spindle, right rotation Remote-Start	Type Part no.	347C-510-31 397071 C	347C-610-31 397071 D
Spindle, left rotation Remote-Start	Type Part no.	347C-510-31 L 397073 C	347C-610-31 L 397073 D
Torque min.	Nm / in.lbs	0.4 / 3.5	0.4 / 3.5
Torque max.	Nm / in lbs	2 / 17.7	2 / 17.7
Speed, idling	rpm	900	600
Air consumption	m ³ /min / cfm	0.23 / 8	0.23 / 8
Weight	kg / lbs	0.6 / 1.3	0.6 / 1.3
Push-to-start pressure	N / lbs	20 / 4.5	20 / 4.5
Pressure at max. screwdriver stroke	N / lbs	25 / 5.6	25 / 5.6
Air hose dia. (external/internal-Ø)	mm / in.	8/5.5 / 0.3/0.2	8/5.5 / 0.3/0.2
Hose dia. for function control (external/internal-Ø)	mm / in.	4/2.5 / 0.15/0.09	4/2.5 / 0.15/0.09
Connection plug torque sensor		M8x1 4 pins	M8x1 4 pins
Measuring method		strain gage (DMS)	strain gage (DMS)
Internal hex. drive	DIN 3126	F6.3 (1/4")	F6.3 (1/4")
Suitable tool inserts and connecting components with a drive as per DIN 3126		E6.3 (1/4")	E6.3 (1/4")

Performance data relate to an air pressure of 6.3 bar (90 PSI)

Standard Equipment: Set of coupler and connector plug · Set of torque adjustment tools · Set of clutch springs

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



Motor Size 1				Dimensions (mm)									
				A1	A2	A3	A4	A5	A6	B1	B2	C1	C2
347C-518-31	347C-518-31L	347C-510-31	347C-510-31L	227.4	26.4	6	38	7.6 (5.6)	21	22	10	20	22
347C-618-31	347C-618-31L	347C-610-31	347C-610-31L										

Dimensions in brackets: For screwdrivers with remote start

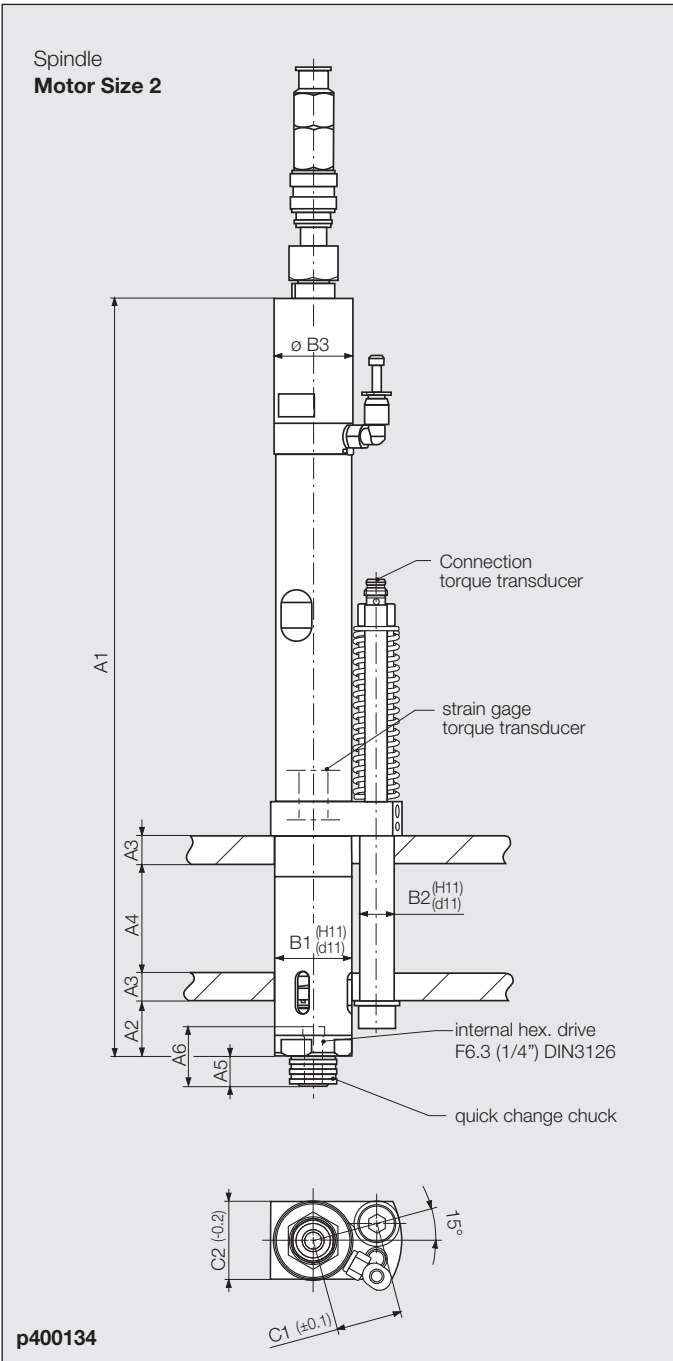
TECHNICAL DATA

Screwdriver Style		Motor Size 2	
Spindle, right rotation Push-To-Start	Type Part no.	348C-428-31 400090 D	348C-528-31 400090 C
Spindle, left rotation Push-To-Start	Type Part no.	348C-428-31 L 408970 D	348C-528-31 L 408970 C
Spindle, right rotation Remote-Start	Type Part no.	348C-420-31 412222 D	348C-520-31 412222 C
Spindle, left rotation Remote-Start	Type Part no.	348C-420-31 L 408971 D	348C-520-31 L 408971 C
Torque min.	Nm / in.lbs	1 / 8.85	0.8 / 7.1
Torque max.	Nm / in.lbs	4 / 35.4	5 / 44.3
Speed, idling	rpm	1000	680
Air consumption	m ³ /min / cfm	0.3 / 11	0.3 / 11
Weight	kg / lbs	1.1 / 2.4	1.1 / 2.4
Push-to-start pressure	N / lbs	24 / 5.3	24 / 5.3
Pressure at max. screwdriver stroke	N / lbs	100 / 22	100 / 22
Air hose dia. (external/internal-Ø)	mm / in.	8/5.5 / 0.3/0.2	8/5.5 / 0.3/0.2
Hose dia. for function control (external/internal-Ø)	mm / in.	4/2.5 / 0.15/0.09	4/2.5 / 0.15/0.09
Connection plug torque sensor		M 8x1 4 pins	M 8x1 4 pins
Measuring method		strain gage (DMS)	strain gage (DMS)
Internal hex. drive	DIN 3126	F6.3 (1/4")	F6.3 (1/4")
Suitable tool inserts and connecting components with a drive as per DIN 3126		E6.3 (1/4")	E6.3 (1/4")

Performance data relate to an air pressure of 6.3 bar (90 PSI)

Standard Equipment: Set of coupler and connector plug · Set of torque adjustment tools · Set of clutch springs

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



Motor Size 2				Dimensions (mm)										
Type				A1	A2	A3	A4	A5	A6	B1	B2	B3	C1	C2
348C-428-31	348C-428-31 L	348C-420-31	348C-420-31 L	266.1	19.1	10	38	11(9.3)	21	27	12	28	23	27
348C-528-31	348C-528-31 L	348C-520-31	348C-520-31 L											

Dimensions in brackets: For screwdrivers with remote start

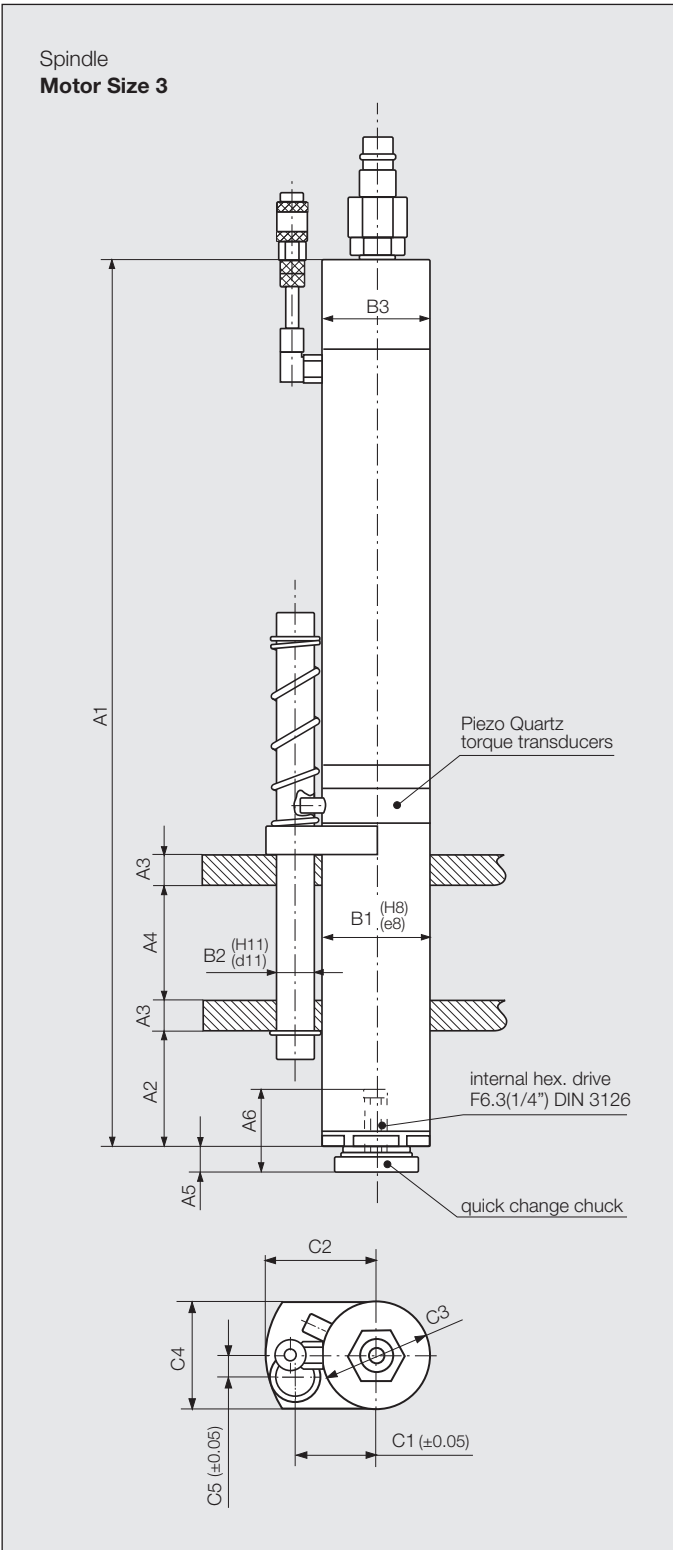
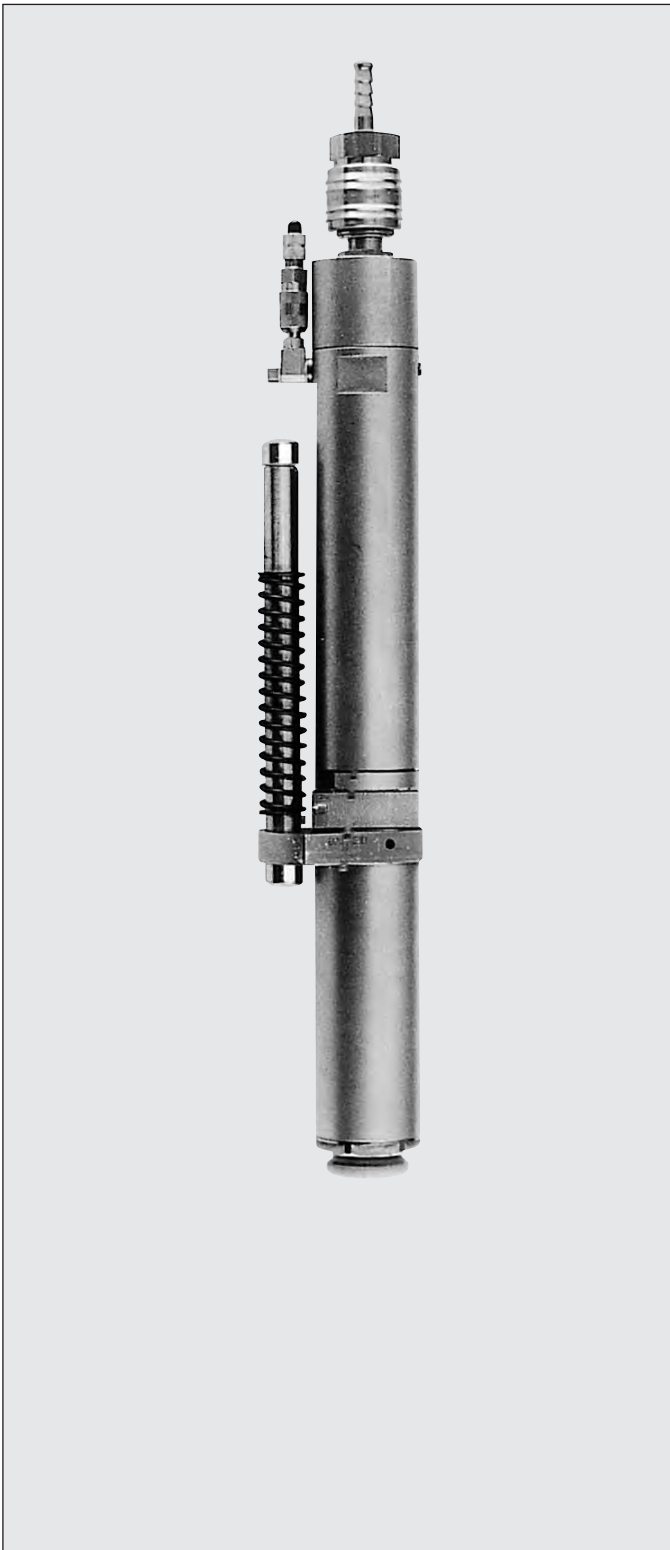
TECHNICAL DATA

Screwdriver Style		Motor Size 3	
Spindle, right rotation Push-To-Start	Type Part no.	345C-338-31 338382 C	345C-438-31 338382 D
Spindle, left rotation Push-To-Start	Type Part no.	345C-338-31 L 343801 C	345C-438-31 L 343801 D
Spindle, right rotation Remote-Start	Type Part no.	345C-330-31 372644 A	345C-430-31 372644 B
Spindle, left rotation Remote-Start	Type Part no.	345C-330-31 L 372647 A	345C-430-31 L 372647 B
Torque min.	Nm / in.lbs	2 / 17.7	2 / 17.7
Torque max.	Nm / in.lbs	14 / 123.9	24 / 212.4
Speed, idling	rpm	800	400
Air consumption	m ³ /min / cfm	0.45 / 16	0.45 / 16
Weight	kg / lbs	1.8 / 4	1.8 / 4
Push-to-start pressure	N / lbs	38 / 8.4	38 / 8.4
Pressure at max. screwdriver stroke	N / lbs	100 / 22	100 / 22
Air hose dia.	mm / in.	10 / ³ / ₈	10 / ³ / ₈
Hose dia. for function control	mm / in.	3 / ¹ / ₈	3 / ¹ / ₈
Measuring cell connector plug at piezo ring		10-32 NEG	10-32 NEG
Measuring method		piezo-electric	piezo-electric
Internal hex. drive	DIN 3126	F6.3 (1/4")	F6.3 (1/4")
Suitable tool inserts and connecting components with a drive as per DIN 3126		E6.3 (1/4")	E6.3 (1/4")

Performance data relate to an air pressure of 6.3 bar (90 PSI)

Standard Equipment: Set of coupler and connector plug · Set of torque adjustment tools · Set of clutch springs

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



Motor Size 3				Dimensions (mm)													
				A1	A2	A3	A4	A5	A6	B1	B2	B3	C1	C2	C3	C4	C5
345C-338-31	345C-338-31 L	345C-330-31	345C-330-31 L	296	38.5	10	38	8.4 (6.1)	27.4	36	12	36	27.05	37	36	36	7.25
345C-438-31	345C-438-31 L	345C-430-31	345C-430-31 L														

Dimensions in brackets: For screwdrivers with remote start

REQUIRED ACCESSORIES

	Motor Size 0*	Motor Size 1 ¹⁾	Motor Size 2 ¹⁾	Motor Size 3*
Measuring Electronic	ME1000PE	ME1000DMS	ME1000DMS	ME1000PE
	Technical data see leaflet D 3024 E			
Piezo cable 1 m / 3.3 ft. (for connection of Transducer to Measurement Instrument / Measuring-PC) Part no.	810629	–	–	810629
Extension cable 5 m / 16.4 ft. Part no.	810675	–	–	810675
Connection coupler (to attach piezo cable with extension cable) Part no.	810676	–	–	810676
Connecting cable (2/4/5 m long) (for connection of Measuring Electronic to Measuring Screwdriver)	–	385445 A/B/C	385445 A/B/C	–

¹⁾ Note: The combination of connecting cable 810629, extension cable 810675 and cable connector 810676 is absolutely necessary for the measuring set-up!

¹⁾ Note: Connecting cable 385445 A-C is absolutely necessary for the measuring set-up!

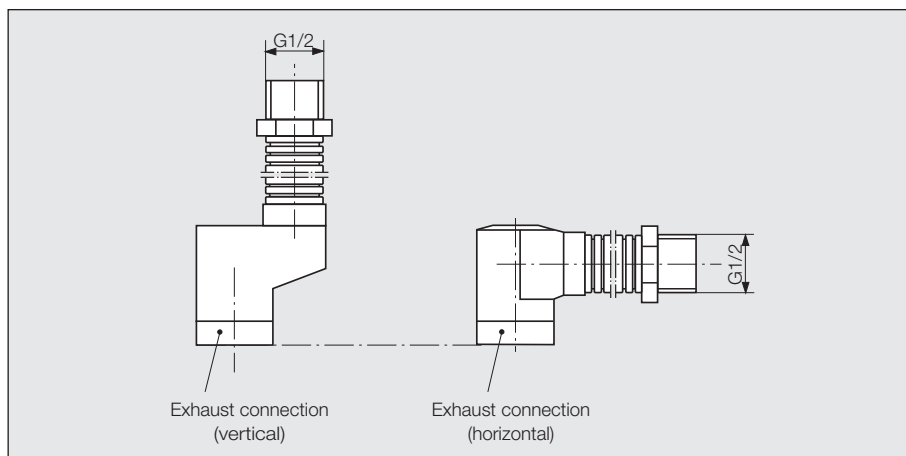
OPTIONAL EQUIPMENT

	Motor Size 0	Motor Size 1	Motor Size 2	Motor Size 3
Angle Encoder Part no.	–	395480 C	395480 B	395480 A
Technical data:				
Resolution Degree	–	1	1	1
Torque max. Nm / in.lbs	–	10 / 88	10 / 88	24 / 212
Diameter mm / in.	–	38 / 1 ¹ / ₂	38 / 1 ¹ / ₂	38 / 1 ¹ / ₂
Length mm / in.	–	93 / 1 ¹¹ / ₁₆	93 / 1 ¹¹ / ₁₆	93 / 1 ¹¹ / ₁₆
Weight kg / lbs	–	0.54 / 1.2	0.54 / 1.2	0.54 / 1.2
Drive hex. female	–	1/4"	1/4"	1/4"
Quick change chuck, mounted	–	yes	yes	yes
Connection Cable (for Torque- Angle Unit to Measuring PC) 2 m / 6.6 ft. Part no.	–	349930 A	349930 A	349930 A
6 m / 19.7 ft. Part no.	–	349930 C	349930 C	349930 C

Spring-Sleeve cpl. Part no.	364670 A	364671 A	364672 A	364673 A
Spring-Sleeve cpl., with vacuum connection Part no. (in connection with finder, see leaflet: Inserting Tools D 3320 E)	–	364671 D	364672 C	364673 C

Exhaust-Connection*)				
vertical (with 2 m / 6.6 ft. hose) Part no.	334615 C	386924 G	386924 A	334615 F
horizontal (with 2 m / 6.6 ft. hose) Part no.	–	386924 H	386924 B	–

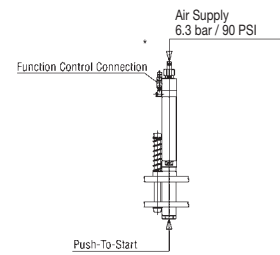
¹⁾ for corresponding exhaust filter/silencer – see leaflet D 3340 E



FUNCTION DESCRIPTION DRIVER-START

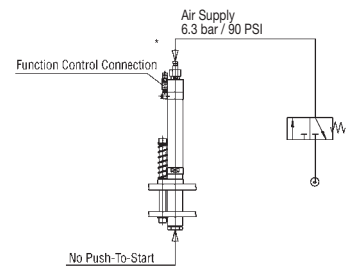
Push-To-Start

Driver with one way rotation,
right-rotation and right shut-off
or
left-rotation and left shut-off



Remote-Start (3/2-way valve)

Driver with one way rotation,
right-rotation and right shut-off
or
left-rotation and left shut-off



* During drive cycle the Function
Control Line is under pressure
(approx. 2 bar).

DEPRAG

DEPRAG SCHULZ GMBH u. CO.

P.O. Box 1352, D-92203 Amberg, Germany
Carl-Schulz-Platz 1, D-92224 Amberg
Phone (+49) 9621 371-0, Fax (+49) 9621 371-120
www.deprag.com
info@deprag.de

CERTIFIED AS PER DIN EN ISO 9001
