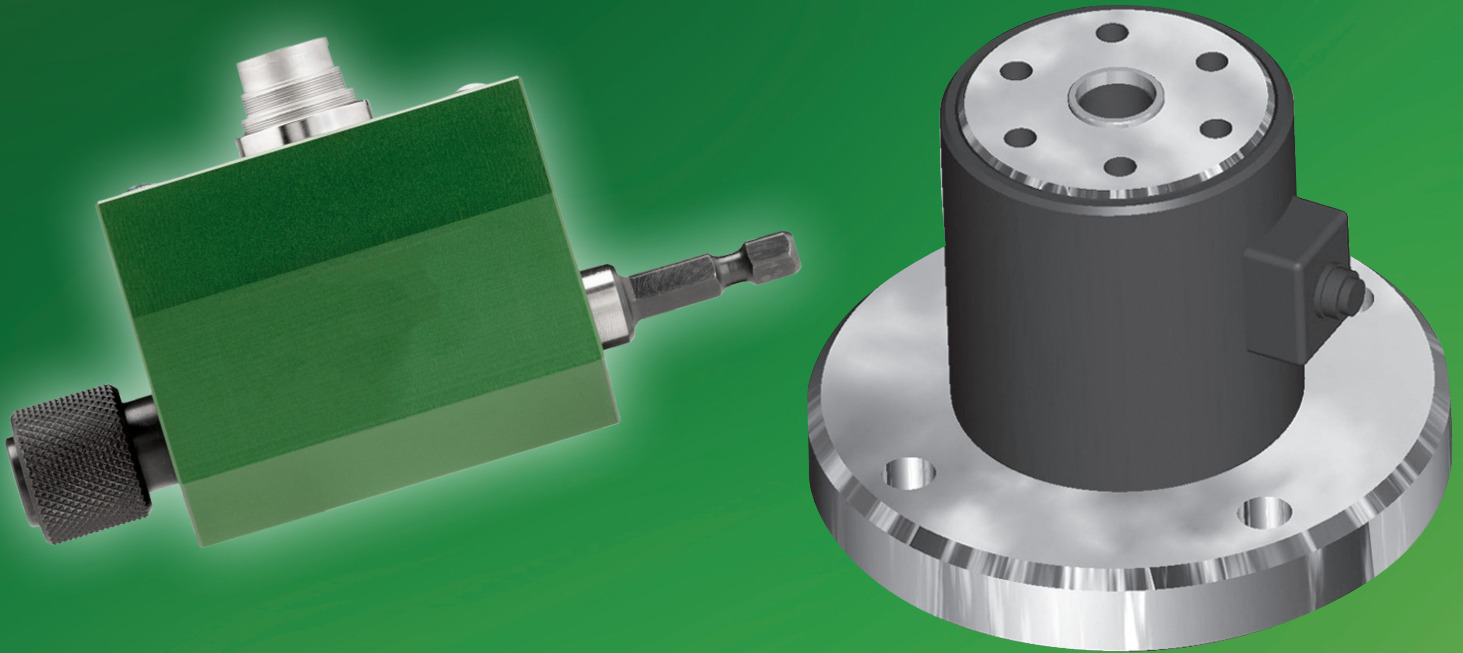


Measuring Technology



Torque Transducers

Transducers, measurement platforms and measurement wrenches

- highly accurate measurements
- wide measurement range
- in-process control with the torque transducer

The selection of a suitable torque transducer is a basic requirement for the adjustment, monitoring and inspection of screw-drivers, and also for the testing of screw joints and screw joint analysis.



EXAMPLES for the use of the most suitable measurement device for processing reliability requirements

Example 1:

An operator always assembles the same type of screw using a DEPRAG pneumatic screwdriver. Through the driver shut-off when the preset torque is reached, the assembly is controlled and assured to be accurate. In certain intervals, the screwdrivers are cross-checked using torque-transducers and if deviations occur, readjustments can be made. Measurement platforms which are intended for stationary use in a measurement laboratory or on a mobile measurement station are suitable for this test.

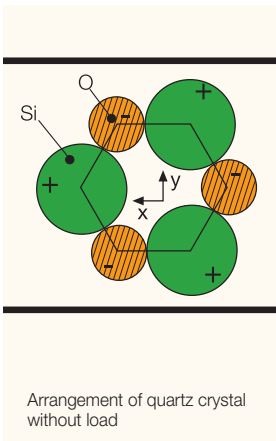
Example 2:

In a fully automatic assembly station, the regular testing of stationary screwdrivers is necessary. The DEPRAG torque wrenches in straight and angle-design, allow the mobile use when testing screwdriver-spindles without their removal from an assembly station. The torque-wrenches can also be used for the re-tightening or loosening of already assembled fastener.

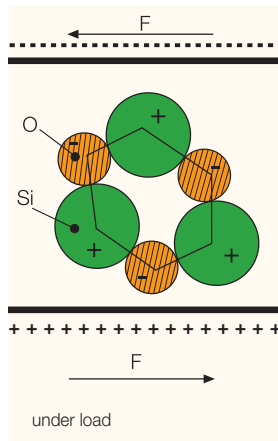
Example 3:

Transducers measure the torque directly on the component. When connected to a DEPRAG measuring instrument, this transducers are ideal for torque acquisition and screw joint analysis and are an important component for the optimum quality assurance.

PHYSICAL PRINCIPLES

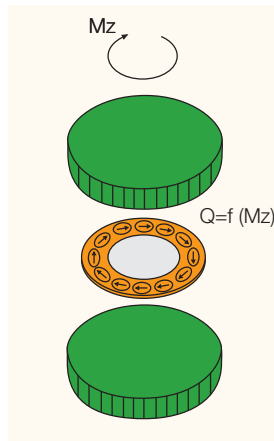


Arrangement of quartz crystal without load



under load

Function principle of the piezoelectric transducers



Torque transducers vary widely in operation and appearance, and work on many different physical principles. The most common of these are:

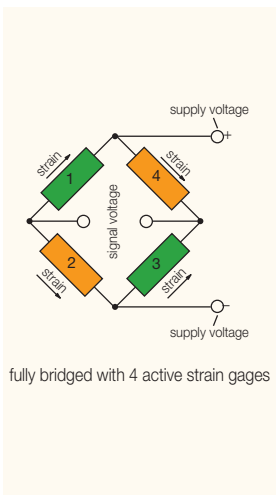
a strain gage wrapped around a torsion bar, an eddy current transducer, a mechanical (spring or hydraulic) element, and a piezoelectric crystal.

To be effective, the torque transducer must have the following attributes. It must support a sampling rate that will allow the measurement of rapidly changing loads, it must be sufficiently stiff to withstand the peak load, it must have a high degree of linearity, it must be stable under varying environmental conditions, and it must have a good operating lifetime.

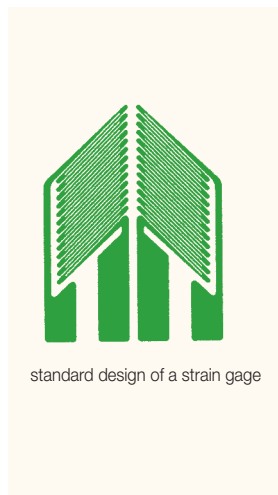
DEPRAG offers torque transducers that work on two different physical principles, both meeting these requirements.

- PE (Piezo Electric) Transducer
- DMS (Strain Gage) Transducer

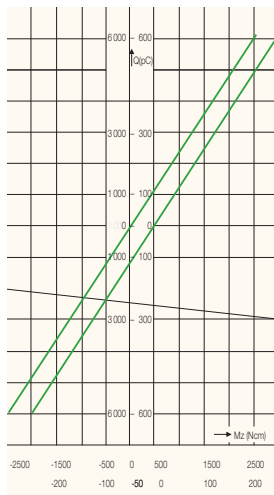
When connected to the correct measuring instrument, each type of torque transducer has applications in the screwdriving technology. The familiar DEPRAG piezoelectric transducer offers a large measuring range and a robust design. For less demanding applications, the strain gage transducer offers an economical alternative.



fully bridged with 4 active strain gages



standard design of a strain gage



Linearity diagram

Torque transducers are available either as a stationary measurement platform, or a mobile measuring wrench in straight and angle design to verify the measurement of screwdriving tools within screwdriving stations without dismantling the screwdriver. Depending on piezo-electric, strain gage or non-contact version the transducers are built to be connected to the relative electronic torque-meters (see brochure D3022E).

TECHNICAL DATA

Transducer (DMS, non-contact signal transmission)

	Type Part no.	V002-E6.3/F6.3 385481B	V005-E6.3/F6.3 385481C	V010-E6.3/F6.3 385481D	V020-E6.3/F6.3 385481E
Calibrated measuring range	Nm	0.2 - 2	0.5 - 5	1 - 10	2 - 20
	in.lbs	2 - 18	4 - 40	9 - 88	18 - 177
Permissible overload	%	100	100	100	30
Speed max.	rpm	10,000	10,000	10,000	10,000
Weight approx.	kg / lbs	0.3 / 0.66	0.3 / 0.66	0.3 / 0.66	0.3 / 0.66

Required Accessories

Measuring Instrument	Type ME5000, ME5500, ME5600, ME6000 or type ME6100 (see brochure D3022E)	
Connector Cable (for transducer to measuring instrument ME 5...) Length 2 m / 4 m / 6 m 6.6' / 13' / 20'	Part no.	385486A/B/C
Power Supply for transducer connected to measuring instrument ME 5000	Part no.	800827
Power Supply Cable 220 V / 110 V	Part no.	812587 / 812295

When connected to a DEPRAG measuring instrument, this transducer is ideal for torque acquisition and documentation of all acquired results of screw joints and assembly requirements.

During the actual assembly process, performing torque acquisition and screw-joint analysis is possible. This feature fulfills most or all assembly-process requirements and assures even the highest quality demands.



V002-E6.3/F6.3
to
V020-E6.3/F6.3

DEPRAG
D-92224 AMBERG
Type: V005-E6.3/F6.3
Serial-Nr.: 385481 C
Fabr. Nr.: 1071846
Messbereich: 0,5 - 5Nm

Piezoelectric (PE) transducers: measuring platforms

	Type	MP1PE	MP25PE	MP200PE
	Part no.	408000C	360850A	373205A
Calibrated measuring range *)	Nm	0.1 - 1	2.5 - 25	20 - 200
	in.lbs	0.88 - 8.85	22.12 - 221.25	177-1770
Permissible overload	%	20	20	20
Typical measurement uncertainty	%	<1	<1	<1
Sensibility	pC / Ncm	21.7	2.4	1.7
Frequency response	kHz	> 53	approx. 15	approx. 3.5
Linearity	≤ %	± 0.2	± 1	± 1
Diameter D	mm / in.	109.5 / 4.3	105 / 4 1/8	140 / 5 1/2
Weight	kg / lbs	1.3 / 2.9	1.3 / 2.9	3.5 / 7.7
Connecting plug	type	BNC, neg.	BNC, neg.	BNC, neg.

Strain gage (DMS) transducers: measuring platforms

	Type	MP2DMS	MP7DMS	MP25DMS	MP160DMS	MP500DMS
	Part no.	385200B	385200A	385200C	385200D	408088A
Calibrated measuring range *)	Nm	0.2 - 2	1.05 - 7	2.5 - 25	16 - 160	50 - 500
	in.lbs	1.77 - 17.7	9.29 - 61.95	22.12 - 221.25	141.6 - 1416	442.5 - 4425
Permissible overload	%	20	20	20	20	20
Typical measurement uncertainty	%	<1	<1	<1	<1	<1
Sensibility at nominal torque	mV/V	1.5	1.8	1.8	1.8	-
Operational temperature range	°C	10 to 40	10 to 40	10 to 40	10 to 40	10 to 40
	°F	50 to 104	50 to 104	50 to 104	50 to 104	50 to 104
Parameter temperature coefficient	% / K	0.01	0.01	0.01	0.01	0.01
Zero signal temperature coefficient	% / K	0.02	0.02	0.02	0.02	0.02
Supply voltage (DC)	V	5	5	5	5	12
Diameter D	mm / in.	105 / 4 1/8	105 / 4 1/8	105 / 4 1/8	140 / 5 1/8	229 / 9 1/64
Weight	kg / lbs	1 / 2.2	1 / 2.2	1 / 2.2	2 / 4.4	18 / 39.6
Connecting plug		4-pole	4-pole	4-pole	4-pole	12-pole

*) Calibrated measuring range (standard calibration - part no. 3855285 - included in delivery) according to VDI/VDE2646, optional calibration, see page 7. Calibrations for other measuring ranges upon request!

Required Accessories:	Measuring Instrument (see brochure D3022E). Connection Cable and Screwplates see page 6.
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The measuring platforms are well suited for the installation into a calibration laboratory, as well as for the construction of a mobile measuring waggon. The robust and sturdy platform design guarantees permanent high measuring accuracies. As an optional accessory, we offer a clamping plate, which allows the temporary fasten-

ing of the platform into a vice. For specially high accuracy demands, or for the obtaining of extremely small torque values, we recommend to mount the platform with its polished lower surface to a table top, which has been treated in a similar fashion.

Because of such an extreme high grade installation, even the smallest measuring-errors, created by lateral force, deflection, vibration, or misalignment, can be completely avoided.

To ensure optimal measurement conditions we offer screwdriver adapters in combination with linear stands or parallelogram arms (see brochure D3345E).



MP1PE



MP25PE



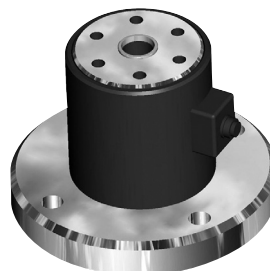
MP200PE



MP2DMS - MP25DMS



MP160DMS



MP500DMS

Piezoelectric (PE) transducer: E-torque wrench

	Type			MS25PE-W	MS25PE-WS
	Part no.			346217A	346217C
Calibrated measuring range *)	Nm			2.5 - 25	2.5 - 25
	in.lbs			22.12 - 221.25	22.12 - 221.25
Permissible overload	%			20	20
Typical measurement uncertainty	%			<1	<1
Sensibility	pC / Ncm			2.4	2.4
Frequency response	kHz			approx. 15	approx. 15
Linearity	≤ %			± 1	± 1
Length L	mm / in.			442 / 17 ¹³ / ₃₂	297 / 11 ¹¹ / ₁₆
Weight	kg / lbs			1.1 / 2.4	0.9 / 1.98
Connecting plug	type			BNC, neg.	BNC, neg.

Strain gage (DMS) transducers: E-torque wrench

	Type	MS2DMS	MS7DMS	MS7DMS-W	MS25DMS-W
	Part no.	387798B	387798A	388050A	388050C
Calibrated measuring range *)	Nm	0.2 - 2	1.05 - 7	1.05 - 7	2.5 - 25
	in.lbs	1.77 - 17.7	9.29 - 61.95	9.29 - 61.95	22.12- 221.25
Permissible overload	%	20	20	20	20
Typical measurement uncertainty	%	<1	<1	<1	<1
Sensibility at nominal torque	mV/V	1.5	1.8	1.8	1.8
Operational temperature range	°C	0 to + 60	0 to + 60	0 to + 60	0 to + 60
	°F	32 to 140	32 to 140	32 to 140	32 to 140
Parameter temperature coefficient	% / K	0.01	0.01	0.01	0.01
Zero signal temperature coefficient	% / K	0.02	0.02	0.02	0.02
Supply voltage (DC)	V	5	5	5	5
Length L	mm / in.	186 / 7 ⁵ / ₁₆	186 / 7 ⁵ / ₁₆	268 / 10 ⁹ / ₁₆	423 / 16 ⁵ / ₈
Weight	kg / lbs	0.5 / 1.1	0.5 / 1.1	0.5 / 1.1	0.7 / 1.5
Connecting plug		4-pole	4-pole	4-pole	4-pole

*) Calibrated measuring range (standard calibration - part no. 3855285 – included in delivery) according to VDI/VDE2646, optional calibration, see page 7. Calibrations for other measuring ranges upon request!

Required Accessories:	Measuring Instrument (see brochure D3022E). Connection Cable and Screwplates see page 6.
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The E-torque wrenches allow the testing of screwdriver spindles without their removal from an assembly station.



MS25PE-W



MS2DMS
MS7DMS



MS7DMS-W
MS25DMS-W

ACCESSORIES

Required Accessories

For Piezoelectric (PE) transducers: measuring platforms			Type	MP1PE			MP25PE	MP200PE	
For Piezoelectric (PE) transducer: E-torque wrench			Type				MS25PE-W(S)		
Connection cable to measuring instrument	5 m/16.4 ft.	Part no.		810675			810675	810675	
Connection cable to measuring instrument	1 m/3.3 ft.	Part no.							
For Strain gage (DMS) transducers: measuring platforms			Type		MP2DMS	MP7DMS	MP25DMS	MP160DMS	MP500DMS
For Strain gage (DMS) transducers: E-torque wrenches, angle head design			Type			MS7DMS-W	MS25DMS-W		
For Strain gage (DMS) transducers: E-torque wrenches, straight design			Type		MS2DMS	MS7DMS			
Connection cable to measuring instrument	2 m/ 6.6 ft.	Part no.		385493A	385493A	385493A	385493A	385493A	385486A
Connection cable to measuring instrument	4 m/13.2 ft.	Part no.		385493B	385493B	385493B	385493B	385493B	385486B
Connection cable to measuring instrument	6 m/19.8 ft.	Part no.		385493C	385493C	385493C	385493C	385493C	385486C
Screwplate M1.6: 0.8-2 Ncm	right	Part no.	120422A						
(for above allen bit* AF1.5)	left	Part no.							
Screwplate M1.6: 2-6 Ncm	right	Part no.	120422B						
(for above allen bit* AF1.5)	left	Part no.							
Screwplate M2.5: 6-16 Ncm	right	Part no.	120424A						
(for above allen bit* AF2)	left	Part no.							
Screwplate M2.5: 16-40 Ncm	right	Part no.	120424B						
(for above allen bit* AF2)	left	Part no.							
Screwplate M4: 40-100 Ncm	right	Part no.	120426E						
(for above allen bit* AF3)	left	Part no.							
Screwplate M1.6: 0.06-0.12 Nm	right	Part no.		120571A	120571A	120571A			
(for above allen bit* AF1.5)	left	Part no.							
Screwplate M2: 0.12-0.25 Nm	right	Part no.		120572A	120572A	120572A			
(for above allen bit* AF1.5)	left	Part no.		120572B	120572B	120572B			
Screwplate M2.5: 0.25-0.5 Nm	right	Part no.		120573A	120573A	120573A			
(for above allen bit* AF2)	left	Part no.		120573B	120573B	120573B			
Screwplate M3: 0.5-0.9 Nm	right	Part no.		120574A	120574A	120574A	120574A		
(for above allen bit* AF2.5)	left	Part no.		120574B	120574B	120574B	120574B		
Screwplate M4: 0.9-2.2 Nm	right	Part no.		120575A	120575A	120575A	120575A		
(for above allen bit* AF3)	left	Part no.		120575B	120575B	120575B	120575B		
Screwplate M5: 2.2-5 Nm	right	Part no.			120576A	120576A	120576A		
(for above allen bit* AF4)	left	Part no.			120576B	120576B	120576B		
Screwplate M6: 5-8 Nm	right	Part no.			120577A	120577A	120577A		
(for above allen bit* AF5)	left	Part no.			120577B	120577B	120577B		
Screwplate M8: 8-25 Nm	right	Part no.				120578A	120578A		
(for above allen bit* AF6)	left	Part no.				120578B	120578B		
Screwplate M10: 17-35 Nm	right	Part no.					120579A		
(for above socket* AF17)	left	Part no.					120579B		
Screwplate M12: 35-60 Nm	right	Part no.						120580A	
(for above socket* AF19)	left	Part no.							
Screwplate M14: 60-100 Nm	right	Part no.						120446C	
(for above socket* AF22)	left	Part no.							
Screwplate M16: 100-200 Nm	right	Part no.						120446D	
(for above socket* AF24)	left	Part no.							

*) Please find the best-suited bit or socket for your screwdriver with our [online selection tool](#).

More optional accessories

Bit adapter, hex. drive female DIN ISO 1173 F6.3 (1/4")	Part no.		120489A	120489A	120489A	120489A	
Socket adapter, square drive male DIN 3121 E12.5 (1/2")	Part no.		120488A	120488A	120488A	120488A	
Clamping plate for clamping the torque dynamometer into a vice	Part no.	120436A	120436A	120436A	120436A	120436A	



Screw
plate



Bit adapter



Socket adapter



Clamping
plate

**Calibration of DEPRAG measurement transducer
Factory calibration of a measurement device**

<p>DAkkS-calibration in accordance with DIN 51309 Strain gauge measurement transducer Load right/left 3 mounting positions 8 measurement points DAkkS-calibration certificate Part no. 3855281</p>	<p>Factory calibration in accordance with DIN 51309 *) Strain gauge or piezo measurement transducer Load right/left 3 mounting positions 8 measurement points Factory calibration certificate Part no. 3855282</p>
<p>Factory calibration in accordance with DIN 51309 *) Strain gauge or piezo measurement transducer Load right 3 mounting positions 8 measurement points Factory calibration certificate Part no. 3855283</p>	<p>Factory calibration in accordance with VDI/VDE 2646 *) Strain gauge or piezo measurement transducer Load right/left 2 mounting positions 8 measurement points Factory calibration certificate Part no. 3855284</p>
<p>Factory calibration (Standard) in accordance with VDI/VDE 2646 *) Strain gauge or piezo measurement transducer Load right 2 mounting positions 8 measurement points Factory calibration certificate Used for first calibration Standard for recalibration Part no. 3855285</p>	<p>Factory calibration of measurement device *) Inspection and calibration of a torque measurement device in accordance with DIN ISO 9001, as well as the creation of a corresponding measurement protocol with proof of traceability to national standards. Part no. 000768</p>
<p>Realignment of torque transducers DMS non-contact Documentation by factory certificate Part no. 000769</p>	

*) The execution of factory calibrations is not part of the accredited scope of services and is not subject to supervision by the DAkkS.

TECHNICAL DATA

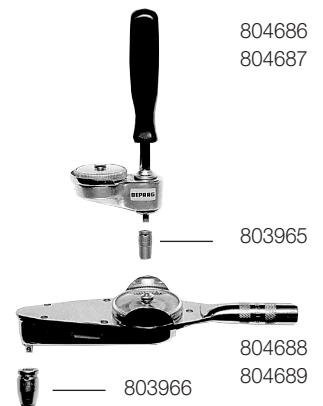
Mechanical torque wrenches

	Part no.	804686	804687	804688	804689
Measuring range	Nm/in.lbs	0 - 3.4 / 30	0 - 8.4 / 74	0 - 17 / 150	0 - 60 / 531
Increment	Nm/in.lbs	0.1 / 0.89	0.2 / 1.77	0.5 / 4.43	1 / 8.85
Drive (square male)		1/4"	1/4"	3/8"	3/8"
Optional equipment					
Bit adapter *)	Part no.	803965	803965	803966	803966

*) Inserting tools see leaflet D 3320 E

The mechanical torque wrenches (manual indicator design) can be used for simple adjustment or control tasks. To obtain the torque of a screw connection, simply re-

tighten the fastener. The use of a mechanical torque wrench allows the fast appraisal of tightening torque values.



804686
804687

803965

804688
804689

803966

Possible Combinations

Measuring principle: PIEZO-ELECTRIC

Measuring Instrument

Type ME5000, ME5500,
ME5600, ME6000 or ME6100

Connection Cable:

Length 5 m Part no. 810675

Torque Transducer

Measuring type MP1PE, type MP25PE,
Platforms: type MP200PE
E-Torque-Wrenches: type MS25PE-W
type MS25PE-WS

Measuring principle: STRAIN GAGE

Measuring Instrument

Type ME5000, ME5500,
ME5600, ME6000 or ME6100

Connection Cable:

Connection Measuring Instrument ME... to
Measuring Platforms or Torque Wrenches

Length 2 m Part no. 385493A
Length 4 m Part no. 385493B
Length 6 m Part no. 385493C

Torque Transducer

Measuring Platforms: type MP2DMS
type MP7DMS
type MP25DMS
type MP160DMS
E-Torque Wrenches: type MS2DMS
type MS7DMS
type MS7DMS-W
type MS25DMS-W

Measuring principle: STRAIN GAGE OR DMS NON-CONTACT

Measuring Instrument

Type ME5000, ME5500,
ME5600, ME6000 or ME6100

Connection Cable:

Connection Measuring Instrument ME... to
Non-contact Transducer or Measuring Platforms

Length 2 m Part no. 385486A
Length 4 m Part no. 385486B
Length 6 m Part no. 385486C

Torque Transducer

Non-contact Transducer
type V002-E6.3/F6.3
type V005-E6.3/F6.3
type V010-E6.3/F6.3
type V020-E6.3/F6.3

Measuring Platform
type MP500DMS

Additionally required when connected with ME5000:
Power Supply Part no. 800827 and
Power Supply Cable 230 V Part no. 812587
115 V Part no. 812295

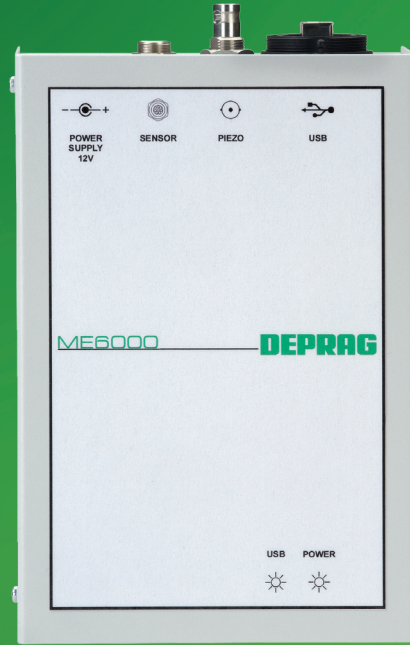
DEPRAG

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www.deprag.com
info@deprag.de

CERTIFIED AS PER DIN EN ISO 9001

Measuring Technology



Measurement devices for manual use for precise highly dynamic torque measurement

- precise highly dynamic torque measurement
- simple and safe handling
- controlled by micro-processor



All measurement devices of the series ME for manual use in combination with our measurement transducer enable precise highly dynamic torque measurement.

Example applications:

- torque setting, monitoring and control of screwdriving tools
- inspection of mechanical torque wrenches
- torque testing for stationary screwdrivers directly in the assembly station with-out removal of the screwdrivers
- inspection and documentation of assembly quality in accordance with standard DIN EN ISO 9001

Operating modes of DEPRAG measurement devices:

- **For individual measurement with display of the peak value** all received measurements are recorded and the highest individual value during the entire measurement period is issued as the measurement result.
- During the mode **measurement series** the peak values of several individual measurements are automatically summarised in a measurement series. From the measurement series the essential parameters, such as average \bar{x} and standard deviation s , are calculated.
- **Individual measurement with display of the current value**, where the current torque measurement is always displayed (see measurement electronic ME5600).

DESCRIPTION

Functional principle of DEPRAG measurement devices

Functional principle of the measurement devices with each torque transducer:

- **Piezoelectric transducer** The electric charge given off by the transducer is transformed into an analogue measurement signal by a specially calibrated charge amplifier.
- **Strain gauge transducer** Measurement devices already have an analogue measurement signal on the transducer.
- **Torque transducer** The torque transducer creates output voltage of 0-5 volt, proportional to the torque.

All our measurement devices of the series ME5... and ME6... include measurement connections for the three above-mentioned transducers. Using a high resolution fast AD converter the torque values are also precisely registered and digitally displayed for highly dynamic tightening procedures.

We also offer a comprehensive calibration service for regular inspection of your measurement device.

The software on the standard devices enables selection of the measurement unit (metric/inch) as well as the language (German/English).

All measurements can be read from the display and can be printed out (see optional accessories page 4) or read via a superior main computer depending on the version.

Torque measurement device ME5000



The mobile and compact measurement device ME5000 with integrated battery allows torque measurement independent of location or power supply. E.g. ideal to ascertain a screwdriver's optimal setting value directly on the assembly station. A docking station and battery charger are included with the ME5000. The registered measurement values can be transmitted via a serial port on the docking station to a PC or printed on printer ND 40 (see accessories).

Torque measurement device ME5500



The measurement electronic ME5500 for connection to a PC is the ideal measurement device for stationary laboratory work stations. As well as all torque measurement functions, this software also enables you to carry out detailed screw analysis. This can display the complete cycle procedure "torque over a period of time" for a measurement series. The required graph analysis program is included as standard. The operation of this device, the display and printing of measurement values and the data processing is carried out directly on your PC, which is connected to the measurement device by a USB 2.0 port. Your advantage: You can flexibly process large amounts of data (e.g. with a normal statistic program) – all data is available on your PC as an ASCII-file.

The measurement electronic ME5500 can be used on Windows System 7, 8 and 10.

Torque measurement device ME5600



The measurement electronic ME5600 is the ideal measurement device for use on a mobile measuring station or in a measurement laboratory to carry out inspection and adjustment of screwdriving tools of all kinds on location.

Using the measurement electronic ME5600 the current torque value can be recorded and displayed. Another great advantage of the measurement electronic is the high resolution of the measurement data and the recording of large measurement series of up to 100 values.

All values are graphically displayed on the LC display. The device can be operated easily using the touch screen. Data can be printed on various printers (see accessories).

Torque measurement device ME6000 / ME6100



The measurement electronic ME6000 (measuring range up to 480 Nm) and the ME6100 (measuring range up to 1000 Nm) with a linearity of < 0.5% and accuracy of < ±0.5% FS have been added to the DEPRAG portfolio of torque measurement devices. They are high quality precision measurement devices which even have double the accuracy of the reliable ME5500 and are highly recommended for tasks where highest measurement accuracy is required. This is imperative for torque below 0.5 Nm (for DEPRAG screwdriver families NANOMAT and MICROMAT).

The high resolution system of 15 bit is suitable for all torque transducers.

Small measurement ranges can be measured with high precision over a large range (min. 1:10).

As well as all functions for torque recording the software can also carry out detailed software analysis, which displays the cycle procedure "torque over period of time" of a measurement cycle. The required graph analysis program is included as standard. The software can be used on 32 and also 64 bit Windows Systems.

The operation of this device, the display and printing of measurement values and the data processing is carried out directly on your PC, which is connected to the measurement device by a USB 2.0 port. Your advantage: You can flexibly process large amounts of data (e.g. with a normal statistics program) – all data is available on your PC as an ASCII-file.

TECHNICAL DATA Measurement electronic ME5000/ME5500/ME5600/ME6000/ME6100

suitable for		PE transducer, strain gauge transducer, torque transducer				
Measuring Instrument	Type Part no.	ME5000 *) 385484A	ME5500 111604A	ME5600 201440A	ME6000 ¹⁾ 385565A	ME6100 ¹⁾ 106402A
Operating mode:						
– Peak value display		yes	yes	yes	yes	yes
– Prevailing torque-value display		no	yes	yes	yes	yes
– Measurement series with statistics X, S		yes (max. 40 series of 100 values each)	yes (up to 1000 values)	yes (up to 100 values)	yes (up to 1000 values)	
Total measuring range	Nm	depending on measuring transducer				
Number of measuring ranges		depending on measuring system				
Display		LC-display alphanumeric 4-lines 16 digits per line	External, standard PC-Monitor	LC-display graphic Touch screen	External, standard PC-Monitor	
Data output (for printer or PC)		SUB-D 9-pin RS 232 (9600 Baud)	ASCII-Data CSV-Data JPG, BMP	SUB-D 9-pin RS 232 (9600 Baud)	ASCII-Data CSV-Data JPG, BMP	
Connection for measuring transducer		8-pin connector / BNC connector				
Linearity	%	< 1	< 1	< 1	< 0.5	
Accuracy	% FS	< ± 1	< ± 1	< ± 1	< ± 0.5	
Electrical power supply		Rechargeable battery	Power unit 12V	Power supply 85 up to 264 Volt (50 or 60 Hz)	Power unit 12V	
Dimensions (W x H x D)	mm	106 x 224 x 40	132 x 84 x 194	225 x 200 x 140	132 x 84 x 194	
	in.	4 11/64 x 8 13/16 x 1 9/16	5 13/64 x 3 5/16 x 7 41/64	8 55/64 x 7 7/8 x 5 33/64	5 13/64 x 3 5/16 x 7 41/64	
Weight	kg / lbs	1 / 2.2	1.9 / 4.2	2.8 / 6.2	1.9 / 4.2	

* Software-Languages: German/English (Standard)
English/Czech (part no. 202043) please quote when ordering!


¹⁾ Measuring Instrument ME6000 in connection with MP1000PE: measuring range up to 480 Nm
Measuring Instrument ME6100 in connection with MP1000PE: measuring range up to 1000 Nm

Required Accessories:	Connector cable (see below) - Measuring Transducer (see leaflet D3020E).				
Connector cable to connect					
Measuring instrument	ME5000	ME5500	ME5600	ME6000	ME6100
with Measuring Transducer					
Piezo electric (PE) Measurement device Measurement platform/wrench: MP1PE, MP2 PE, MP200PE or MS25PE-W	810675 (5 m)	810675 (5 m)	810675 (5 m)	810675 (5 m)	810675 (5 m)
MP1000PE	810629 (1 m)	810629 (1 m)	810629 (1 m)	810629 (1 m)	810629 (1 m)
Strain gauge (DMS) Measurement device Measurement platform/wrench: MP2DMS, MP7DMS, MP25DMS or MP160DMS	385493A (2 m) 385493B (4 m) 385493C (6 m)	385493A (2 m) 385493B (4 m) 385493C (6 m)	385493A (2 m) 385493B (4 m) 385493C (6 m)	385493A (2 m) 385493B (4 m) 385493C (6 m)	385493A (2 m) 385493B (4 m) 385493C (6 m)
MP500DMS	385486A (2 m)* 385486B (4 m)* 385486C (6 m)*	385486A (2 m) 385486B (4 m) 385486C (6 m)	385486A (2 m) 385486B (4 m) 385486C (6 m)	385486A (2 m) 385486B (4 m) 385486C (6 m)	385486A (2 m) 385486B (4 m) 385486C (6 m)
MS2DMS, MS7DMS, MS7DMS-W or MS25DMS-W	385493A (2 m) 385493B (4 m) 385493C (6 m)	385493A (2 m) 385493B (4 m) 385493C (6 m)	385493A (2 m) 385493B (4 m) 385493C (6 m)	385493A (2 m) 385493B (4 m) 385493C (6 m)	385493A (2 m) 385493B (4 m) 385493C (6 m)
Torque transducer (strain gauge, non-contact): V002-E6.3/F6.3, V005-E6.3/F6.3, V010-E6.3/F6.3 or V020-E6.3/F6.3	385486A (2 m)* 385486B (4 m)* 385486C (6 m)*	385486A (2 m) 385486B (4 m) 385486C (6 m)	385486A (2 m) 385486B (4 m) 385486C (6 m)	385486A (2 m) 385486B (4 m) 385486C (6 m)	385486A (2 m) 385486B (4 m) 385486C (6 m)

* Additionally required: Power Supply part no. 800827 and Power Supply cable 230/115 V part no. 812587 / 812295

OPTIONAL EQUIPMENT

for Measuring Instrument		ME5000	ME5500	ME5600	ME6000/ME6100
Software:					
DFQ-Interface for QS-STAT	Part no.	on request	on request	on request	on request
PC software	Part no.	832612	—	—	—
Connector cable (ME5000 - RS232)	Part no.	832415	—	—	—
Printer	Type			ND350	
	Part no.			112462A	
Technical Data:					
Print method				9-pin Printer	
Digits per line				> 100	
Print speed		—	—	approx. 2 lines/sec.	—
Print storage				2 KB	
Interface port				RS 232 / parallel	
Electrical power supply				230 V / 50 Hz	
Dimensions (W x H x D)	mm			385 x 135 x 300	
	in.			15 ⁵ / ₈ x 5 ⁵ / ₁₆ x 11 ¹³ / ₁₆	
Weight	kg / lbs			4 / 8.8	

 Our software solutions undergo continuous improvements. We recommend that you regularly update your software. In this way you will always receive the most up-to-date security updates, upgraded features and drivers. With the most current version of the software you can be sure that your device is optimally prepared for Industry 4.0.



source: www.epson.de

Printer ND350

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