



HEIDENHAIN

Montageanleitung
Mounting Instructions

ERP 4080
ERP 8080

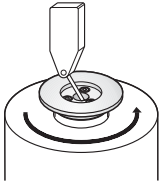
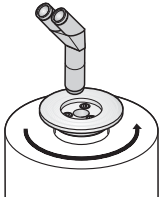
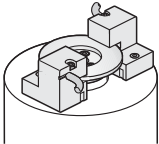
11/2007

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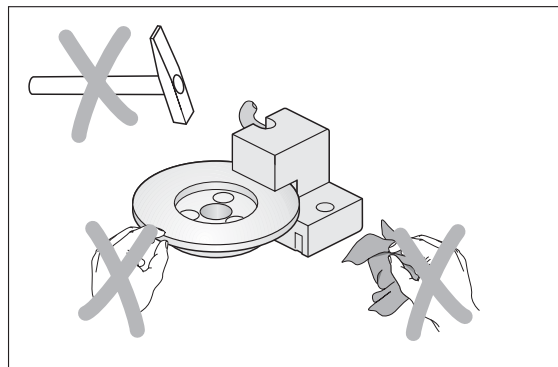
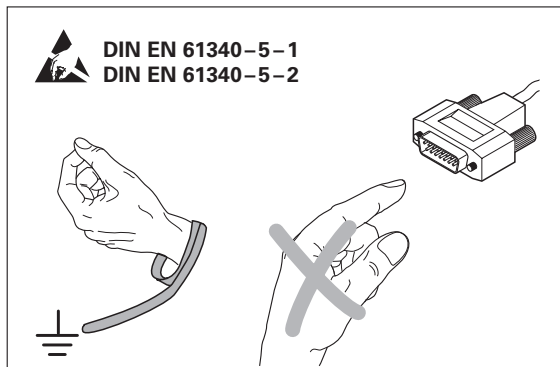
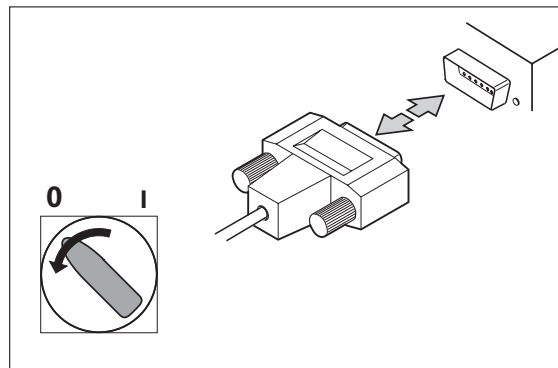
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<p>Alternative Zentriermöglichkeiten <i>Alternative centering methods</i></p>	 <p>mech.</p>	 <p>opt.</p>	 <p>el.</p>
<p>Systemgenauigkeit (typ. erreichbare Werte) <i>System accuracy</i> (typical values to be achieved)</p>	<p>ERP 4080 60" ... 50"</p>	<p>ERP 4080 30" ... 20"</p>	<p>ERP 4080 10" ... 5"</p>
	<p>ERP 8080 25" ... 20"</p>	<p>ERP 8080 15" ... 10"</p>	<p>ERP 8080 5" ... 2"</p>



Maße in mm
Dimensions in mm



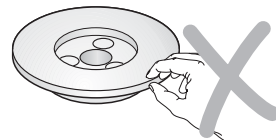


Gerät nur mit Handschuhen aus der Verpackung nehmen.

Teilkreis nur seitlich berühren.

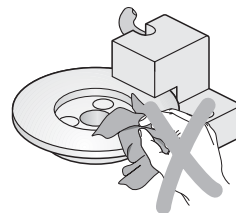
Always wear gloves when taking the device out of the packaging.

Touch graduated disk on the sides only.



Teilung nicht berühren!

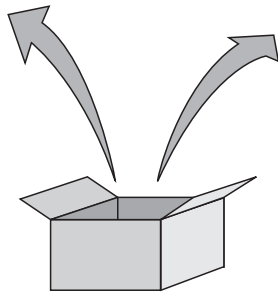
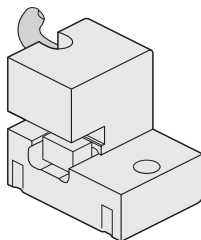
Do not touch the graduation!



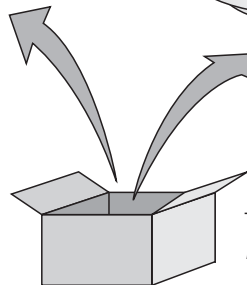
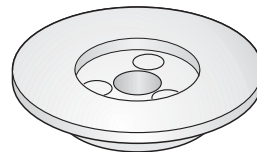
Gerät nicht reinigen!

Do not clean the device!

Lieferumfang
Items Supplied



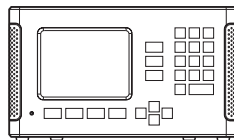
Abtastkopf
Scanning Head



Teilscheibe/Nabe
Disk/Hub

Zubehör Accessories

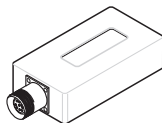
Seperat bestellen
Order seperately



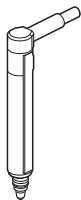
ND 780
ID 520 010-01



Messtaster-Adapter
Gauge adapter
ID 627 142-01



PWT 18
ID 325 413-01



ST 1288
ID 383 979-01

Abstandsfolien Spacer foils



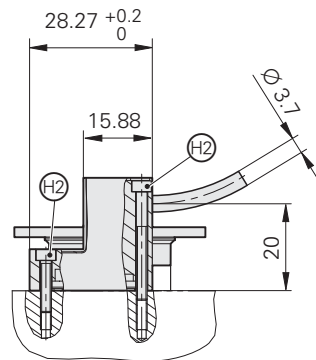
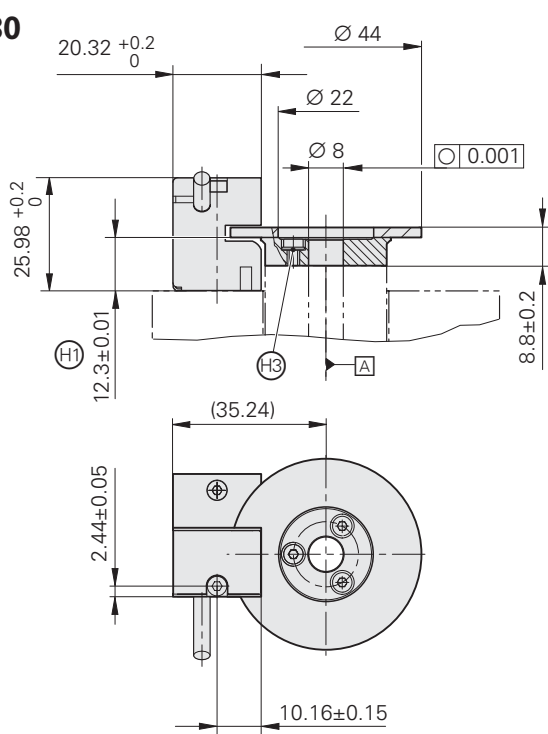
ID 619 943-01 : 10 µm bis 100 µm in 10 µm – Schritten
: 10 µm up to 100 µm in steps of 10 µm
-10

ID 619 943-11 alle Größen (je 1 Folie)
choice of all kinds (one of each)



Montagehilfe
Assembly aid
ID 622 976-02

ERP 4080



\square = Lagerung
Bearing

mm



Tolerancing ISO 8015

ISO 2768 - m H

< 6 mm: ± 0.2 mm

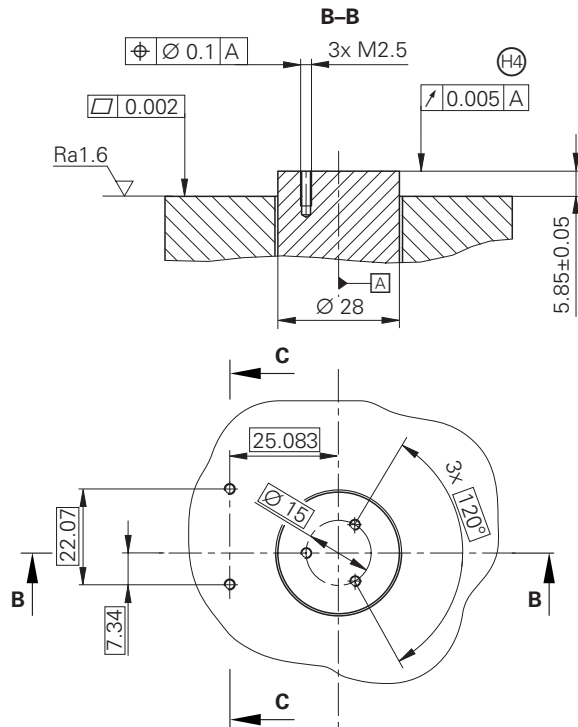
Ⓜ1 = Montageabstand mit Abstandsfolie eingestellt
Mounting clearance set with spacer foil

Ⓜ2 = Zylinderschraube ISO 4762 M2.5
ISO 4762 M 2.5 cylinder head screw

Ⓜ3 = Zylinderschraube ISO 4762 M 2.5 und Scheibe ISO 7089-2.5
ISO 4762 M 2.5 cylinder head screw and ISO 7089-2.5 disk

ERP 4080

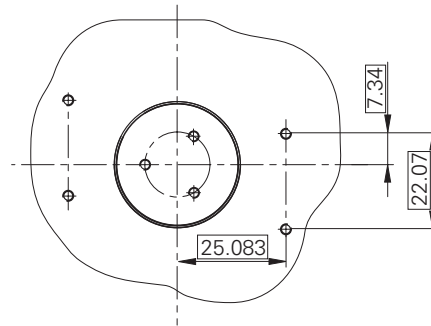
Kundenseitige Anschlussmaße
Required mating dimensions



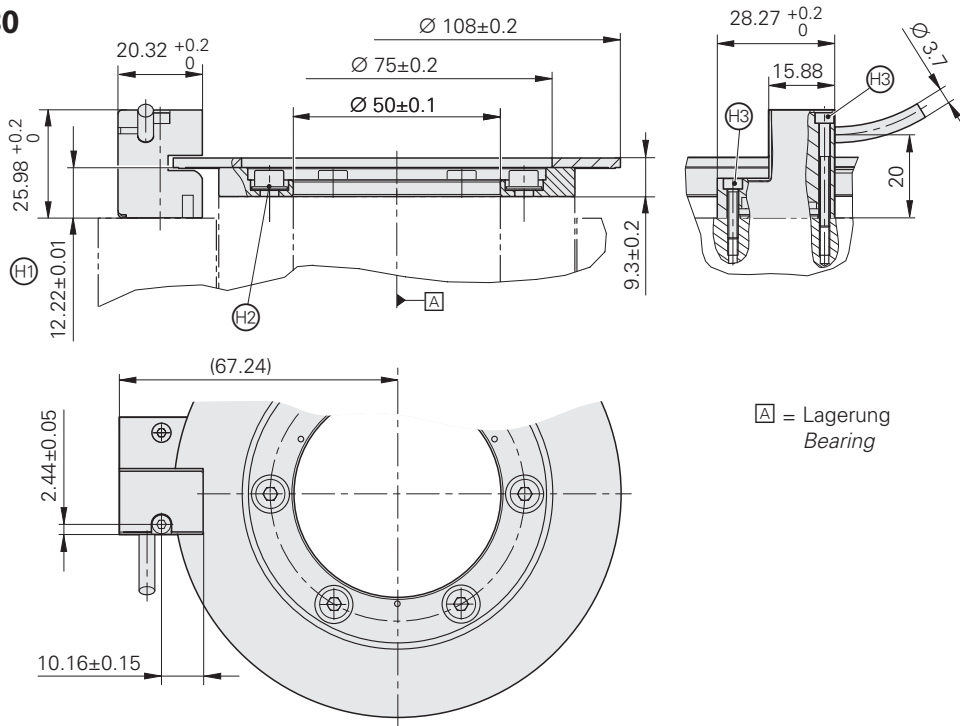
⌈A⌋ = Lagerung
Bearing

⊕ = Auflagefläche nicht convex
Mounting surface not convex

Bei elektrischem Zentrieren mit
zwei Abtastköpfen
*For electrical centering with
two scanning heads*



ERP 8080



mm



Tolerancing ISO 8015

ISO 2768 - m H

< 6 mm: ± 0.2 mm

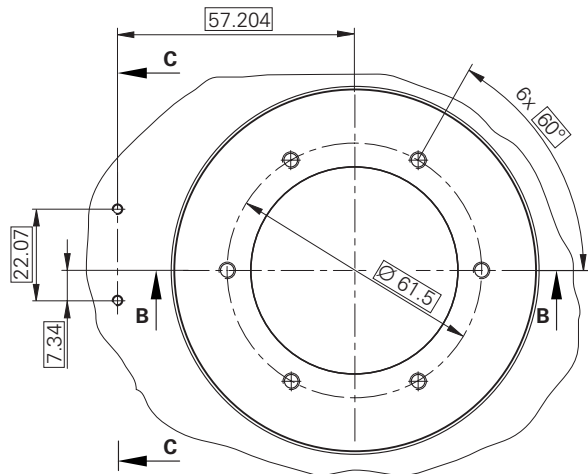
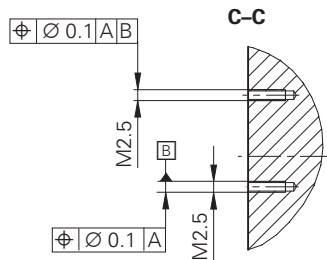
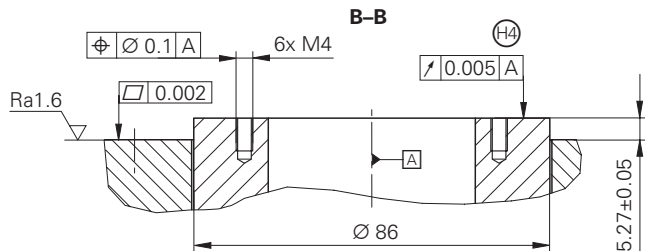
Ⓜ1 = Montageabstand mit Abstandsfolie eingestellt
Mounting clearance set with spacer foil

Ⓜ2 = Zylinderschraube ISO 4762 M4 und Scheibe ISO 7089-4
ISO 4762 M4 cylinder head screw and ISO 7089-4 disk

Ⓜ3 = Zylinderschraube ISO 4762 M 2.5
Cylinder head screw ISO 4762 M 2.5

ERP 8080

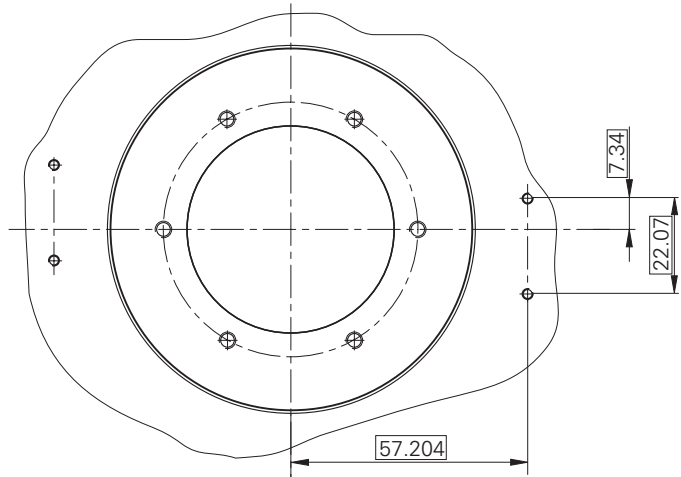
Kundenseitige Anschlussmaße
Required mating dimensions



⊠ = Lagerung
Bearing

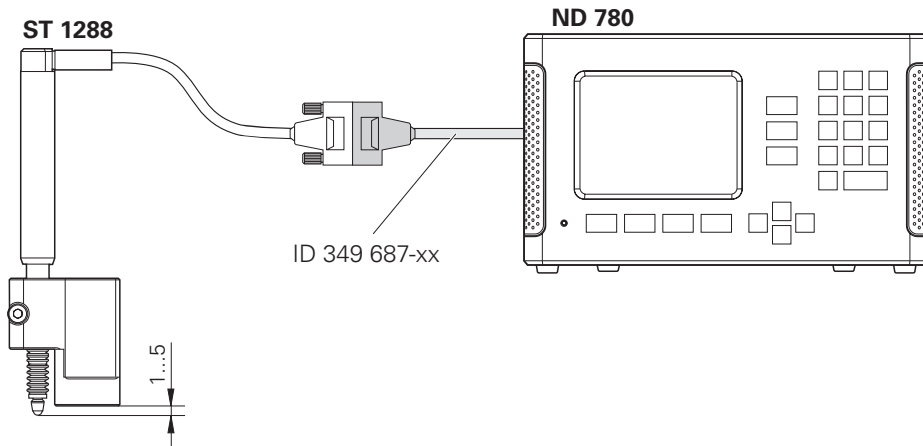
⊕^{H14} = Auflagefläche nicht konvex
Mounting surface not convex

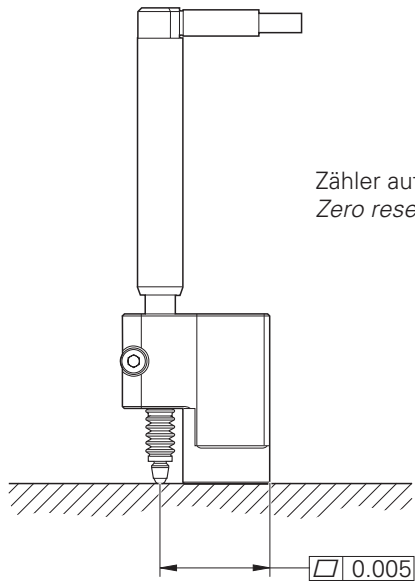
Bei elektrischem Zentrieren mit
zwei Abtastköpfen
For electrical centering with
two scanning heads



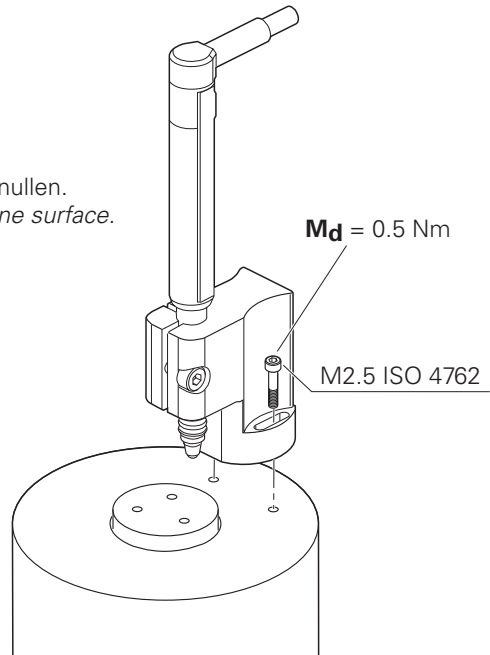
Planlauf und Abtastspalt messen
Measuring axial runout and scanning gap

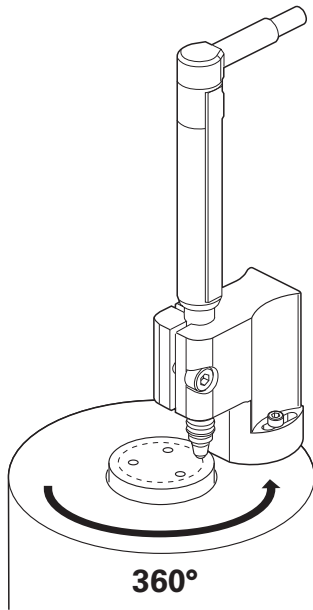
HEIDENHAIN empfiehlt
HEIDENHAIN recommends





Zähler auf ebener Fläche nullen.
Zero reset counter on plane surface.

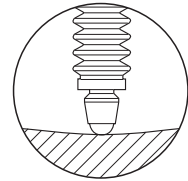




360°

Welle um 360° drehen und
Min. und Max. Punkt ermitteln.
Diese beiden Punkte auf der Welle markieren.
Anschließend Messtaster wieder abbauen.
*Turn shaft by 360° and
determine min. and max. points.
Mark these two points on the shaft.
Then remove touch probe again.*

Werte notieren
Write down values



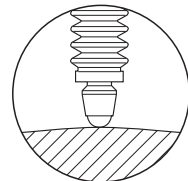
min. = y_1

S.Nr. = _____

y_1 = _____

y_2 = _____

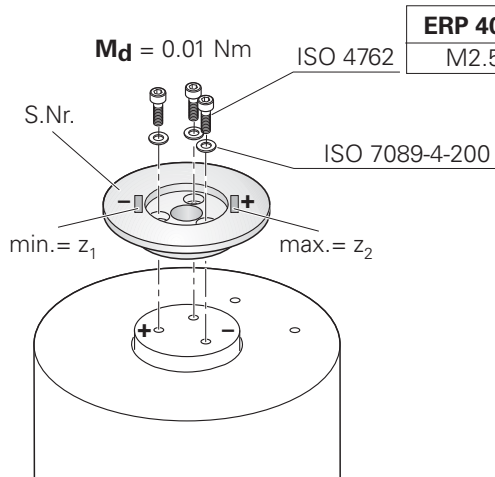
→ **29**



max. = y_2

Teilscheibe mit Nabe muss so angebaut werden, dass der maximale Wert des Teilkreises auf dem minimalen Wert der Welle liegt bzw. der minimale Wert des Teilkreises auf dem maximalen Wert der Welle liegt.

The disk/hub assembly must be mounted in such a way that the maximum value of the graduated disk is on top of the minimum value of the shaft and the minimum value of the graduated disk is on the maximum value of the shaft.




ERP 4080	ERP 8080
M2.5	M4

S.Nr. = _____

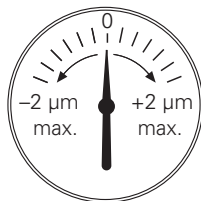
z_1 = _____

z_2 = _____

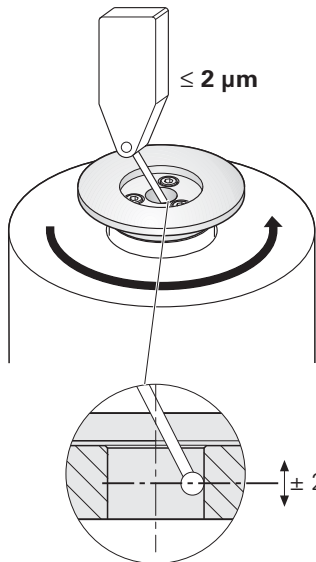
 → **29**

Werte notieren
Write down values

Mechanisch Zentrieren
Mechanical centering



1.



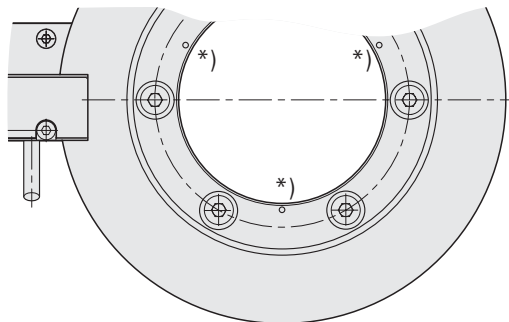
ERP 4080

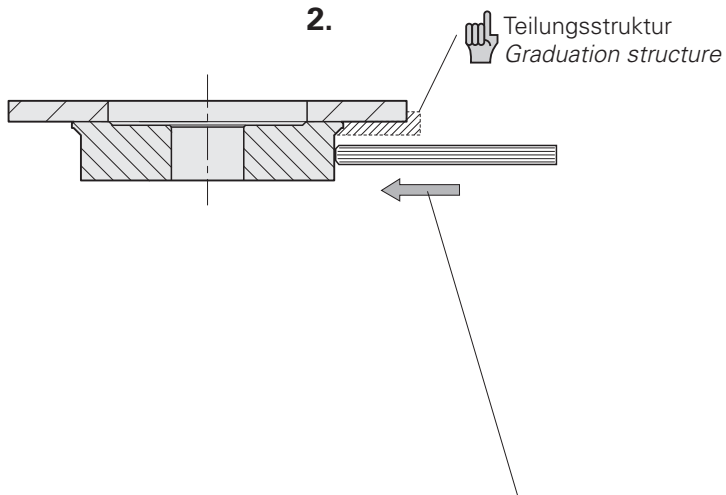
Um 360° messen.
Measure 360°.

ERP 8080

*)

An Messpunkten messen.
Measure on the measuring points.



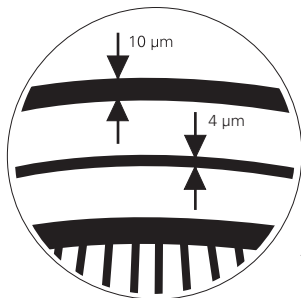


3. Schrauben festziehen
Fasten screws

	ERP 4080	ERP 8080
M _d	0.5 Nm	1.1 Nm

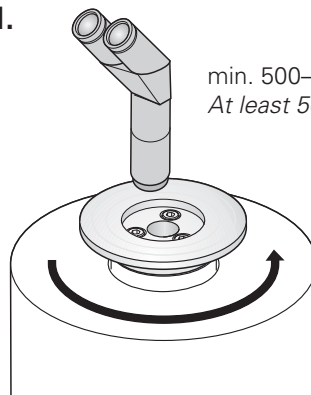
Leicht klopfen, bis Zentrierwert erreicht ist. Kein metallisches Werkzeug verwenden.
Tap lightly until required centricity is achieved (non-metallic adjustment tool).

Optisch Zentrieren
Optical centering

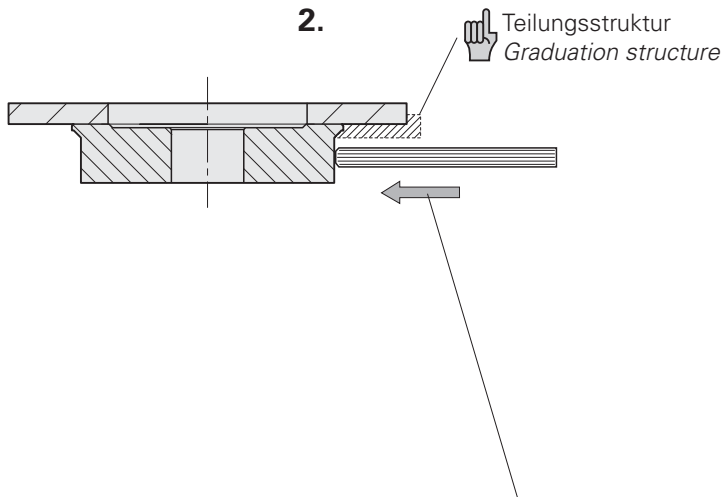


Zentriergenauigkeit $\pm 2 \mu\text{m}$
Centering accuracy $\pm 2 \mu\text{m}$

1.



min. 500-fache Vergrößerung
At least 500-fold magnification

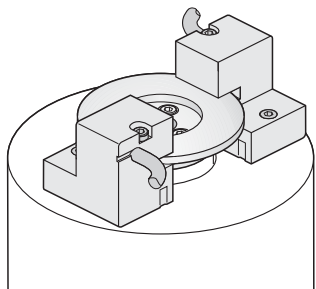
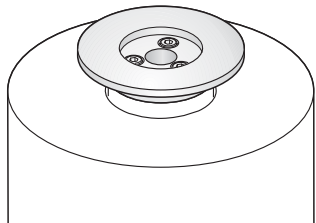


- 3.** Schrauben festziehen
Fasten screws

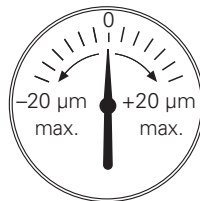
	ERP 4080	ERP 8080
M _d	0.5 Nm	1.1 Nm

Leicht klopfen, bis Zentrierwert erreicht ist. Kein metallisches Werkzeug verwenden.
Tap lightly until required centricity is achieved (non-metallic adjustment tool).

Elektrisch Zentrieren *Electrical centering*

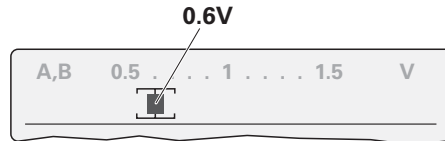


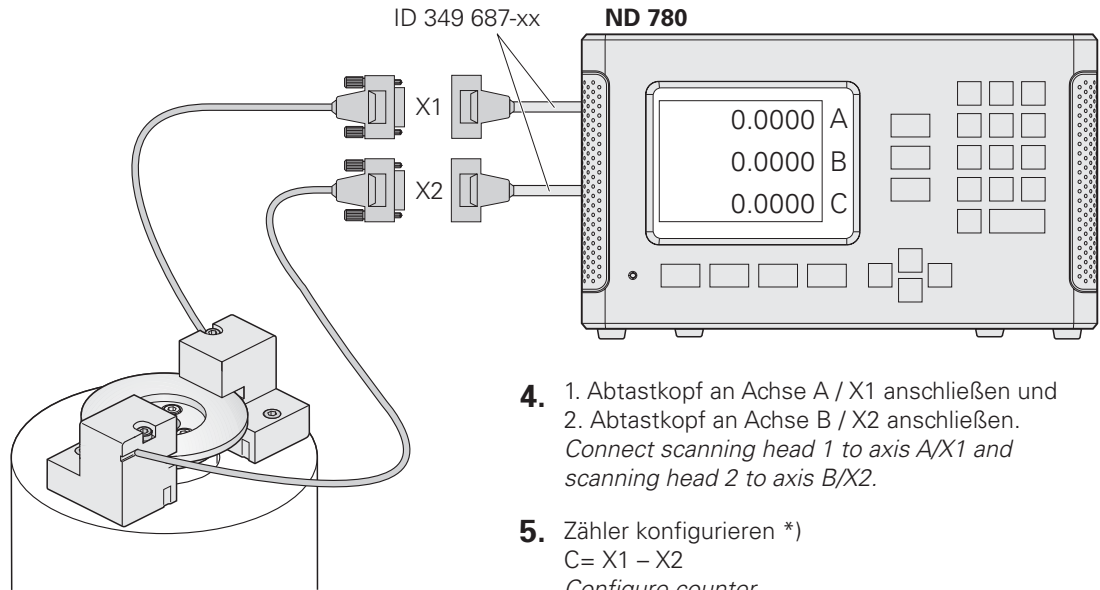
1. Zentrieren Sie den Teilkreis wie auf den Seiten 20 und 21, in den Schritten 1 und 2 beschrieben. Sie müssen dabei folgende Werte erreichen.
Center the graduated disk as described on pages 20 and 21, steps 1 and 2.
The following values must be achieved.



2. Bauen Sie die beiden Abtastköpfe wie auf den Seiten 30 und 31 beschrieben an.
Mount the two scanning heads as described on pages 30 and 31.

- 3.** Justieren Sie die beiden Abtastköpfe wie auf den Seiten 32 und 33 beschrieben.
Signalgröße 0.6 V ist ausreichend.
*Adjust the two scanning heads as described on pages 32 and 33.
A signal amplitude of 0.6 V is sufficient.*



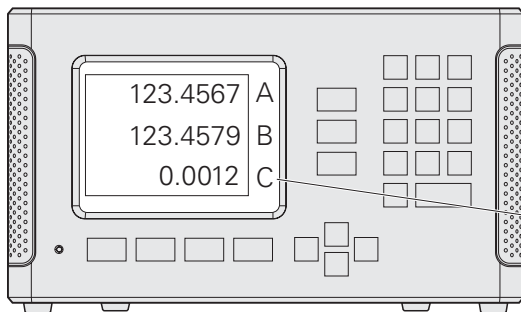


*) siehe Benutzerhandbuch ND 780
 See User's Manual ND 780
 ID 532 852-xx

- 4.** 1. Abtastkopf an Achse A / X1 anschließen und
 2. Abtastkopf an Achse B / X2 anschließen.
*Connect scanning head 1 to axis A/X1 and
 scanning head 2 to axis B/X2.*

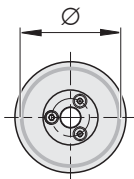
- 5.** Zähler konfigurieren *)
 $C = X1 - X2$
Configure counter
 $C = X1 - X2$

- 6.** Zähler nullen
Zero counter



Rundlauf= 2 x e
Runout= 2 x e

$$\Delta\varphi = \pm \frac{412 \cdot e}{\varnothing}$$

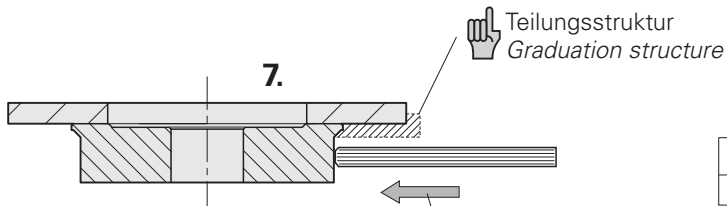


Einfluss von Exzentrizität.
Influence of eccentricity.

	ERP 4080	ERP 8080
∅ [mm]	40	104

$\Delta\varphi$ = Messabweichung in Winkelsekunden durch Exzentrizität.
 $\Delta\varphi$ = *Measuring error in arc seconds due to eccentricity.*

e= Exzentrizität in μm
e= *eccentricity in μm*

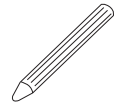


8. Schrauben festziehen
Fasten screws

	ERP 4080	ERP 8080
M _d	0.5 Nm	1.1 Nm

Leicht klopfen, bis Zentrierwert erreicht ist. Kein metallisches Werkzeug verwenden.
Tap lightly until required centricity is achieved (non-metallic adjustment tool).

Berechnung Foliendicke
Calculating the foil thickness



		ERP 4080	ERP 8080
x [mm]		12.3	12.22
y ₁ [mm]			
y ₂ [mm]			
S.Nr.	z ₁ [mm]		
<input type="text"/>	z ₂ [mm]		
D=(y ₁ + y ₂ + z ₁ + z ₂)/2 - x			

D= Foliendicke
Foil thickness

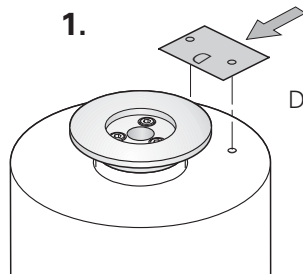


$$|(y_1 + z_2) - (y_2 + z_1)| < 0,009$$

Kontrolle Planlauf
Axial runout check

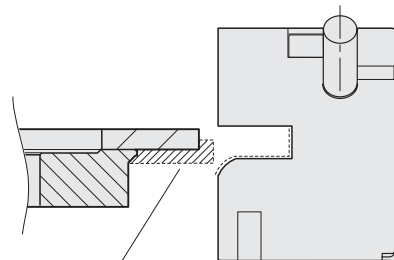
Montage Abtastkopf Mounting the scanning head

1.



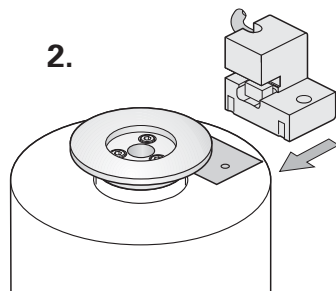
Leserichtung
Reading direction

D = Foliendicke (S.29)
Foil thickness (S.29)

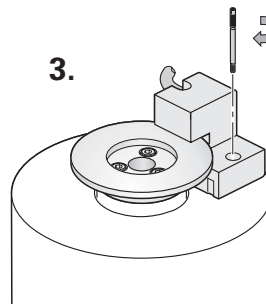


Teilungsstruktur
Graduation structure

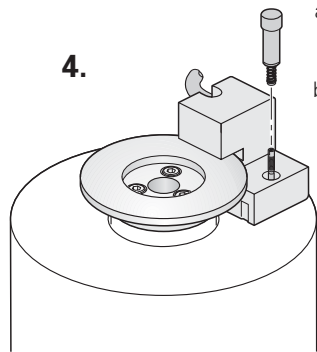
2.



3.

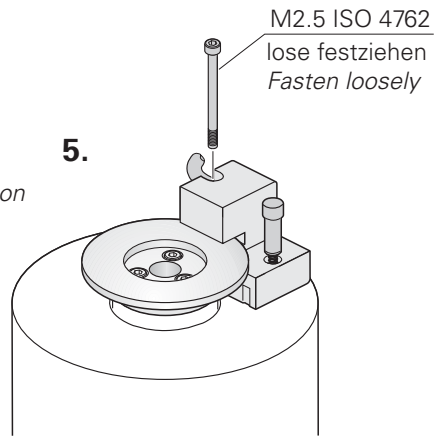


festziehen
Fasten



a)  festziehen
Fasten

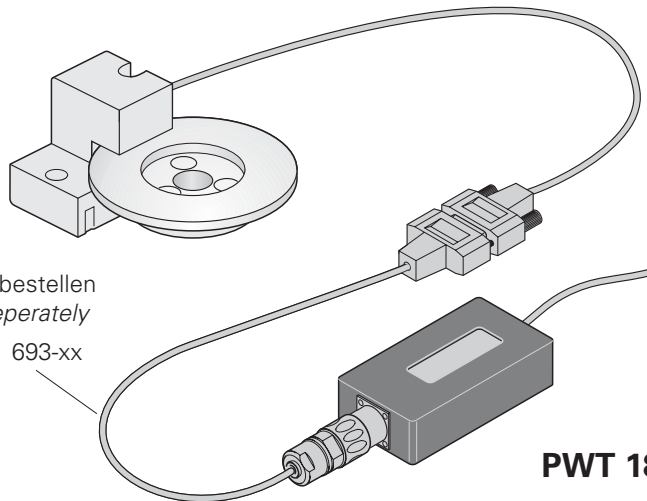
b)  1/4 Umdrehung lösen
Loosen by 1/4 revolution



Justage Abtastkopf
Adjusting scanning head



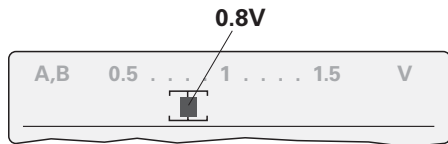
siehe Betriebsanleitung PWT 1x, ID 319 502-9x
See Operating Instructions for PWT 1x, ID 319 502-9x



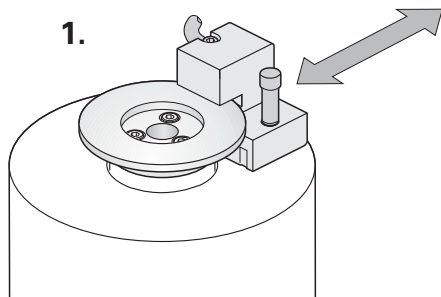
Seperat bestellen
Order seperately

ID 331 693-xx

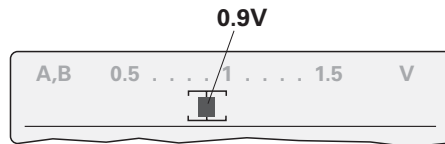
PWT 18



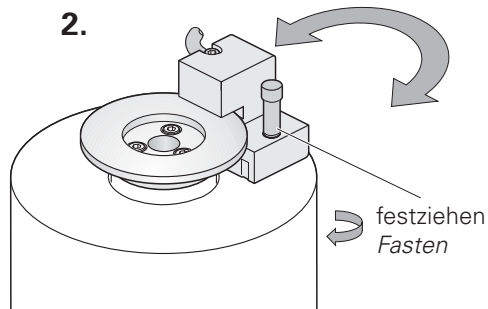
1.



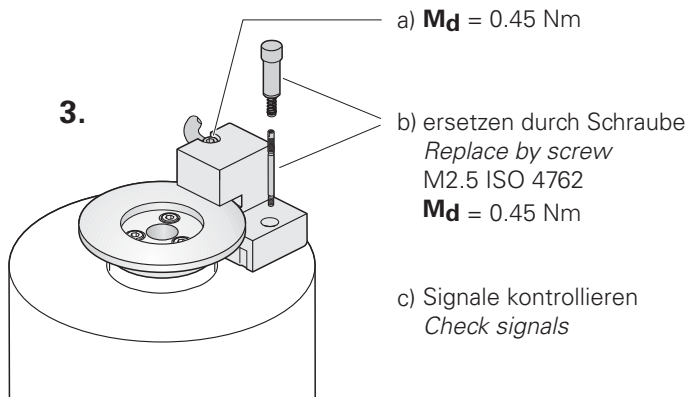
Radial nach innen und außen bewegen,
bis Signalamplitude $\sim 0.8\text{ V}$ zeigt.
*Move inward and outward in radial direction
until signal amplitude is $\sim 0.8\text{ V}$.*

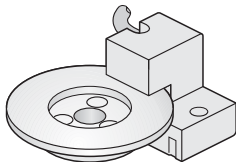


2.



Drehen bis Signalamplitude $>0.9\text{ V}$ beträgt.
Rotate until signal amplitude is $>0.9\text{ V}$.

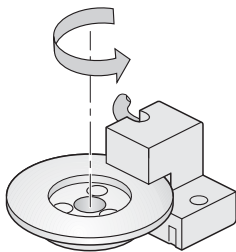




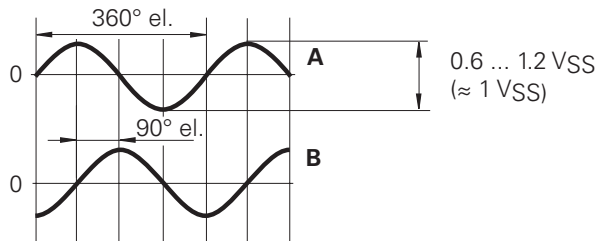
Up = 5 V ± 5 %
(max. 150 mA)

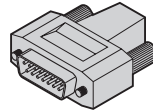
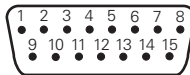


EN 50 178/4.98; 5.2.9.5
IEC 364-4-41: 1992; 411(PELV/SELV)
(siehe, see, voir, vedi, véase
HEIDENHAIN D 231 929)

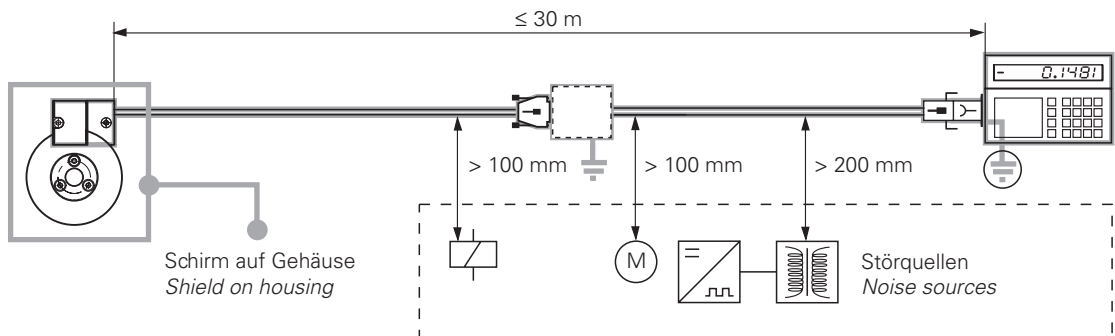


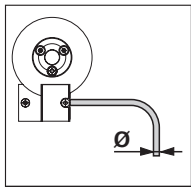
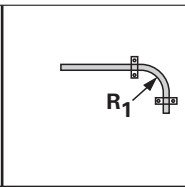
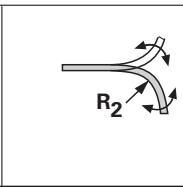
A, B

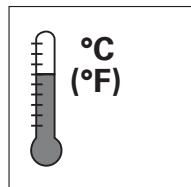
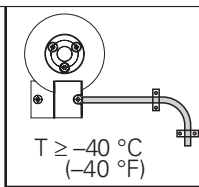
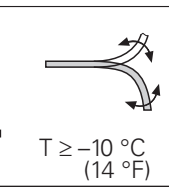
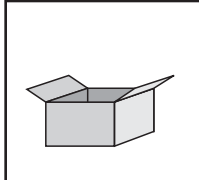




4	12	2	10	1	9	3	11	5	6	7	8	13, 14, 15
Up	Sensor	0V	Sensor 0V	A+	A-	B+	B-	/	/	/	/	/
BNGN	BU	WHGN	WH	BN	GN	GY	PK	BK	YE	RD	VT	/

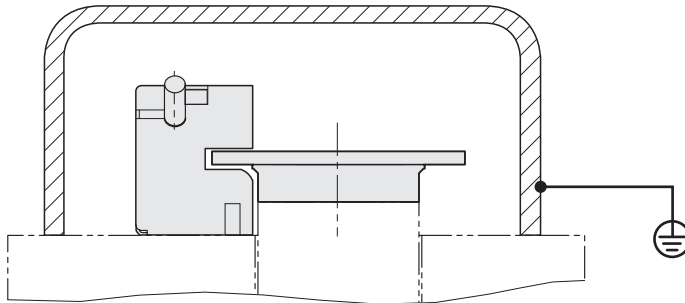


		
<p>Ø 3.7 mm</p>	<p>$R_1 \geq 8 \text{ mm}$</p>	<p>$R_2 \geq 40 \text{ mm}$</p>

	 <p>$T \geq -40 \text{ °C}$ (-40 °F)</p>  <p>$T \geq -10 \text{ °C}$ (14 °F)</p>
 <p>5 ... 40 °C (41 ... 104 °F)</p>	

Abschließende Arbeiten
Final Steps

Leitfähige Schutzkappe für CE
Conductive protective cap for CE



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