

HEIDENHAIN

Montageanleitung
Mounting Instructions

ERP 4080
ERP 8080

4/2014

Seite

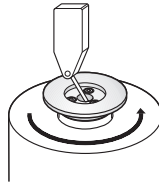
- 4** Warnhinweise
- 8** Lieferumfang
- 9** Zubehör
- 10** Kundenseitige Anschlussmaße
- 14** Planlauf und Abtastspalt messen
Zentrieren
- 18** – mechanisch Zentrieren
- 20** – optisch Zentrieren
- 22** – elektrisch Zentrieren
- 27** Berechnung Foliendicke
- 28** Montage Abtastkopf
- 30** Justage Abtastkopf
- 33** Anschlussbelegung
- 34** Abschließende Arbeiten
- 35** Technische Kennwerte

Page

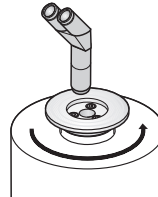
- 4** *Warnings*
- 8** *Items Supplied*
- 9** *Accessories*
- 10** *Required mating dimensions*
- 14** *Measuring axial runout and scanning gap
Centering*
- 18** – *Mechanical centering*
- 20** – *Optical centering*
- 22** – *Electrical centering*
- 27** *Calculation of foil thickness*
- 28** *Mounting the Scanning Head*
- 30** *Adjusting the Scanning Head*
- 33** *Pin Layout*
- 34** *Final Steps*
- 35** *Specifications*

Maße in mm***Dimensions in mm***

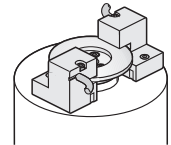
Alternative Zentriermöglichkeiten
Alternative centering methods



mech.



opt.



el.

ERP 4080
60" ... 50"

ERP 4080
30" ... 20"

ERP 4080
10" ... 5"

Systemgenauigkeit
(typ. erreichbare Werte)
System accuracy
(*typical values to be achieved*)

ERP 8080
25" ... 20"

ERP 8080
15" ... 10"

ERP 8080
5" ... 2"

Warnhinweise

Warnings

Vorsicht: Unsichtbare Laserstrahlung! Nicht der Strahlung aussetzen.

Caution: *Invisible laser radiation! Avoid exposure to beam.*

Klasse 1: bei korrektem Anbau des AK ERP 4080/8080

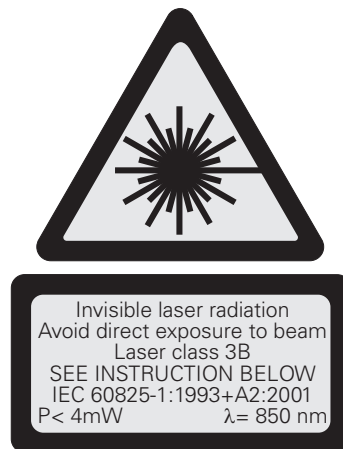
Class 1: When the AK ERP 4080/8080 is properly mounted.

Klasse 2: im nicht angebauten Zustand

Class 2: When not mounted

Klasse 3B: bei nicht angebautem AK ERP 4080/8080, mit Spannung versorgt

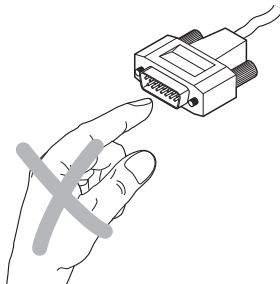
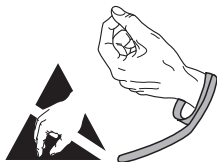
Class 3B: When the AK ERP 4080/8080 is not mounted and is under power





Achtung: Die Montage und Inbetriebnahme ist von einer qualifizierten Fachkraft unter Beachtung der örtlichen Sicherheitsvorschriften, insbesondere der Laserschutzrichtlinien, vorzunehmen. Die Steckverbindung darf nur spannungsfrei verbunden oder gelöst werden. Die Anlage muss spannungsfrei geschaltet sein!

Note: *Mounting and commissioning is to be conducted by a qualified specialist under compliance with local safety regulations, in particular the laser protection guidelines. Do not engage or disengage any connections while under power. The system must be disconnected from power!*



Warnhinweise Warnings

Gerät nur mit Handschuhen aus der Verpackung nehmen.

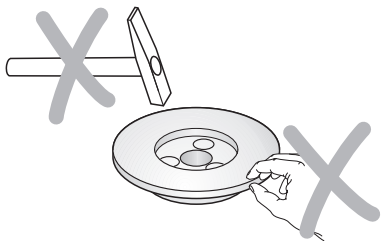
Teilkreis nur seitlich berühren.

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

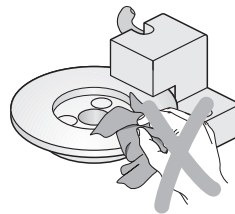
Touch graduated disk on the sides only.



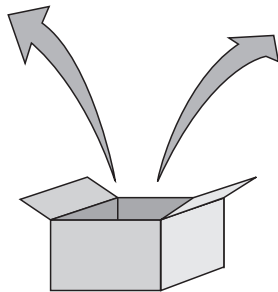
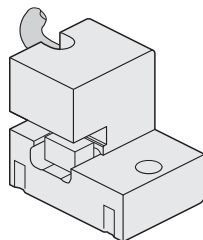
Teilung nicht berühren!
Do not touch the graduation!



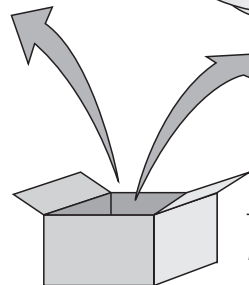
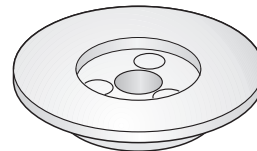
Gerät nicht reinigen!
Do not clean the device!



Lieferumfang
Items Supplied



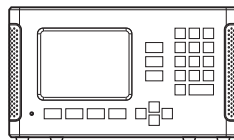
Abtastkopf
Scanning Head



Teilscheibe/Nabe
Disk/Hub

Zubehör Accessories

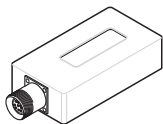
Seperat bestellen
Order separately



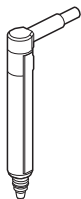
ND 780
ID 520010-01



Messtaster-Adapter
Gauge adapter
ID 627142-01



PWT 18
ID 325413-01



ST 1288
ID 383979-01

Abstandsfolien Spacer foils



ID 619943-01 : 10 µm bis 100 µm in 10 µm – Schritten
: 10 µm up to 100 µm in steps of 10 µm
-10

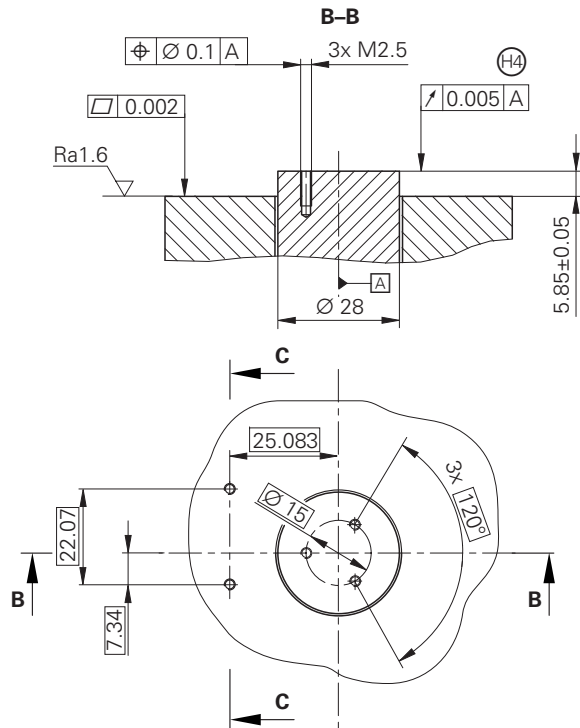
ID 619943-11 alle Größen (je 1 Folie)
choice of all kinds (one of each)



Montagehilfe
Assembly aid
ID 622976-02

ERP 4080

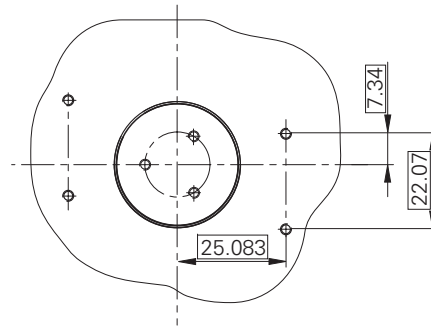
Kundenseitige Anschlussmaße Required mating dimensions



⌈A⌋ = Lagerung
Bearing

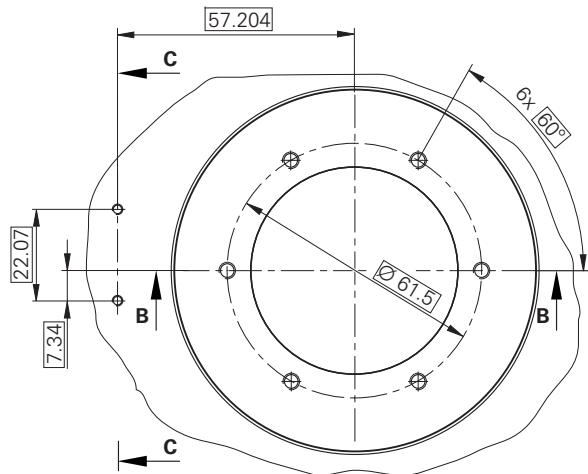
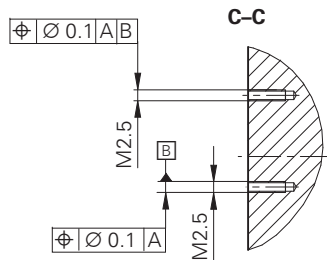
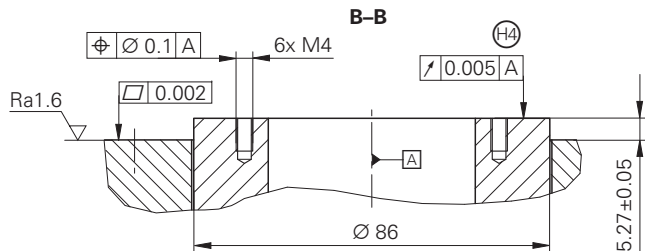
⊕ = Auflagefläche nicht convex
Mounting surface not convex

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



ERP 8080

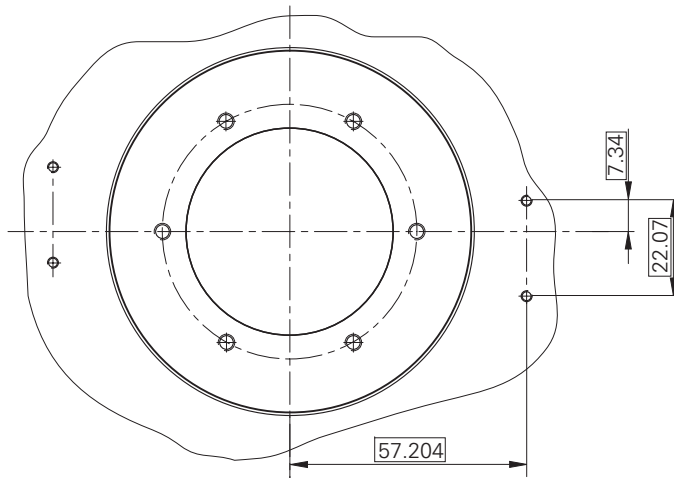
Kundenseitige Anschlussmaße
Required mating dimensions



⊠ = Lagerung
Bearing

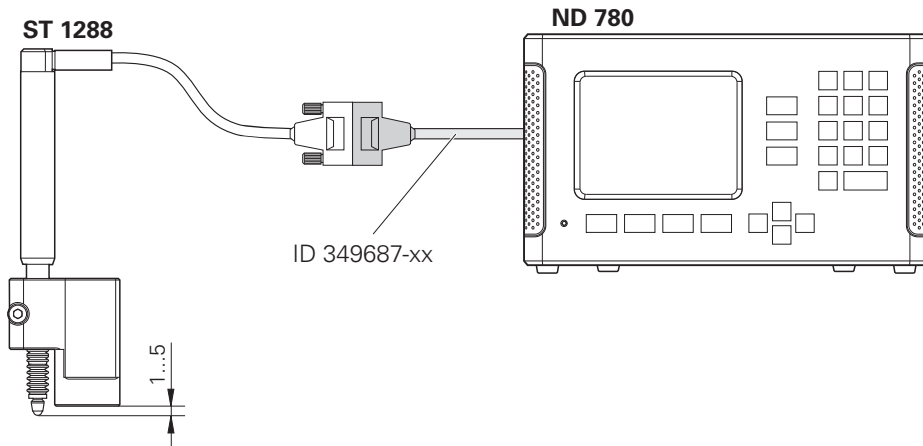
⊕ = Auflagefläche nicht konvex
Mounting surface not convex

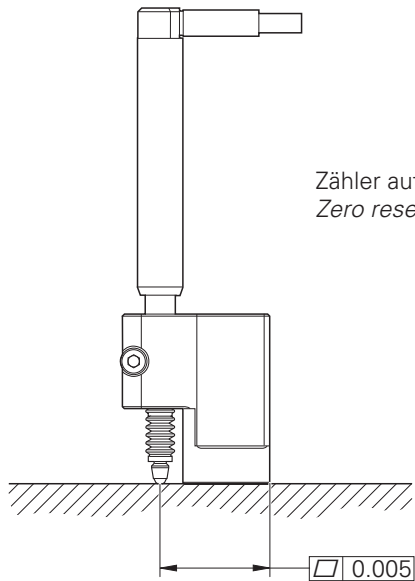
Bei elektrischem Zentrieren mit
zwei Abtastköpfen
For electrical centering with
two scanning heads



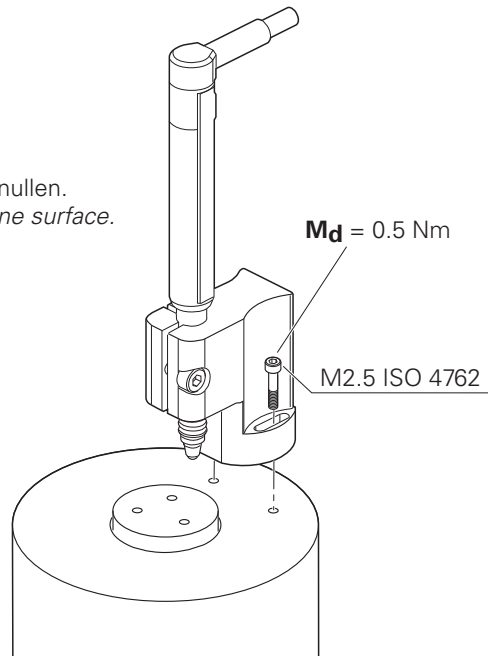
Planlauf und Abtastspalt messen
Measuring axial runout and scanning gap

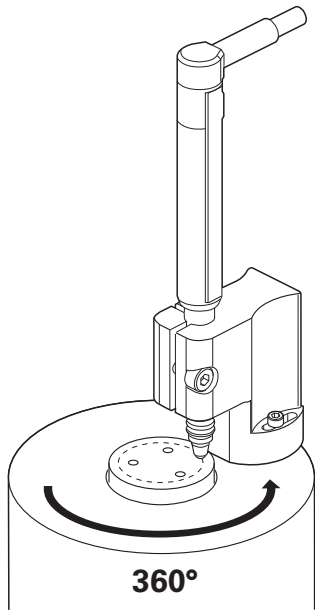
HEIDENHAIN empfiehlt
HEIDENHAIN recommends





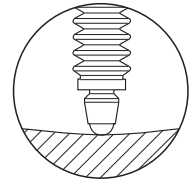
Zähler auf ebener Fläche nullen.
Zero reset counter on plane surface.





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



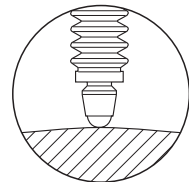
min. = y_1

S.Nr. = _____

y_1 = _____

y_2 = _____

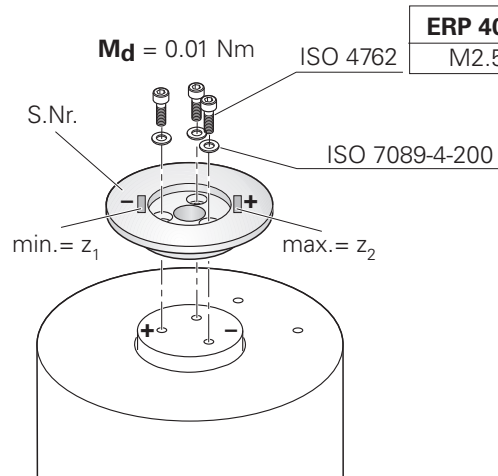
→ 29



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. = _____

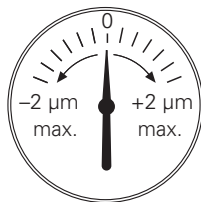
z_1 = _____

z_2 = _____

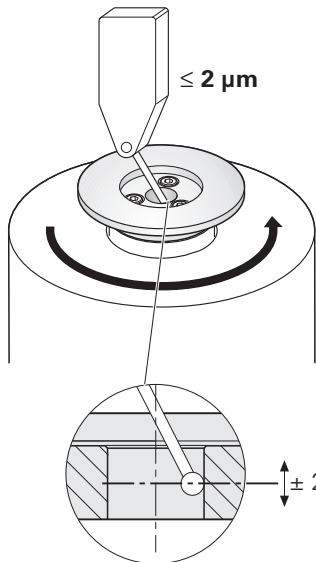
 → **29**

Werte notieren
Write down values

Mechanisch Zentrieren
Mechanical centering



1.



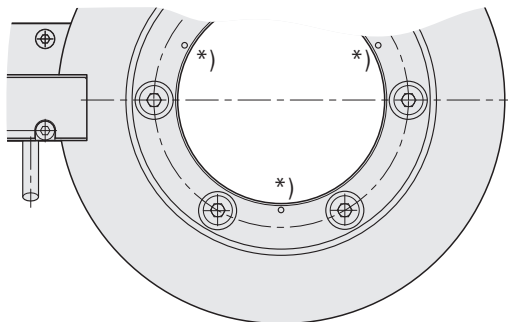
ERP 4080

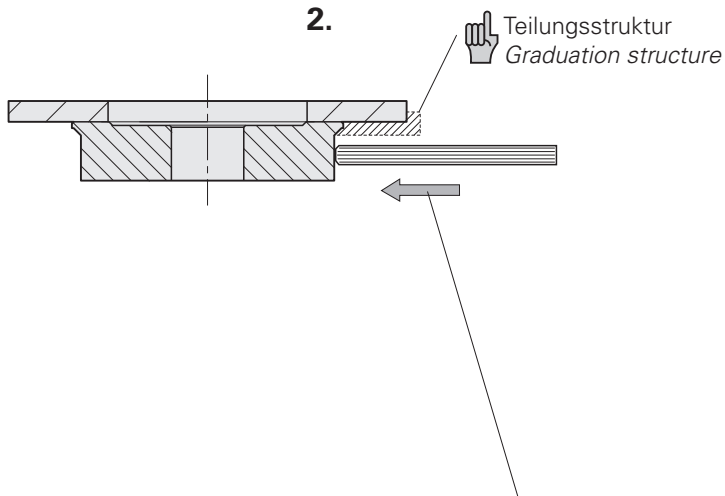
Um 360° messen.
Measure 360°.

ERP 8080

*)

An Messpunkten messen.
Measure on the measuring points.



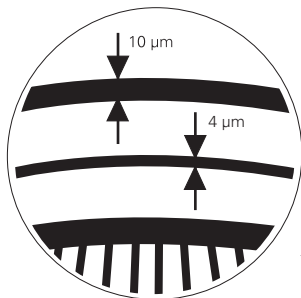


3. Schrauben festziehen
Fasten screws

| | ERP 4080 | ERP 8080 |
|----------------|-----------------|-----------------|
| M _d | 0.5 Nm | 1.1 Nm |

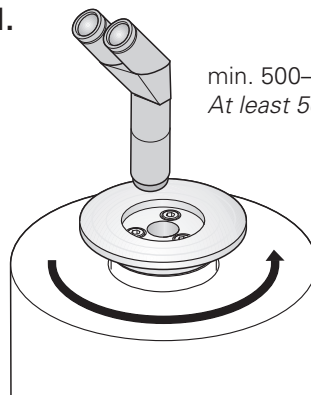
Leicht klopfen, bis Zentrierwert erreicht ist. Kein metallisches Werkzeug verwenden.
Tap lightly until required centricity is achieved (non-metallic adjustment tool).

Optisch Zentrieren
Optical centering

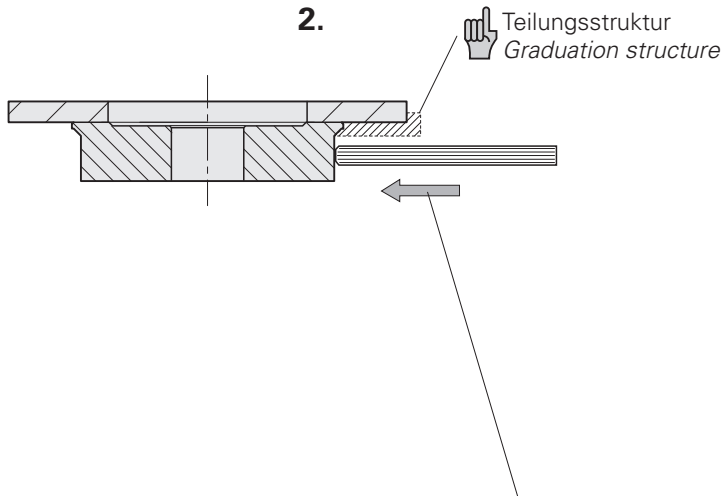


Zentriergenauigkeit $\pm 2 \mu\text{m}$
Centering accuracy $\pm 2 \mu\text{m}$

1.



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

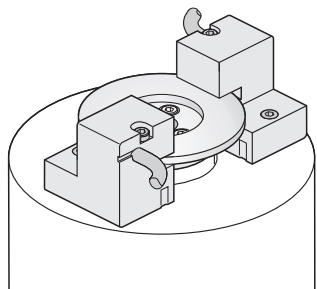
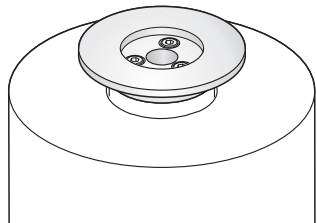


3. Schrauben festziehen
Fasten screws

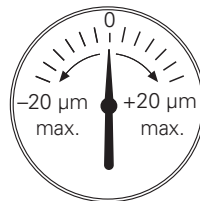
| | ERP 4080 | ERP 8080 |
|----------------|-----------------|-----------------|
| M _d | 0.5 Nm | 1.1 Nm |

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*

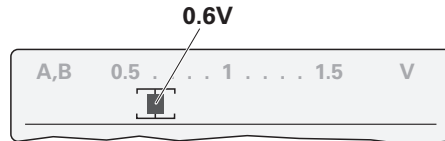


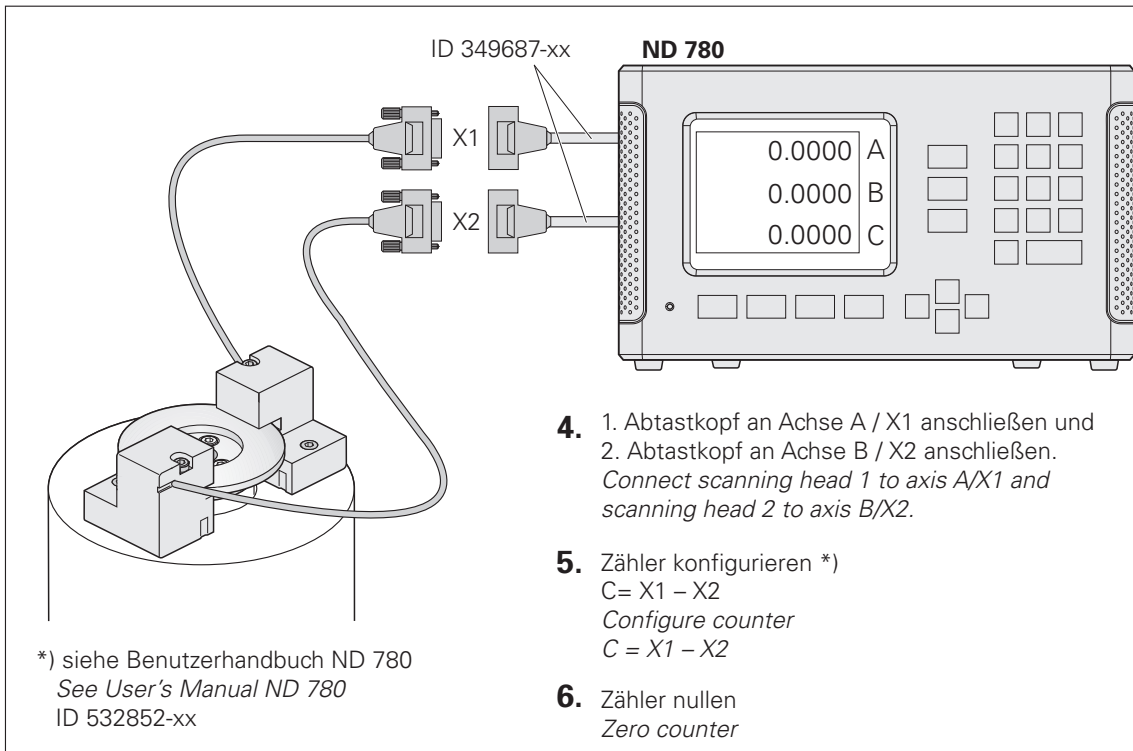
1. Zentrieren Sie den Teilkreis wie auf den Seiten 18 und 19, in den Schritten 1 und 2 beschrieben. Sie müssen dabei folgende Werte erreichen.
Center the graduated disk as described on pages 18 and 19, steps 1 and 2.
The following values must be achieved.

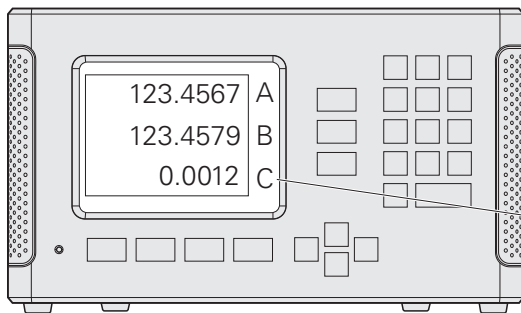


2. Bauen Sie die beiden Abtastköpfe wie auf den Seiten 28 und 29 beschrieben an.
Mount the two scanning heads as described on pages 28 and 29.

- 3.** Justieren Sie die beiden Abtastköpfe wie auf den Seiten 30 und 31 beschrieben.
Signalgröße 0.6 V ist ausreichend.
*Adjust the two scanning heads as described on pages 30 and 31.
A signal amplitude of 0.6 V is sufficient.*

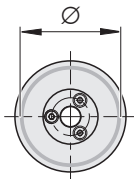






Rundlauf= 2 x e
Runout= 2 x e

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

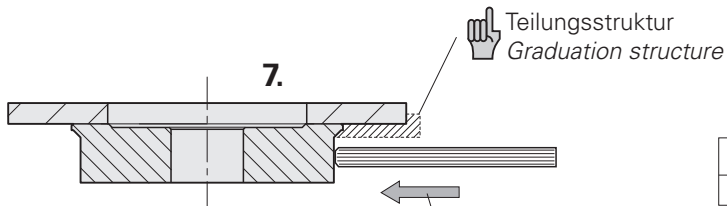


Einfluss von Exzentrizität.
Influence of eccentricity.

| | ERP 4080 | ERP 8080 |
|--------------------|-----------------|-----------------|
| \varnothing [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 |
|----|-----------------|-----------------|
| Md | 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 | | | |

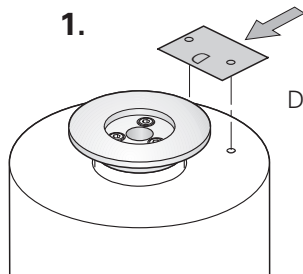
D= Foliendicke
Foil thickness

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

Kontrolle Planlauf
Axial runout check

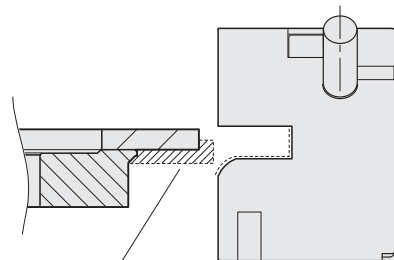
Montage Abtastkopf Mounting the scanning head

1.



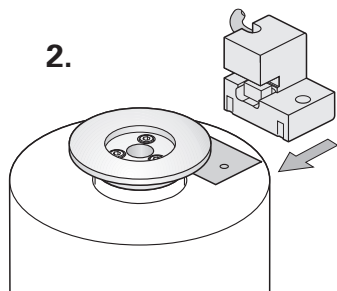
Leserichtung
Reading direction

$D =$ Foliendicke (S.27)
Foil thickness (S.27)

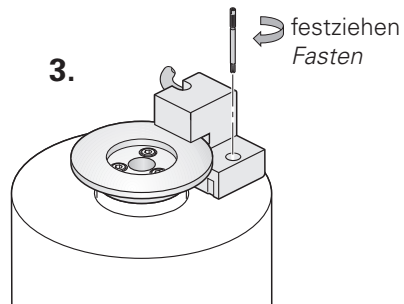


Teilungsstruktur
Graduation structure

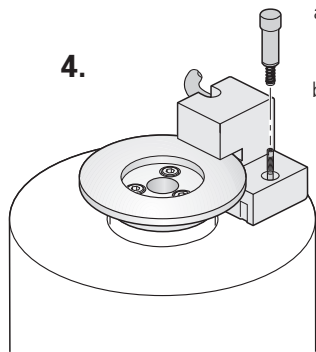
2.



3.

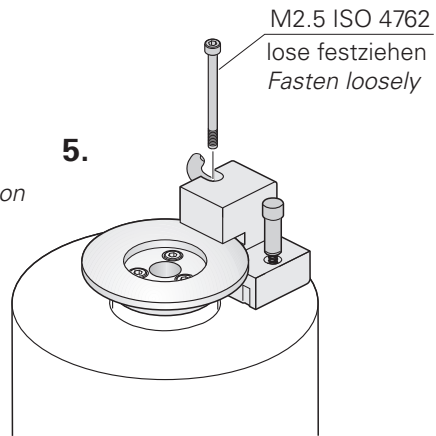


festziehen
Fasten



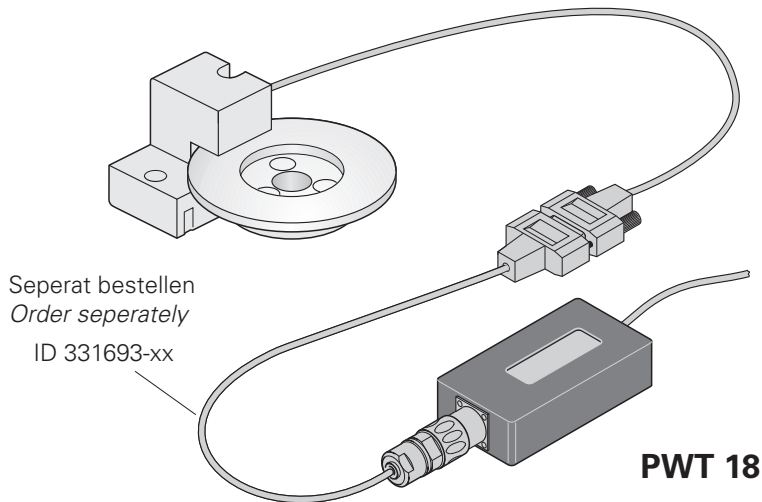
a)  festziehen
Fasten

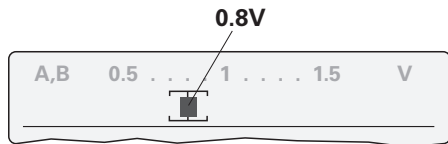
b)  1/4 Umdrehung lösen
Loosen by 1/4 revolution



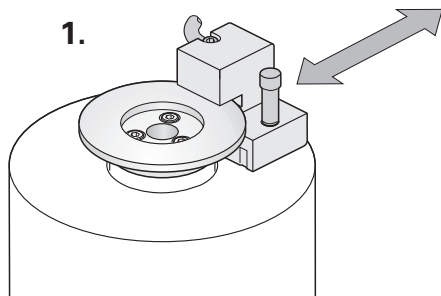
Justage Abtastkopf
Adjusting scanning head

siehe Betriebsanleitung PWT 1x, ID 319502-9x
See Operating Instructions for PWT 1x, ID 319502-9x

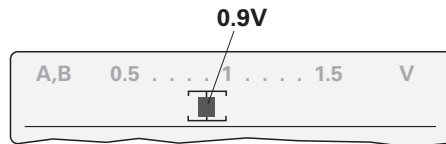




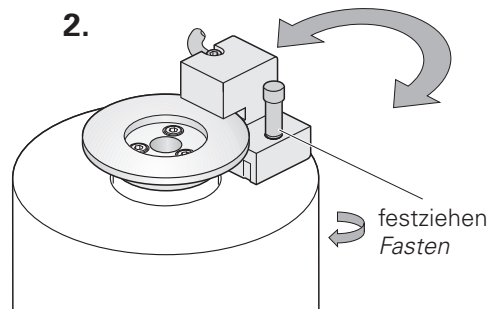
1.



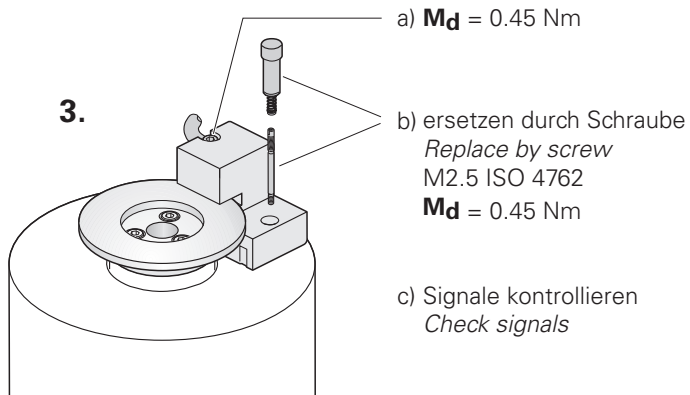
Radial nach innen und außen bewegen,
bis Signalamplitude $\sim 0.8\text{ V}$ zeigt.
*Move inward and outward in radial direction
until signal amplitude is $\sim 0.8\text{ V}$.*



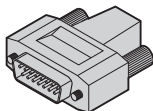
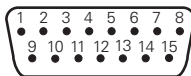
2.



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



Anschlussbelegung Pin Layout



Außenschirm mit Gehäuse verbunden
External shield connected to housing
 Blindage extérieur connecté au boîtier
Schermo del cavo collegato alla carcassa
 Apantallado exterior unido a la carcasa

| | | | | | | | | | | | | |
|-----------|---------------|-----------|----------------------|-----------|-----------|-----------|-----------|----------|----------|----------|----------|-------------------|
| 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 | / |

Die Sensorleitung ist intern im Messgerät mit der Versorgungsleitung verbunden.

The sensor line is connected inside the encoder to the supply line.

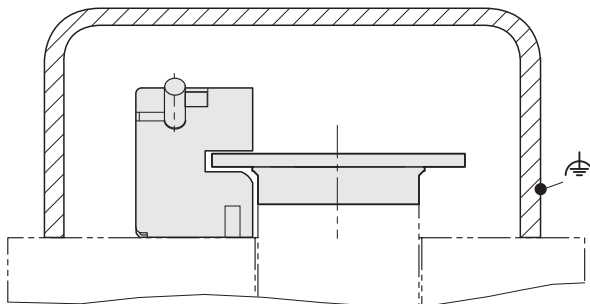
La ligne de palpeur est reliée de manière interne dans le système de mesure à la ligne d'alimentation.

La linea del sensore è collegata internamente allo strumento di misura con la linea di alimentazione.

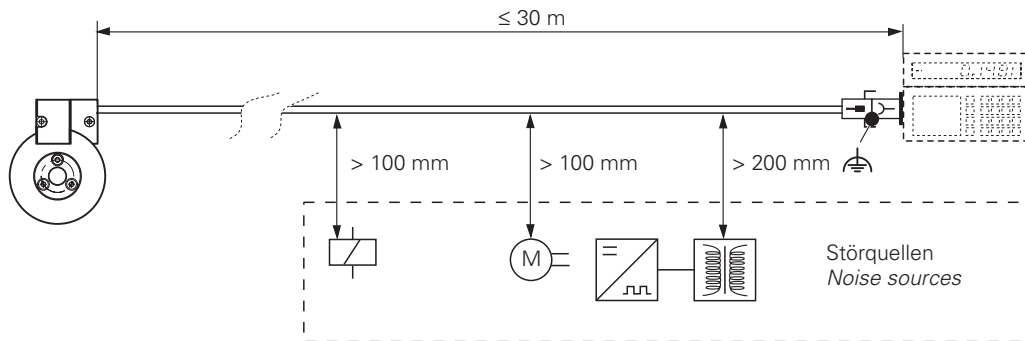
La línea de sensor está unida internamente en el aparato de medida con la línea de alimentación.

Abschließende Arbeiten
Final Steps

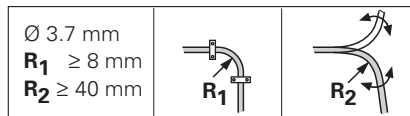
Leitfähige Schutzkappe für CE
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Technische Kennwerte Specifications



Biegeradius Kabel **R**
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