

HEIDENHAIN

Montageanleitung
Mounting Instructions
Instructions de montage
Istruzioni di montaggio
Instrucciones de montaje

ERA 880

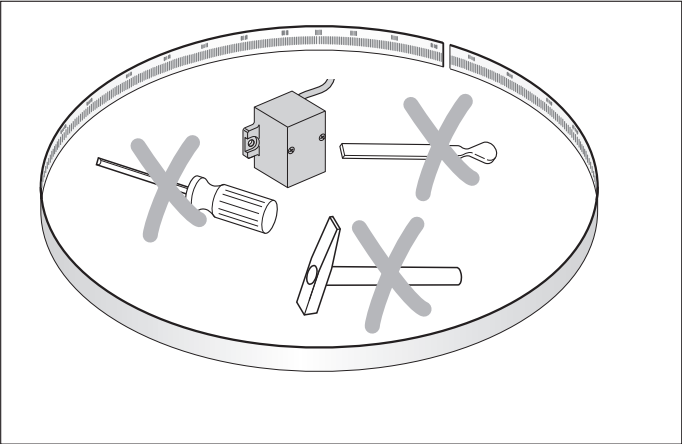
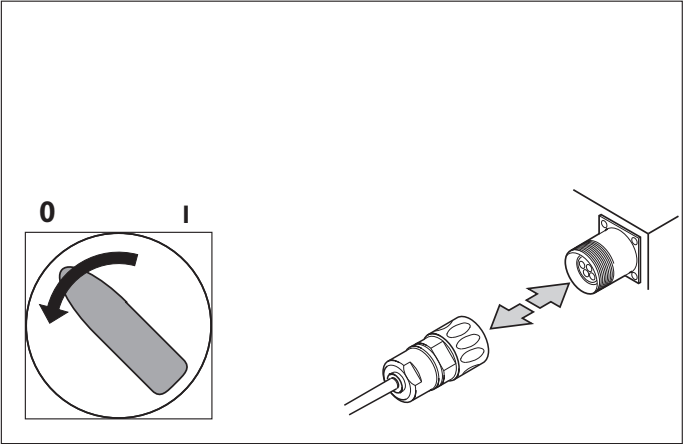
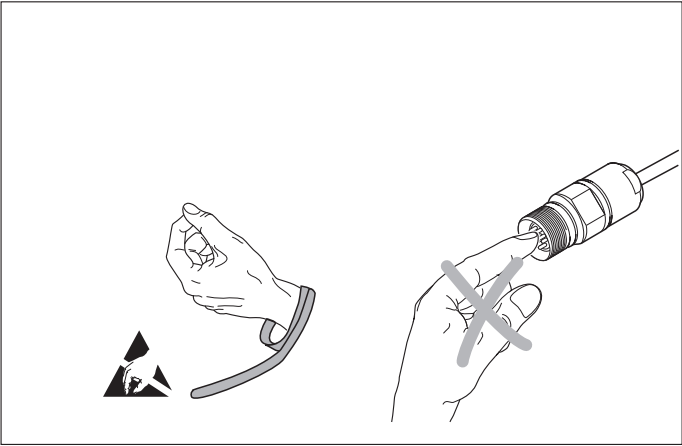
ERA 881

ERA 882

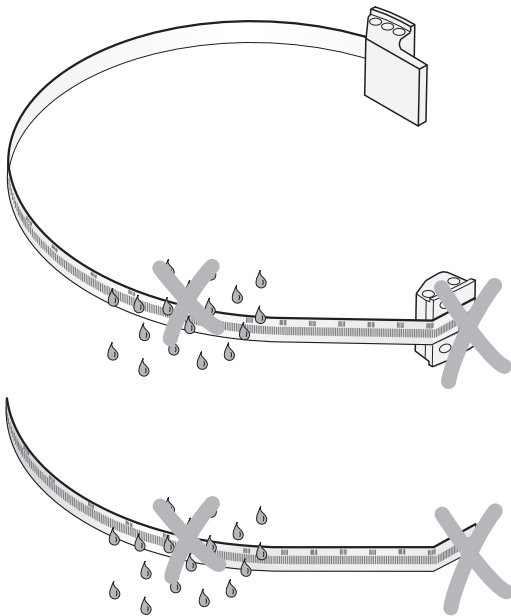
3/2012



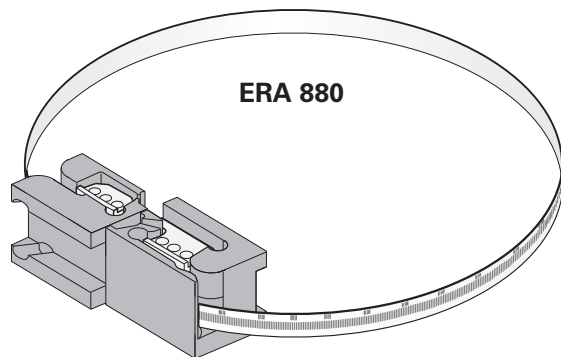
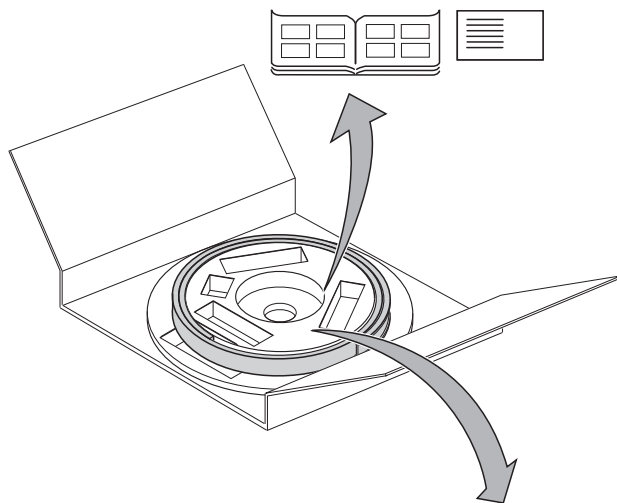
Maße in mm
Dimensions in mm
Cotes en mm
Dimensioni in mm
Dimensiones en mm



Maßband nicht knicken und verschmutzen!
Do not bend or contaminate the scale tape!
Ne pas couder le ruban de mesure ni le salir!
Non piegare o sporcare il nastro!
¡No doblar ni ensuciar la cinta!

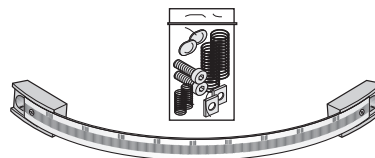


Maßband
Scale Tape
Ruban
Nastro
Cinta



ERA 880

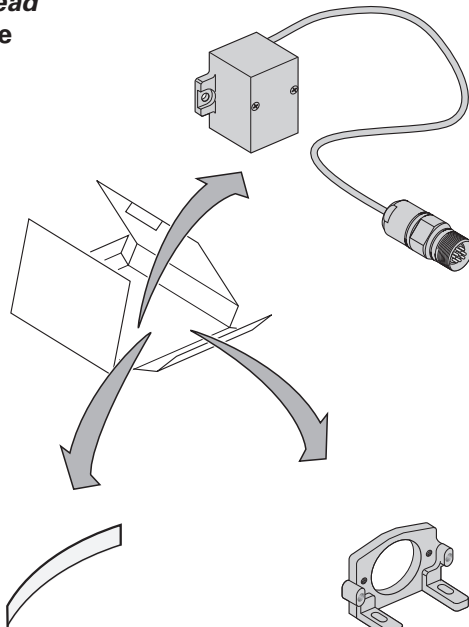
ERA 881



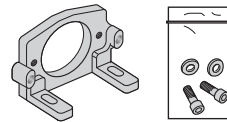
ERA 882



Abtastkopf
Scanning head
Tête caprice
Testina
Cabezal



Justierfolie
Spacer foil
Cale de réglage
Dima di montaggio
Hoja separadora



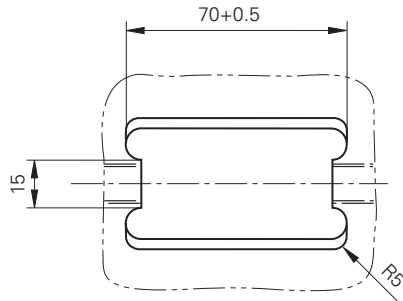
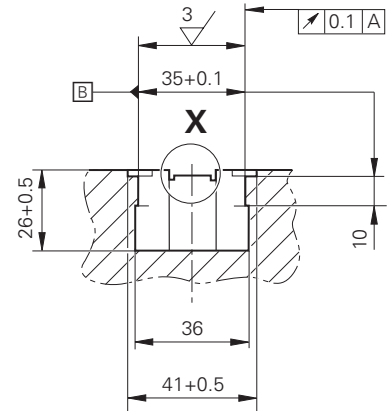
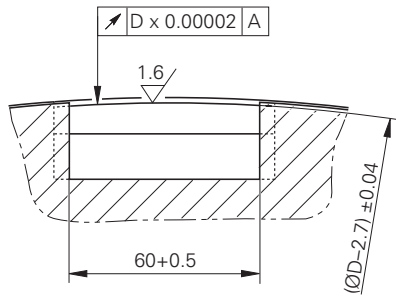
Montagewinkel für Abtastkopf
Mounting bracket for scanning head
Equerre de montage pour tête caprice
Squadretta di montaggio per la testina
Escuadra para montaje cabezal

ERA 880

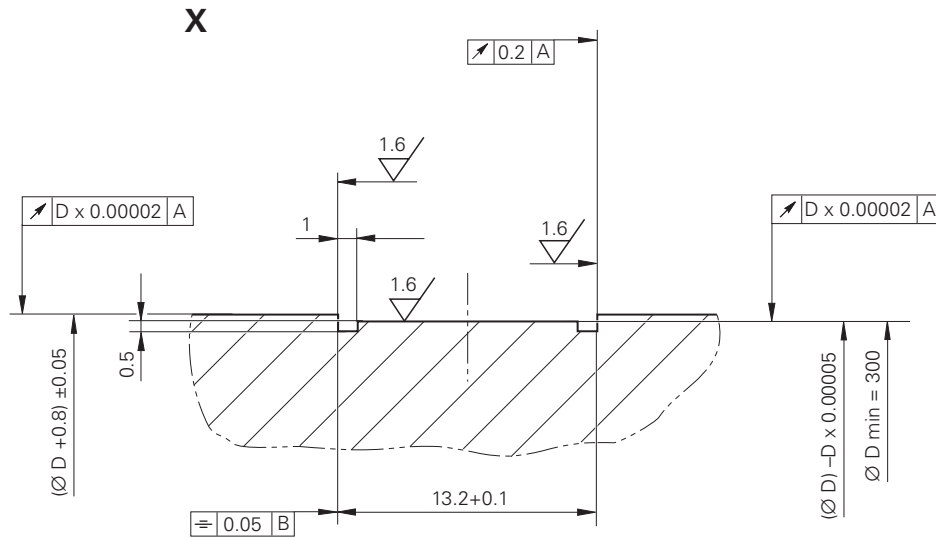
mm



Tolerancing ISO 8015
ISO 2768 - m H



A = Lagerung
Bearing
Roulement
Cuscinetto
Rodamiento

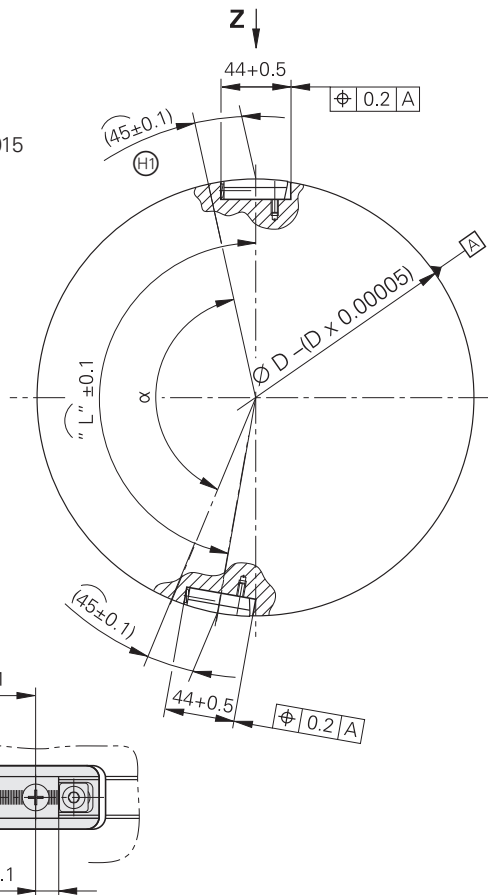


ERA 881

mm



Tolerancing ISO 8015
ISO 2768 - m H



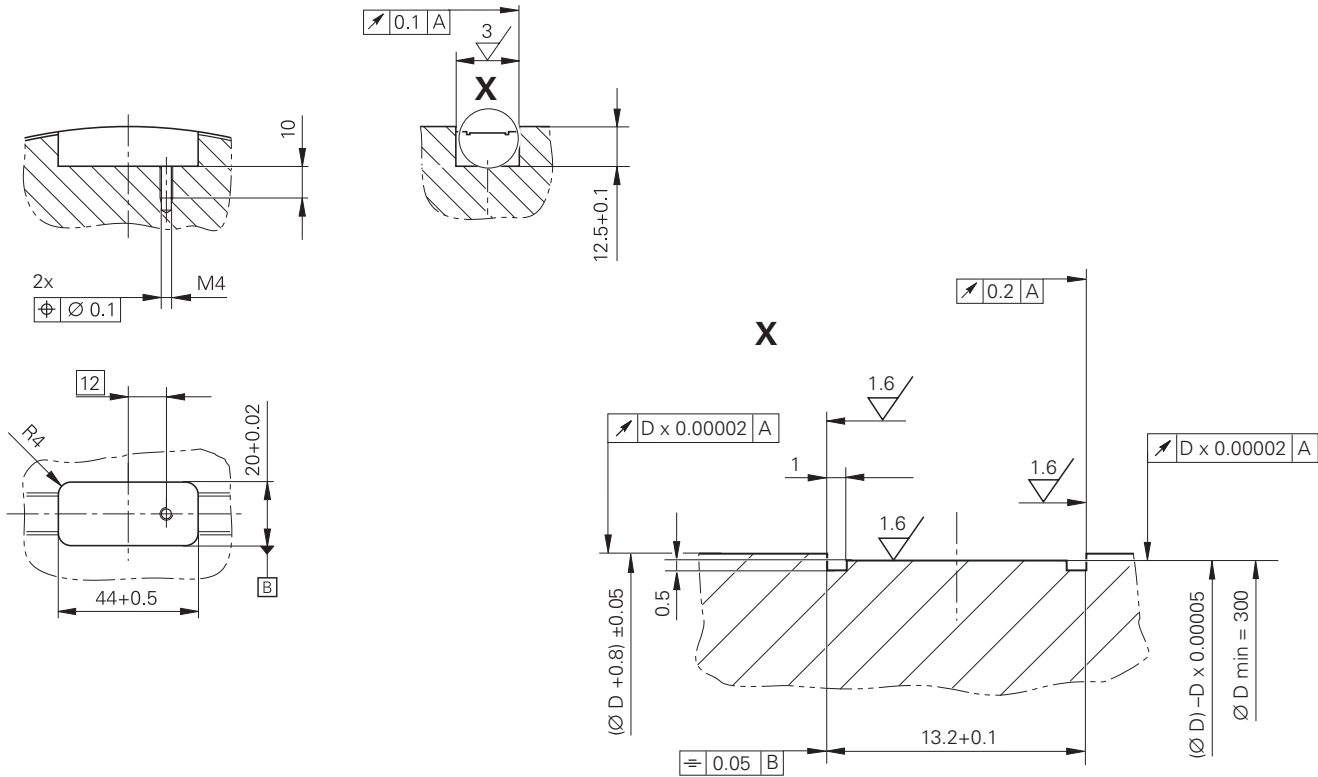
A = Lagerung
Bearing
Roulement
Cuscinetto
Rodamiento

\textcircled{H} = Position erste Referenzmarke bei **ERA 881 C**
Position der Referenzmarke mittig ($\alpha/2$) bei **ERA 881**
Position of first reference mark on ERA 881 C
Position of ref. mark at midpoint ($\alpha/2$) on ERA 881
Position première marque de référence sur **ERA 881 C**
Position marque de référence au centre ($\alpha/2$) sur **ERA 881**
Posizione del primo indice di riferimento su ERA 881 C
Posizione dell'indice di riferimento centrale ($\alpha/2$) con ERA 881
Posición de la primera marca de referencia en **ERA 881 C**
Posición de la marca de referencia central ($\alpha/2$) en **ERA 881**

α = Meßbereich in Grad (Segmentwinkel)
Measuring range in degrees (segment angle)
Plage de mesure en degrés (angle de segment)
Campo di misura in gradi (arco di cerchio)
Rango de medición (ángulo de segmento)

\widehat{L} = Position der beiden Endstück-Aussparungen
Position of the two end-piece openings
Position des deux encoches en embout
Posizione delle due tasche per i blocchetti finali
Posición de los dos rebajes de las piezas finales

Dimensioni di montaggio del nastro · Medida de montaje de la cinta de medición



ERA 882

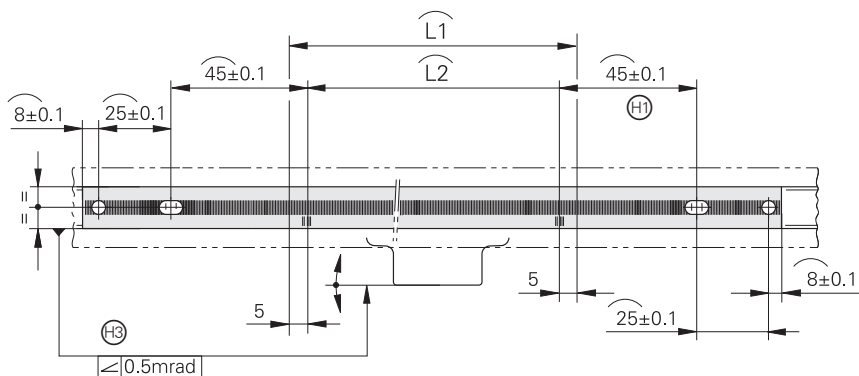
mm



Tolerancing ISO 8015

ISO 2768 - m H

< 6 mm: ±0.2 mm



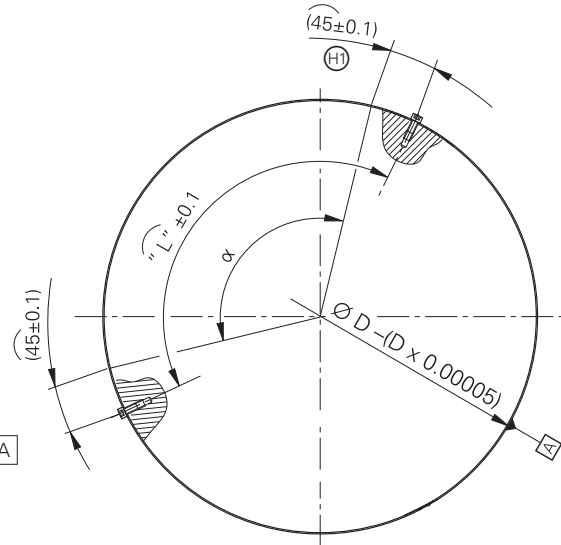
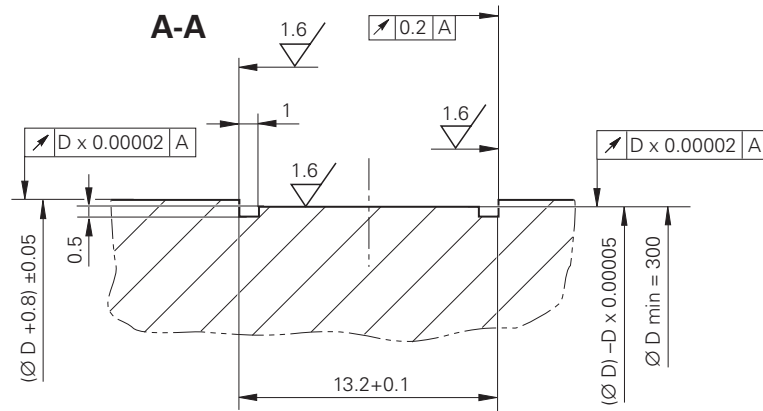
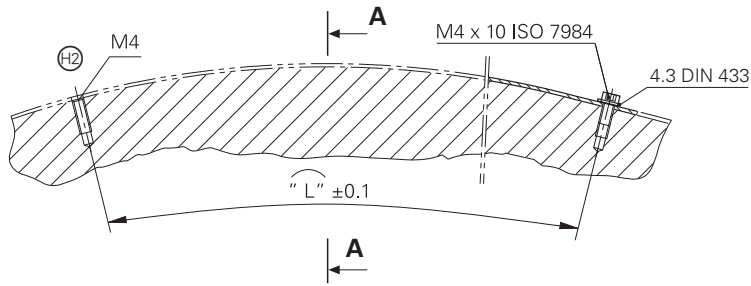
- Ⓜ = Position erste Referenzmarke bei **ERA 882 C**
 Position der Referenzmarke mittig ($L_2/2$) bei **ERA 882**
*Position of first reference mark on **ERA 882 C***
*Position of ref. mark at midpoint ($L_2/2$) on **ERA 882***
 Position première marque de référence sur **ERA 882 C**
 Position marque de référence au centre ($L_2/2$) sur **ERA 882**
*Posizione del primo indice di riferimento su **ERA 882 C***
*Posizione dell'indice di riferimento centrale ($L_2/2$) con **ERA 882***
 Posición de la primera marca de referencia en **ERA 882 C**
 Posición de la marca de referencia central ($L_2/2$) en **ERA 882**

- Ⓜ = max. zul. Änderung im Betrieb
Max. permissible change during operation
 modification max. adm. en fonctionnement
max. variazione ammessa durante il funzionamento
 variación máxima admisible durante funcionamiento

- L_1 = Verfahrenweg
Traverse path
 Course de déplacement
 Lunghezza di misura
 Recorrido de desplazamiento

- L_2 = Messbereich im Bogenmaß
Measuring range in radian measure
 Plage de mesure en radian
 Campo di misura in radianti
 Rango de medición en radianes

Dimensioni di montaggio del nastro · Medida de montaje de la cinta de medición



α = Meßbereich in Grad (Segmentwinkel)
 Measuring range in degrees (segment angle)
 Plage de mesure en degrés (angle de segment)
 Campo di misura in gradi (arco di cerchio)
 Rango de medición (ángulo de segmento)

\square = Lagerung
 Bearing
 Roulement
 Cuscinetto
 Rodamiento

\oplus = Ansicht Bohrung Kundenseite
 View of hole from customer's side
 Vue du trou côté client
 Vista foratura lato cliente
 Vista del taladro del lado del cliente

"L" = Position der Befestigungsgewinde
 Position of the mounting holes
 Position entre trous de fixation taraudés
 Posizioni dei fori di montaggio
 Posición de las roscas de sujeción

ERA 88x

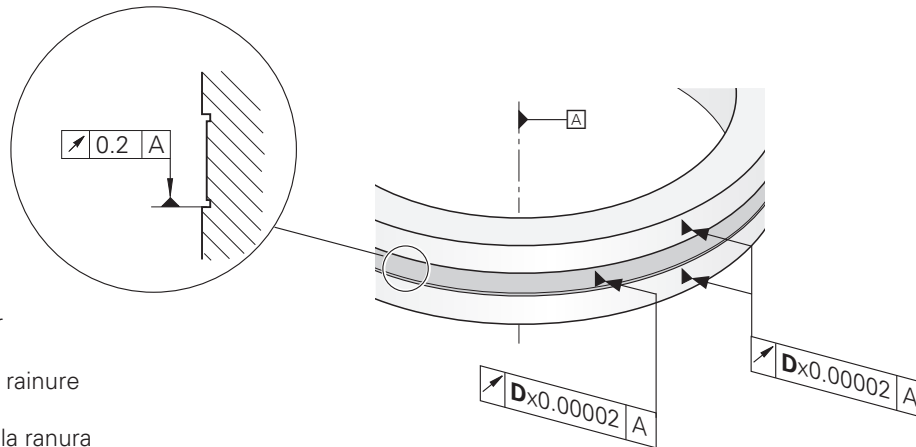
Vor der Kontrolle der Anbautoleranzen und dem Anbau sind die Montageflächen mit fusselfreiem Tuch und Spiritus oder Isopropylalkohol zu reinigen.

Before checking the mounting tolerances, as well as before mounting, clean the mounting surfaces with a lint-free cloth and spirit or isopropyl alcohol.

Avant le contrôle des tolérances de montage et le montage lui-même, nettoyer les surfaces de montage à l'aide d'un chiffon non pelucheux et d'alcool ou d'alcool isopropylique.

Prima della verifica delle tolleranze di montaggio e del montaggio, pulire la superficie di montaggio con un panno che non lasci residui ed alcool oppure alcool isopropilico

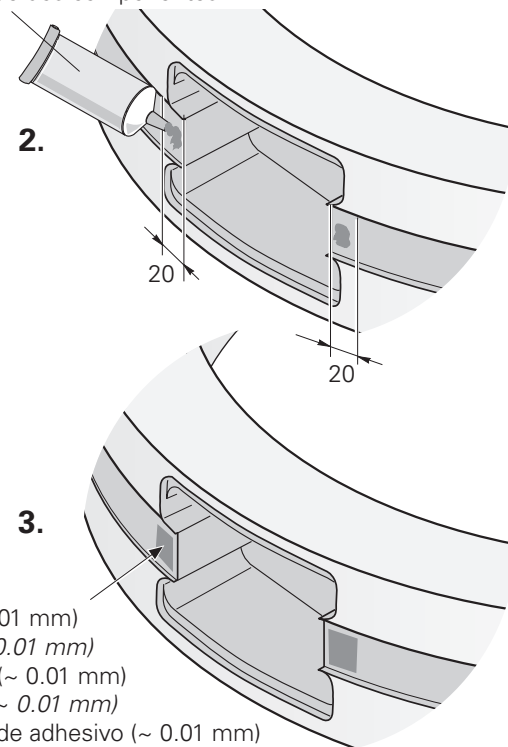
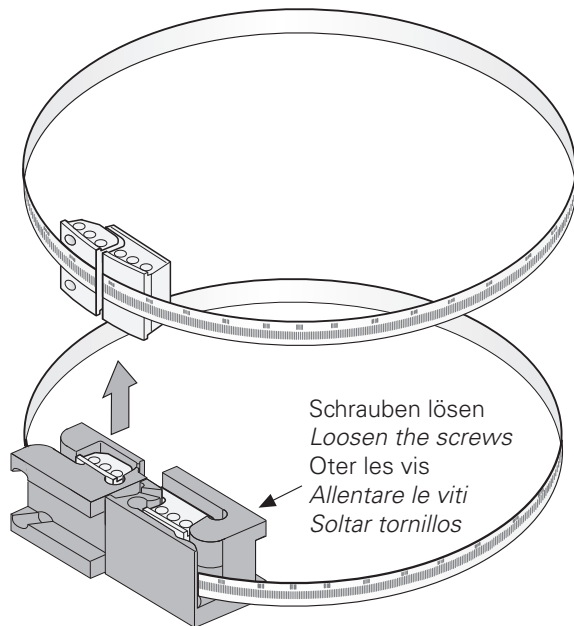
Antes del control de tolerancias del montaje y del propio montaje, limpiar las superficies de montaje con un paño libre de pelusa con alcohol etílico o alcohol isopropílico.



D = Nutgrund-Durchmesser
Diameter of slot floor
Diamètre du fond de la rainure
Diametro scanalatura
Diámetro del fondo de la ranura

ERA 880

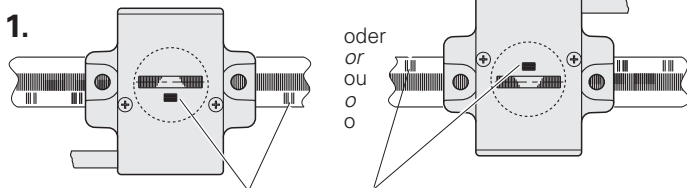
UHU plus endfest 300 Art.-Nr. 45640
Two-component epoxy resin adhesive
Colle résine époxy deux composants
UHU plus endfest colla bicomponente
Adhesivo de resina epoxy de dos componentes



Kleber dünn abziehen (~ 0.01 mm)
Thin the adhesive layer (~ 0.01 mm)
Amincir la couche de colle (~ 0.01 mm)
Eliminare i residui di colla (~ 0.01 mm)
Dejar una delgada película de adhesivo (~ 0.01 mm)

ERA 880

1.



Auf die Lage der Referenzmarkenspur achten!

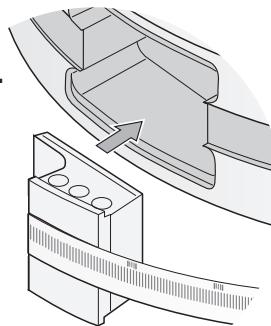
Ensure correct position of reference mark track!

Veiller à la position de la piste de marque de référence!

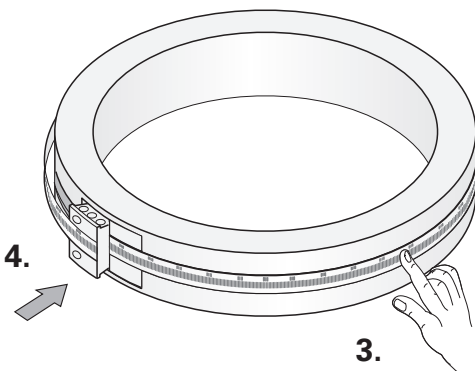
Attenzione alla posizione della traccia degli indici di riferimento!

Tener en cuenta la posición de la pista de marcas de referencia!

2.

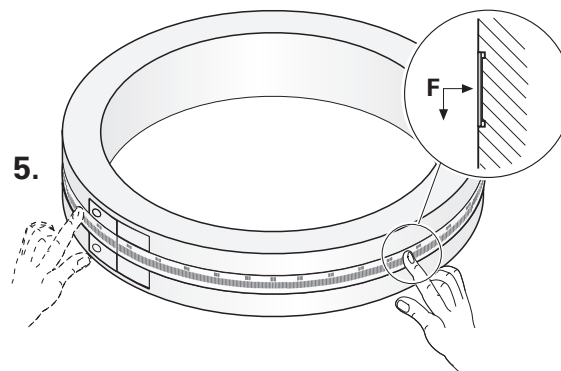


4.

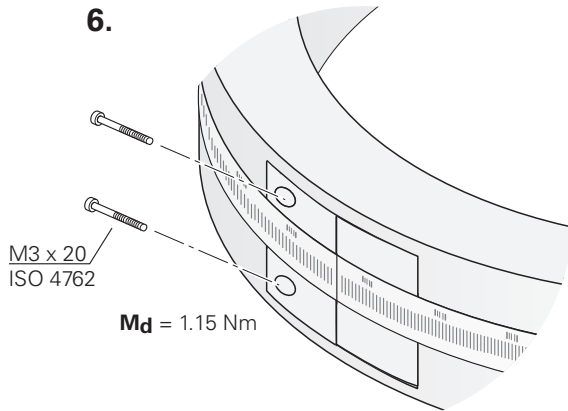


3.

5.



6.

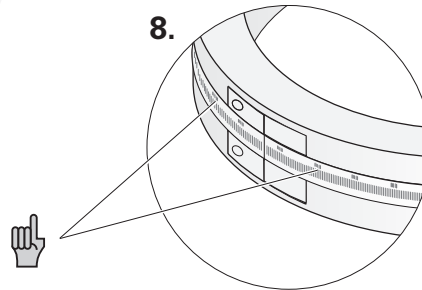


7.

Kleberreste entfernen
Remove adhesive residue
Retirer les résidus de colle
Eliminare i residui di colla
Retirar los restos de adhesivo



8.



Endfestigkeit nach ca. 12 Stunden bei ca. 20 °C.

Empfehlung: Innerhalb dieses Zeitbereiches Kontrolle des Maßbandanbaus über Signalqualität.

Final strength after 12 hours at 20 °C (68 °F).

Recommendation: *Verify the correct mounting of the scale tape within this period by checking the signal quality.*

Tenue après env. 12 heures à env. 20 °C.

Recommandation: *Dans cette plage de durée, contrôle du montage du ruban au niveau de la qualité du signal.*

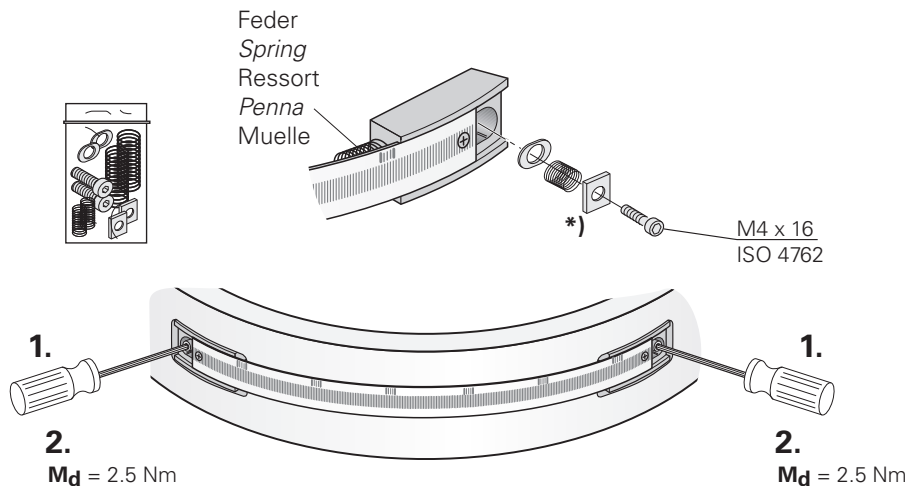
Lasciare asciugare per 12 ore a 20 °C.

Durante questo periodo si consiglia di eseguire verifiche sul montaggio del nastro tramite la qualità del segnale.

Duración proceso de pegado aprox. 12 horas a aprox. 20 °C.

Recomendación: *Durante este tiempo controlar el montaje de la cinta mediante la calidad de la señal.*

ERA 881



M4 Schraube soweit anziehen, dass Teil *) beidseitig noch beweglich ist.
Nach mehrmaligen Hin- und Herschieben und anschließendes Ausmitteln der Endstücke, M4 Schraube festziehen.

*Tighten the M4 screw enough that the part *) remains loose on both sides.
Slide each end block back and forth repeatedly and then distribute the tension evenly. Then tighten the M4 screw.*

Serrer la vis M4 de manière à ce que la pièce *) conserve de la mobilité des deux côtés.
Après avoir tiré et poussé les embouts à plusieurs reprises et les avoir ensuite stabilisés, serrer la vis M4.

*Stringere la vite M4 fino a che il pezzo *) sia si possa ancora muovere
Dopo spingere avanti ed indietro ripetutamente per trovare la posizione corretta dei terminali; serrare la vite M4.*

Apretar el tornillo M4 hasta que la pieza pueda moverse por ambos lados.
Tras desplazar la cinta varias veces de izquierda a derecha y a continuación centrar las piezas finales, apretar los tornillos M4.

ERA 882

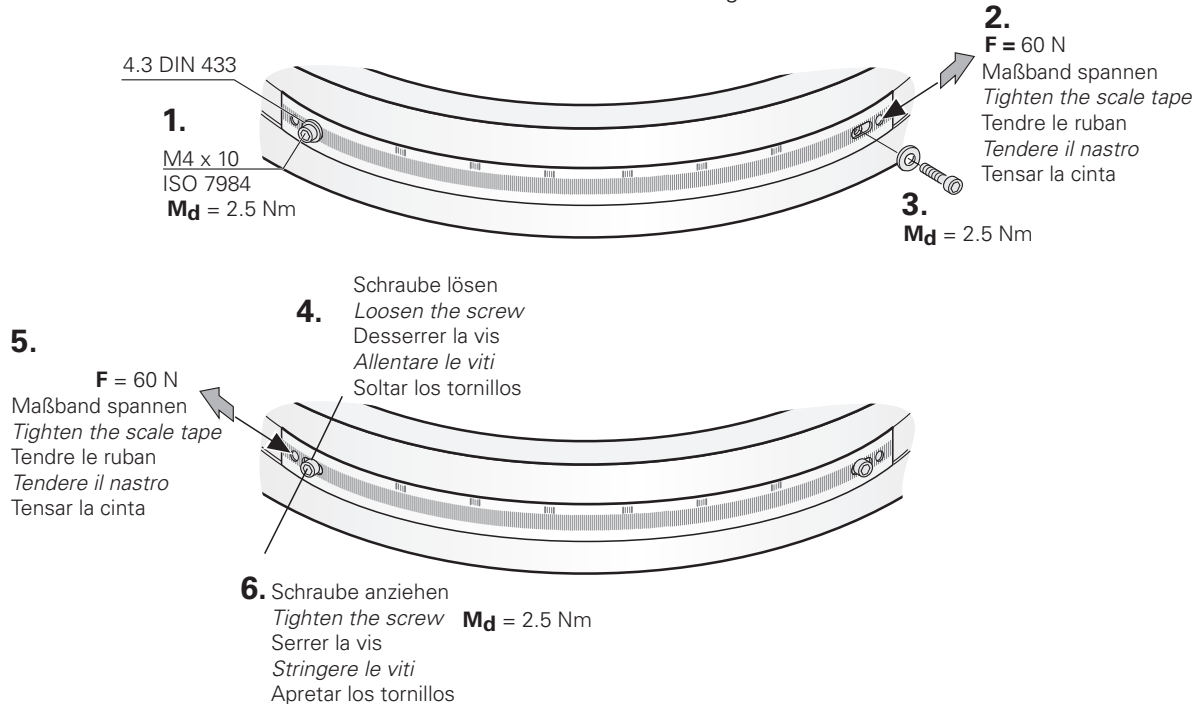
Für eine gleichmäßige Spannungsverteilung im Maßband empfehlen wir folgende Reihenfolge.

For even distribution of tension in the scale, we recommend the following sequence.

Pour répartir régulièrement la tension à l'intérieur du ruban, nous conseillons de procéder dans l'ordre suivant.

Per una distribuzione omogenea delle tensioni, vi consigliamo la seguente procedura


Para una distribución uniforme de la tensión en la cinta recomendamos la siguiente secuencia.

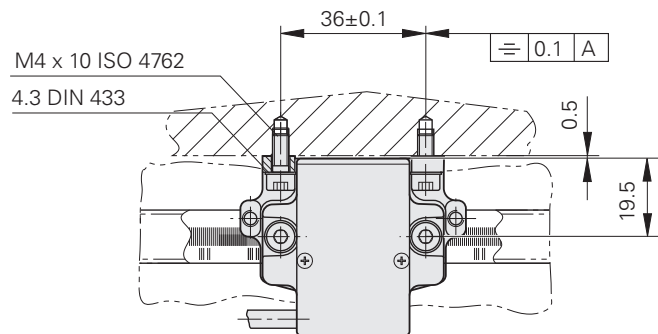
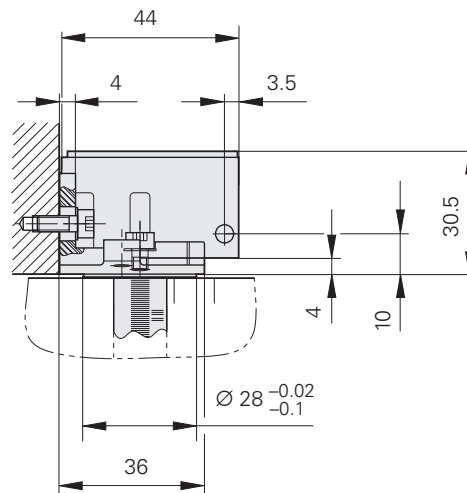
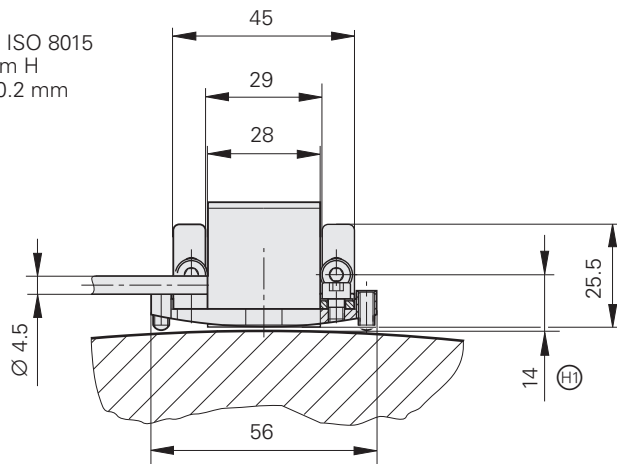


**Abmessungen Abtastkopf
und Montagewinkel für ERA 88x**

**· Dimensions of scanning
head and bracket for ERA 88x**

**· Dimensions tête caprice
et équerre de montage pour ERA 88x**

mm

 Tolerancing ISO 8015
 ISO 2768 - m H
 < 6 mm: ±0.2 mm



Ⓐ = Lagerung
Bearing
Roulement
Cuscinetto
Rodamiento

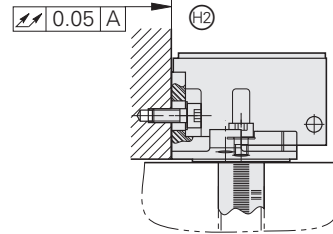
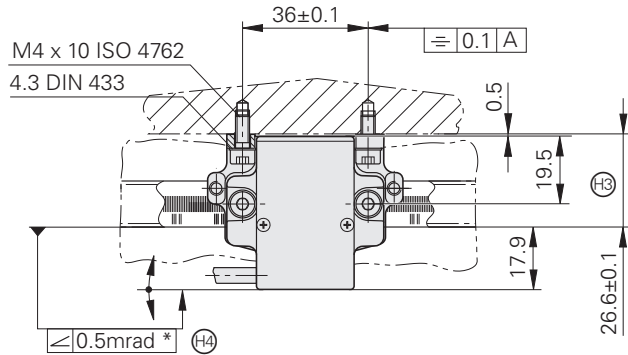
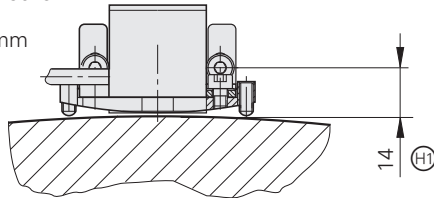
Ⓜ = Abstand von Maßband-Nutgrund bis Befestigungsgewinde
Distance from scale slot floor to threaded mounting hole
Distance entre le fond de la rainure du ruban et le trou de fixation
Distanza tra base della scanalatura e filetto di fissaggio
Distancia entre el fondo de la ranura para la cinta y la rosca de sujeción

Anbaumaße Abtastkopf · Dimensions of scanning head · Cotes de montage de la tête caprice ·

mm



Tolerancing ISO 8015
ISO 2768 - m H
< 6 mm: ±0.2 mm



Ⓜ1 = Abstand von Maßband-Nutgrund bis Befestigungsgewinde
Distance from scale slot floor to threaded mounting hole
Distance entre le fond de la rainure du ruban et le trou de fixation
Distanza tra base della scanalatura e filetto di fissaggio
Distancia entre el fondo de la ranura para la cinta y la rosca de sujeción

Ⓜ2 = Montagefläche für Montagewinkel
Securing face for mounting bracket
Surface de montage pour l'équerre de montage
Superficie di montaggio per squadretta di fissaggio
Superficie de fijación para la escuadra de montaje

Ⓜ3 = Abstand von Montagefläche bis Maßbandnut
Distance from mounting surface to scale slot
Distance entre la surface de montage et la rainure du ruban
Distanza tra superficie di montaggio e scanalatura del nastro
Distancia entre la superficie de montaje y la ranura de la cinta

Ⓜ4 = max. zul. Änderung im Betrieb
Max. permissible change during operation
Modification max. adm. en fonctionnement
Max. variazione ammessa durante il funzionamento
Variación máxima admisible durante funcionamiento

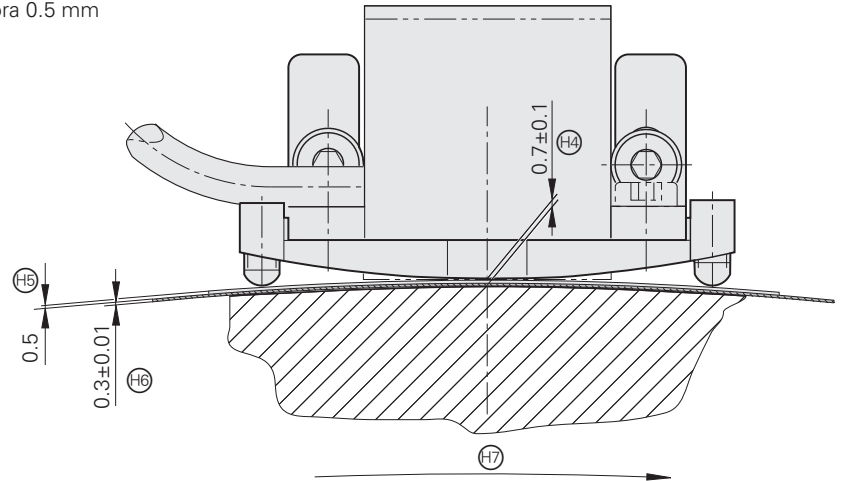
Dimensioni di montaggio della testina · Medida de montaje del cabezal

Ⓕ = Arbeitsabstand (Abstand zwischen Strichplatte und Maßband-Oberfläche)
Scanning gap (distance between scanning reticle and scale surface)
Distance fonctionnelle (distance réticule de balayage/surface du ruban)
Distanza di lavoro (distanza tra il disco graduato e la superficie del nastro)
Distancia de trabajo (distancia entre la retícula de captación y la superficie de la cinta)

Ⓖ = Montageabstand für Montagewinkel. Justierfolie 0.5 mm
Mounting distance for bracket. Spacer foil .02 in.
Distance de montage pour l'équerre de montage. Cale de réglage 0.5 mm
Distanza di montaggio per squadretta di fissaggio. Dima di montaggio 0.5 mm
Distancia de montaje para escuadra. Hoja separadora 0.5 mm

Ⓗ = Maßbanddicke
Scale thickness
Épaisseur du ruban
Spessore del nastro
Grosor de la cinta

Ⓙ = Positive Drehrichtung
Positive rotating direction
Sens de rotation positif
Direzione di conteggio positiva
Sentido de giro positivo



Anbau des Abtastkopfes · *Mounting the scanning head* · Montage de la tête caprice ·

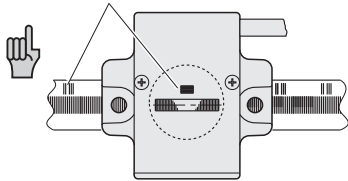
Auf die Lage der Referenzmarkenspur achten!

Ensure correct position of reference mark track!

Veiller à la position de la piste de marque de référence!

Attenzione alla posizione della traccia degli indici di riferimento!

Tener en cuenta la posición de la pista de marcas de referencia!



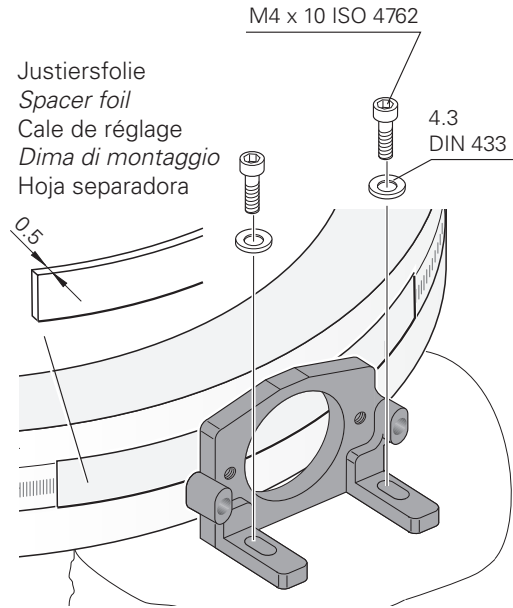
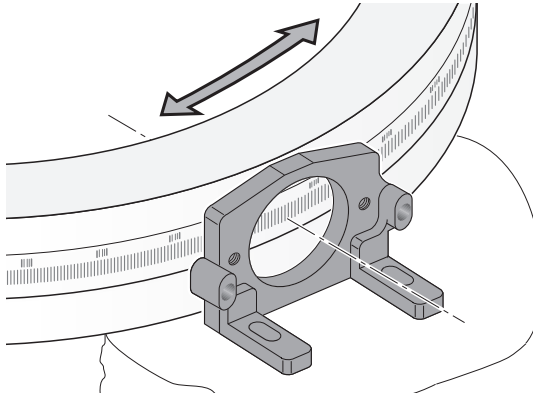
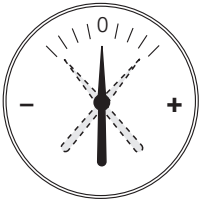
Montagewinkel in der Mitte des Rundlauffehlers auf Abstand justieren.

Adjust the bracket in the middle of the radial runout at mounting.

régler l'équerre de montage à distance, par rapport au centre du faux-rond.

tarare l'angolo di montaggio alla metà dell'errore di eccentricità.

ajustar la escuadra de montaje a la distancia en el centro del error de redondez.



Montaggio della testina · Montaje del cabezal

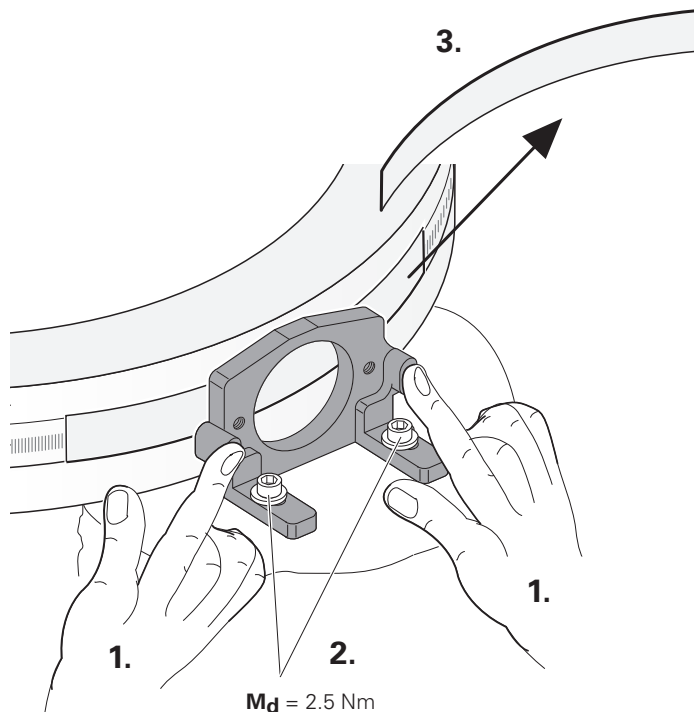
Montagewinkel mit geringer Kraft gegen die Abstandsfolie drücken und festschrauben.

Press the bracket lightly against the spacer foil and fasten it with screws.

Appuyer légèrement l'équerre de montage sur la cale d'épaisseur et la visser.

Appoggiare la squadretta di montaggio allo spessimetro e avvitare.

Apretar con poca presión la escuadra de montaje contra el folio separador y atornillar.



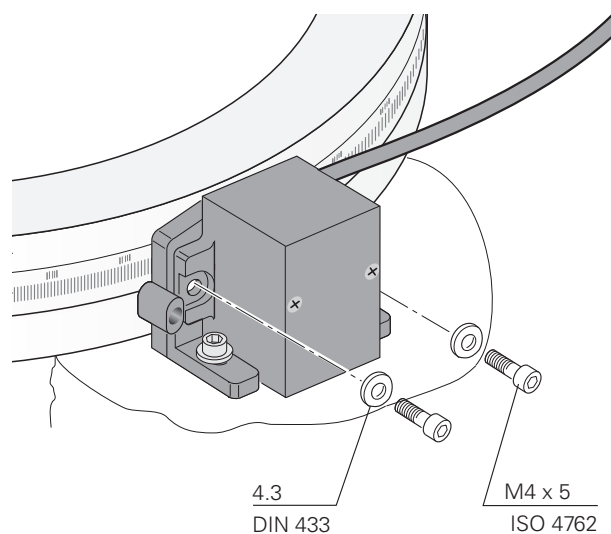
Abtastkopf am Montagewinkel leicht anschrauben.

Fasten the scanning head lightly to the bracket with screws.

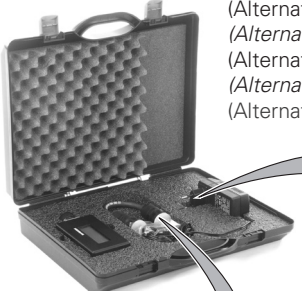
Visser légèrement la tête caprice sur l'équerre de montage.

Avvitare la testina sulla squadretta di montaggio senza stringere.

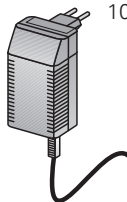
Atornillar levemente el cabezal a la escuadra de montaje.



PWT 18
 (Alternative PWM 8/PWM 9)
 (Alternative PWM 8/PWM 9)
 (Alternative PWM 8/PWM 9)
 (Alternativa PWM 8/PWM 9)
 (Alternativa PWM 8/PWM 9)

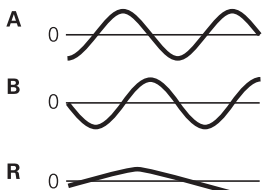


100 – 240 V



Signalamplitude
Signal amplitude
 Amplitude du signal
 Ampiezza del segnale
 Amplitud de señal

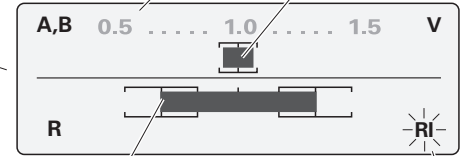
Signalqualität
Signal quality
 Qualité du signal
 Qualità del segnale
 Calidad de señal



A 0

B 0

R 0




A,B 0.5 1.0 1.5 V

R

RI

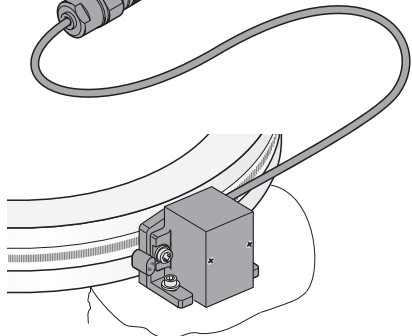
Referenzmarkenbreite
Reference mark width
 Largeur de la marque de référence
 Ampiezza degli indici di riferimento
 Ancho de la marca de referencia

Messung der Referenzmarke
Measurement of the reference mark
 Mesure de la marque de référence
 Misurazione dell'indice di riferimento
 Medición de la marca de referencia



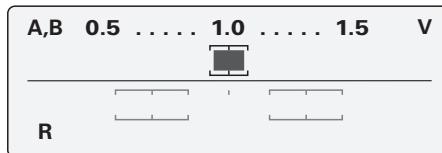
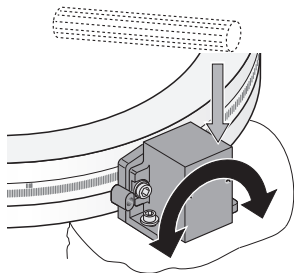
R

Messung ist älter als 15 sek.
Measurement is older than 15 sec.
 Mesure antérieure à 15 sec.
 Misurazione anteriore ai 15 secondi
 La medición tiene más de 15 sec.

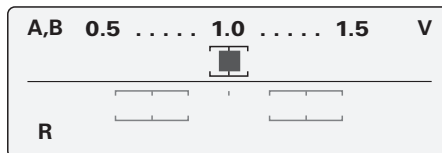


Signal-Einstellung
Signal setting
Réglage du signal
Regolazione del segnale
Ajuste de la señal

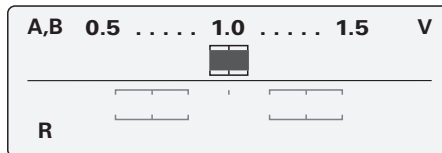
- 1.** Leicht klopfen
Tap lightly
 Tapoter légèrement
Battere delicatamente
 Golpear suavemente



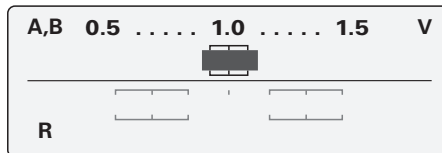
A, B 0.6 ... 1.2V OK ✓



ideal
Ideal
 idéal
ideale
 ideal



zulässig
Permissible
 admissible
permesso
 admisible



Anbau-Toleranzen überprüfen
Check mounting tolerances
 Contrôler tolérances de montage
Controllare le tolleranze di montaggio
 Verificar tolerancias de montaje

Referenzmarken-Einstellung

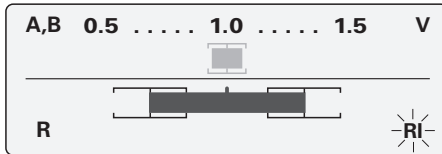
Reference mark setting

Réglage de la marque de référence

Settaggio indici di riferimento

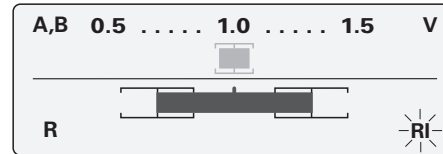
Ajuste de la marca de referencia

Lage / Position / Position / Posizione / Posición

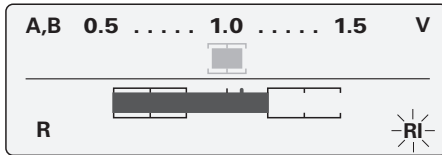


ideal
Ideal
idéal
ideale
ideal

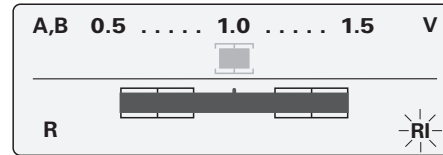
Breite / Width / Largeur / Ampiezza / Ancho



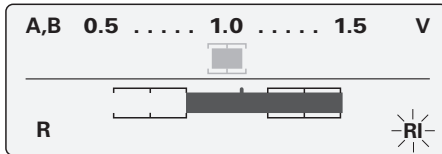
ideal 360°
Ideal 360°
idéal 360°
ideale 360°
ideal 360°



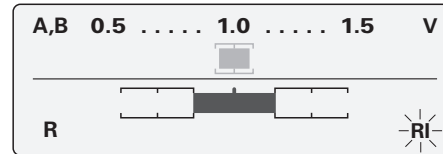
noch zulässig
Permissible limit
encore admissible
ammessi ancora
máx. admissible



noch zulässig
Permissible limit
encore admissible
ammessi ancora
máx. admissible

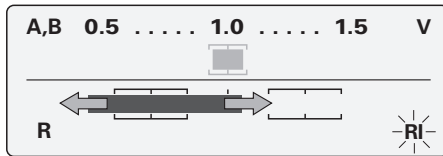


noch zulässig
Permissible limit
encore admissible
ammessi ancora
máx. admissible

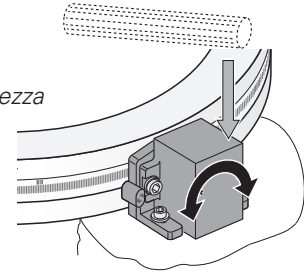


noch zulässig
Permissible limit
encore admissible
ammessi ancora
máx. admissible

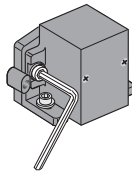
2.



Durch leichtes Klopfen optimieren
Optimize by lightly tapping
Optimiser en tapotant légèrement
Optimizzare picchiando con delicatezza
Optimizar con golpes suaves

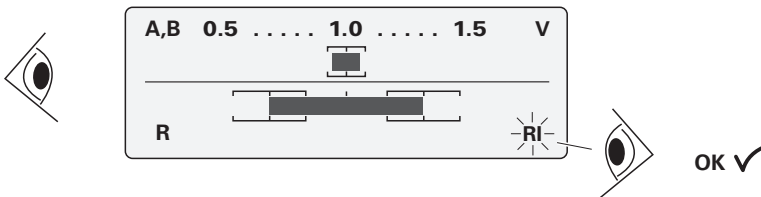


3.

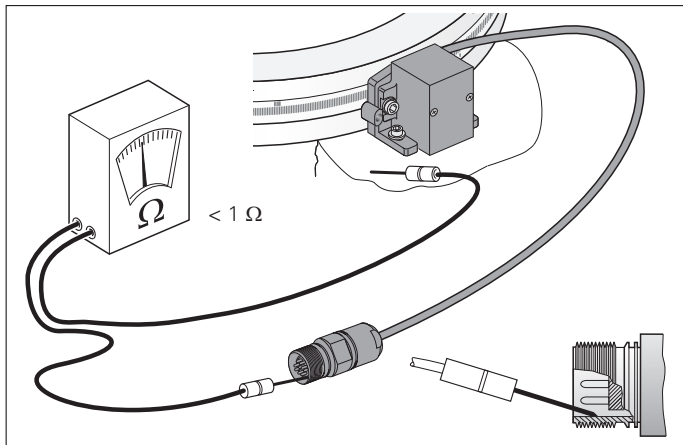


$M_d = 2.5 \text{ Nm}$

4.



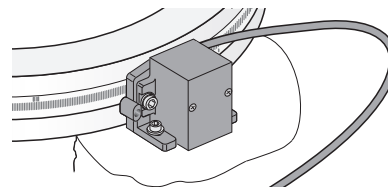
Abschließende Arbeiten · *Final steps* · Opérations finales · *Operazioni finali* · Trabajos finales



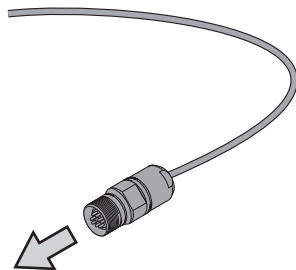
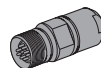
Technische Kennwerte · *Specifications* · Caractéristiques techniques · *Dati tecnici* · Datos técnicos

	 $T \geq -40 \text{ }^\circ\text{C}$ (-40 °F)	 $T \geq -10 \text{ }^\circ\text{C}$ (14 °F)
$\varnothing 4.5 \text{ mm}$	$R_1 \geq 10 \text{ mm}$	$R_2 \geq 50 \text{ mm}$
	$R_1 \geq 40 \text{ mm}$	$R_2 \geq 100 \text{ mm}$

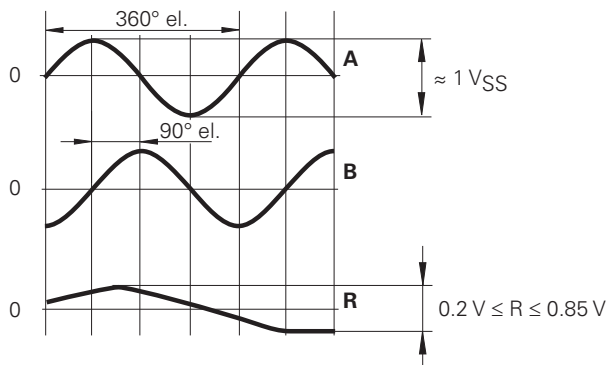
	$^\circ\text{C}$ ($^\circ\text{F}$)
	-30 ... 80 $^\circ\text{C}$ (-22 ... 176 $^\circ\text{F}$)



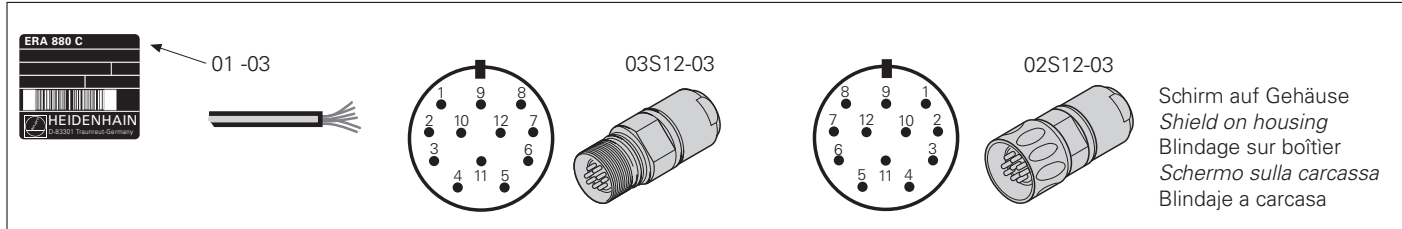
Up: DC 5V ± 0.5V
(max. 150 mA)



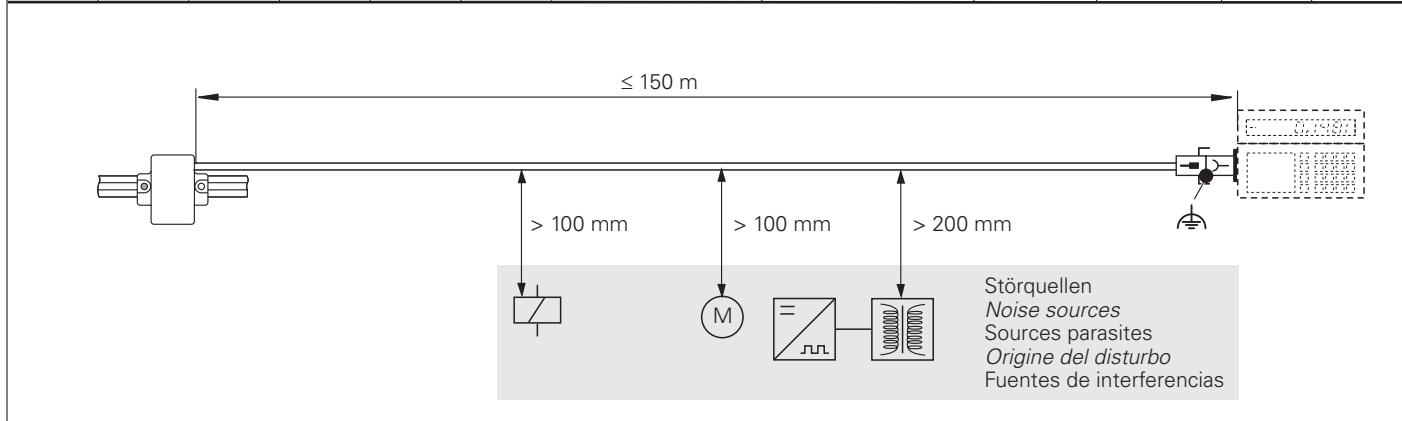
A: 0.6 ... 1.2 V_{SS}
B: 0.6 ... 1.2 V_{SS}
R: 0.2 ... 0.85 V



Elektrischer Anschluss · *Electrical connection* · Raccordement électrique · *Collegamento elettrico* · Conexión eléctrica



5	6	8	1	3	4	12	10	2	11	7	9
A		B		R		5V U _P	0V U _N	5V sensor	0V sensor	/	/
+	-	+	-	+	-						
braun <i>brown</i> brun <i>marrone</i> marrón	grün <i>green</i> vert <i>verde</i> verde	grau <i>gray</i> gris <i>grigio</i> gris	rosa <i>pink</i> rose <i>rosa</i> rosa	rot <i>red</i> rouge <i>rosso</i> rojo	schwarz <i>black</i> noir <i>nero</i> negro	braun/grün <i>brown/green</i> brun/vert <i>marrone/verde</i> marron/verde	weiß/grün <i>white/green</i> blanc/vert <i>bianco/verde</i> blanco/verde	blau <i>blue</i> bleu <i>azzurro</i> azul	weiß <i>white</i> blanc <i>bianco</i> blanco	violett <i>violet</i> violet <i>viola</i> violeta	gelb <i>yellow</i> jaune <i>giallo</i> amarillo



HEIDENHAIN

DR. JOHANNES HEIDENHAIN GmbH

Dr.-Johannes-Heidenhain-Straße 5

83301 Traunreut, Germany

☎ +49 8669 31-0

FAX +49 8669 5061

E-mail: info@heidenhain.de

Technical support FAX +49 8669 32-1000

Measuring systems ☎ +49 8669 31-3104

E-mail: service.ms-support@heidenhain.de

TNC support ☎ +49 8669 31-3101

E-mail: service.nc-support@heidenhain.de

NC programming ☎ +49 8669 31-3103

E-mail: service.nc-pgm@heidenhain.de

PLC programming ☎ +49 8669 31-3102

E-mail: service.plc@heidenhain.de

Lathe controls ☎ +49 8669 31-3105

E-mail: service.lathe-support@heidenhain.de

www.heidenhain.de

