



# HEIDENHAIN

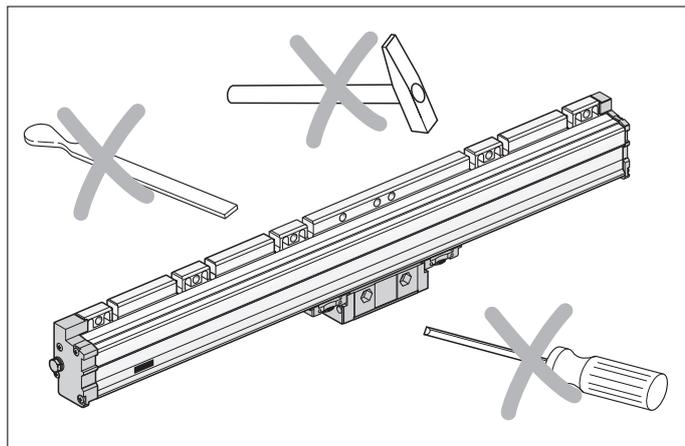
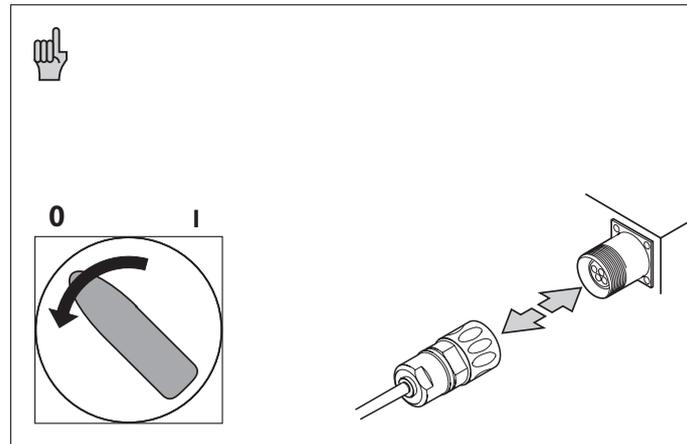
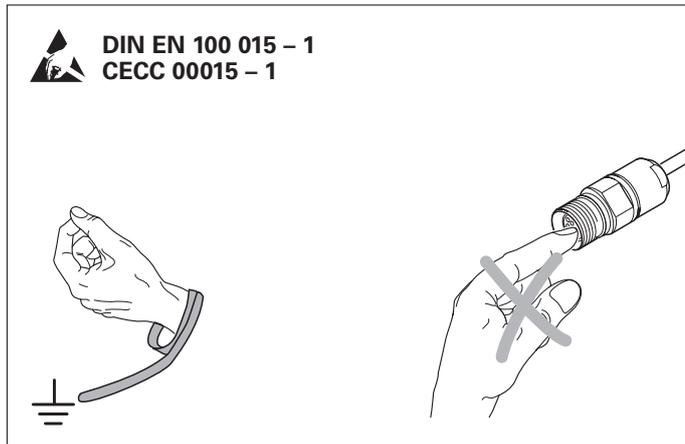
Montageanleitung  
*Mounting Instructions*  
Instructions de montage  
*Istruzioni di montaggio*  
Instrucciones de montaje

**LC 192 M**  
MITSUBISHI  
High Speed Serial Interface

7/2004



Warnhinweise · Warnings · Recommendations · Avvertenze · Advertencias



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



Die Inbetriebnahme des LC 192 M erfordert eine richtige Parametrierung der MITSUBISHI-Steuerung (Gefahr von Sach- und Personenschäden). Zur richtigen Parametrierung nehmen Sie bitte Kontakt zum Hersteller der Maschine auf.

*The MITSUBISHI control parameters for the LC 192 M must be correctly configured for proper function. Improper configuration may result in damage to the equipment or even personal injury. Please contact the machine manufacture for the correct parameter configuration.*

La mise en route du LC 192 M nécessite un paramétrage correct de la commande MITSUBISHI (risque matériels et corporels). Pour effectuer le paramétrage correctement, prenez S.V.P. contact avec le constructeur de la machine.

*La messa in funzione della LC 192 M richiede una corretta parametrizzazione del controllo MITSUBISHI (rischio di danni alle cose e alle persone). Per una corretta parametrizzazione mettersi in contatto con il costruttore della macchina.*

La puesta en marcha de la LC 192 M requiere una parametrización correcta del sistema de medida MITSUBISHI (peligro de daños en cosas y personas). Para la parametrización correcta contacten con el constructor de la máquina.



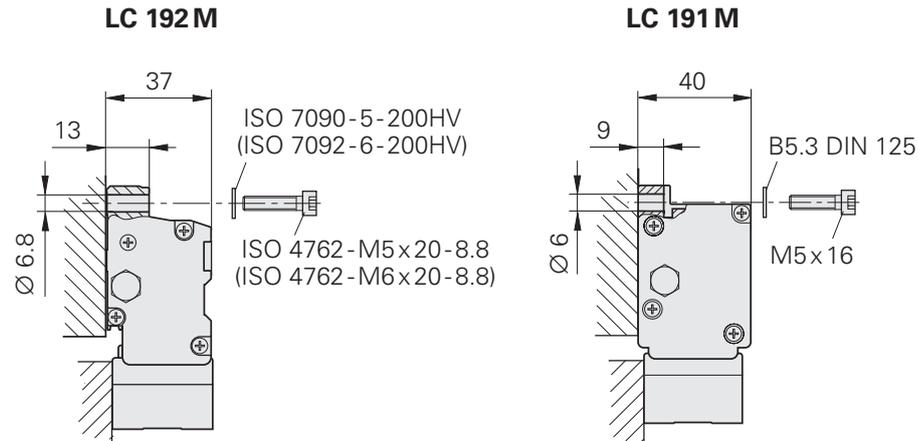
**LC 192 M als Ersatzgerät für LC 191 M**

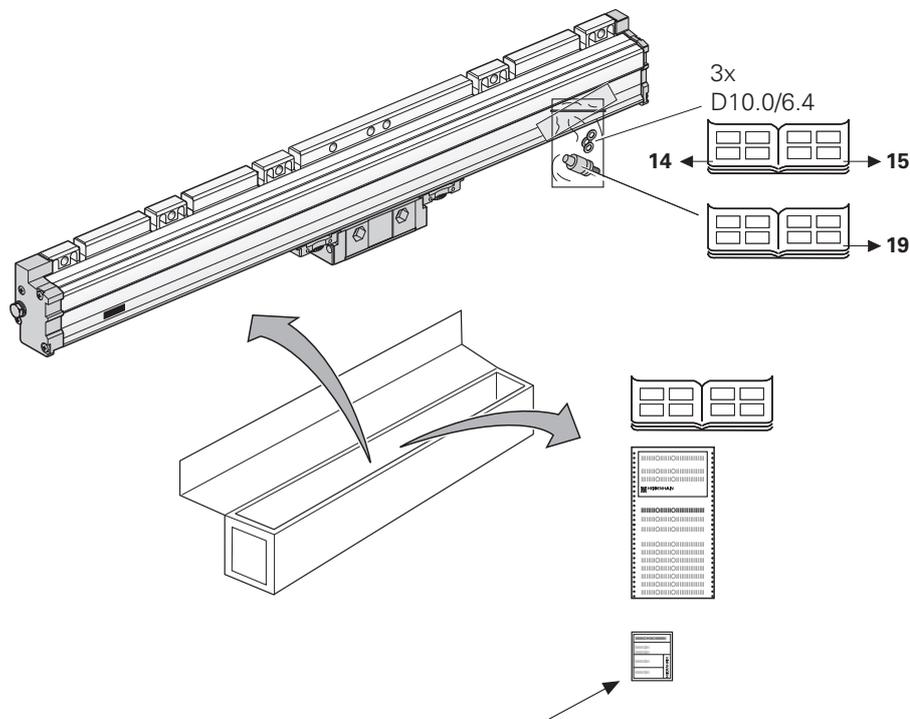
***LC 192 M as replacement encoder for LC 191 M***

**LC 192 M en remplacement du LC 191 M**

***LC 192 M come apparecchio sostitutivo per la LC 191 M***

**LC 192 M como aparato de repuesto para la LC 191 M**





Bei Montage bitte Geräteschild-Aufkleber anbringen (Schaltschrank, Maschinen-Handbuch usw.)

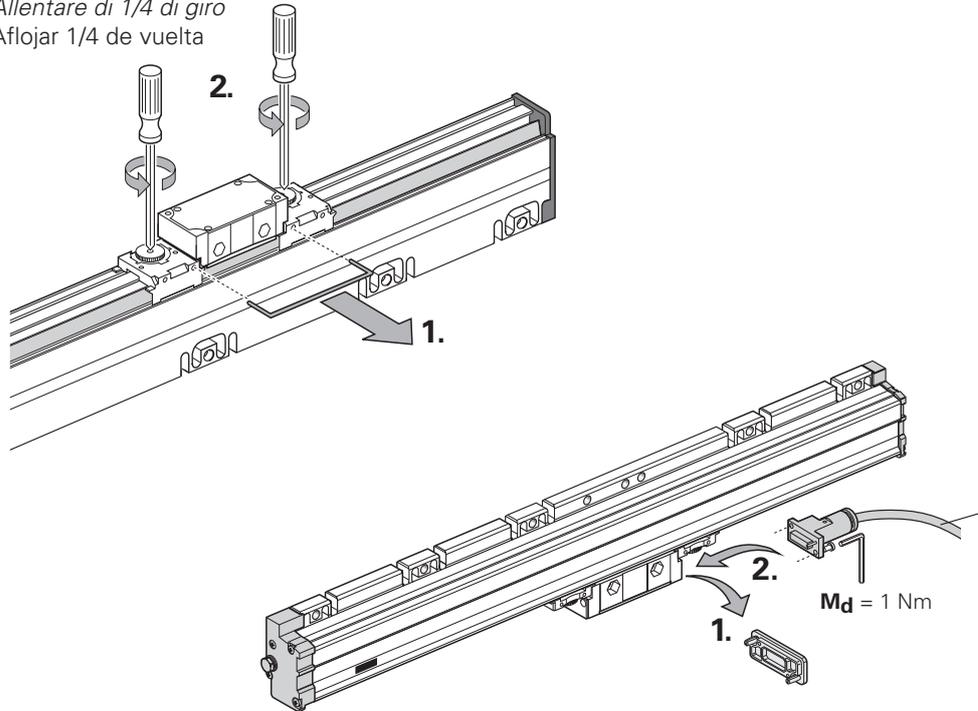
Apply the encoder ID label to an appropriate surface, e.g. the electrical cabinet or machine manual

Lors du montage, accoler S.V.P. l'étiquette signalétique de l'appareil (armoire électrique, manuel de la machine, etc.)

Completato il montaggio, ricordarsi di applicare l'etichetta (manuale della macchina, quadro elettrico)

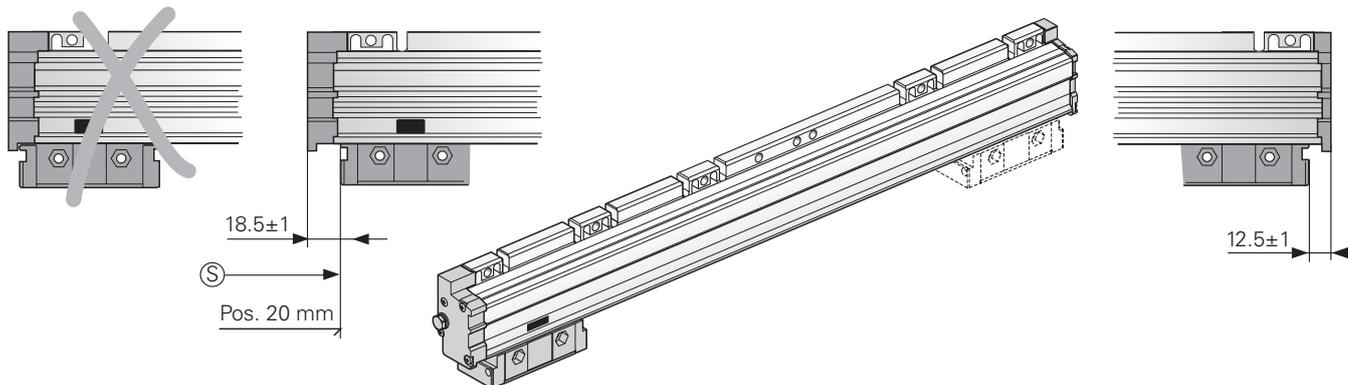
Por favor, durante el montaje, colocar el adhesivo del letrero del aparato (armario eléctrico, modo de empleo de la máquina, etc.)

1/4 Umdrehung lösen  
*Loosen by 1/4 revolution*  
Dévisser de 1/4 de tour  
*Allentare di 1/4 di giro*  
Aflojar 1/4 de vuelta

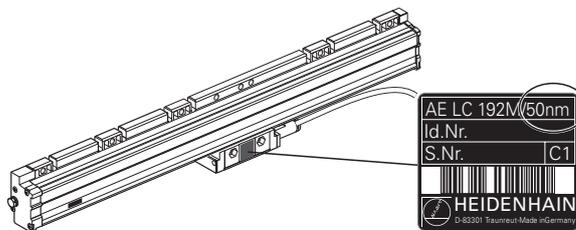


Separat bestellen  
*Order Separately*  
Commander séparément  
*Ordinare separatamente*  
Pedir por separado

## Hinweise zur Montage · *Mounting Procedure* · Procédures pour le montage

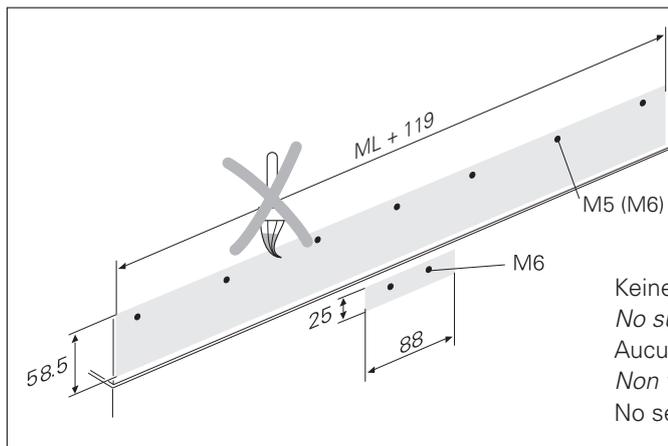
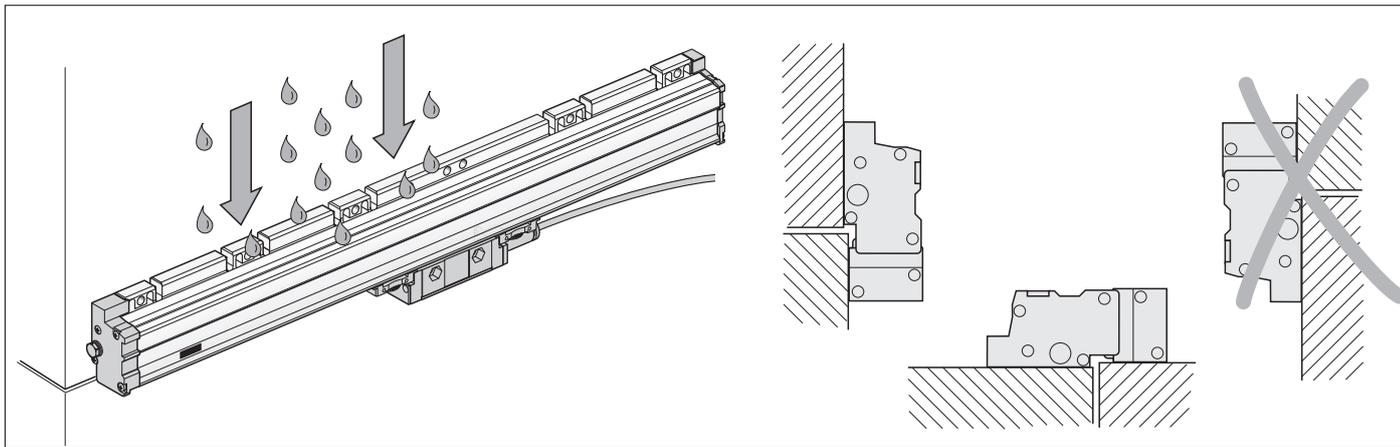


- Ⓢ = Der Absolutwert beim Beginn der Messlängen beträgt 20 mm. Je nach Auflösung errechnet sich der Positionswert.  
*At the beginning of the measuring lengths, the absolute value is 20 mm. The calculated position value depends on the resolution.*  
La valeur absolue au début des longueurs de mesure est de 20 mm. La valeur de position est calculée en fonction de la résolution.  
*All'inizio della corsa utile, il valore assoluto della posizione è di 20 mm. Il calcolo del valore di posizione dipende dalla risoluzione.*  
Al comienzo del curso útil, el valor absoluto es de 20 mm de los extremos. El valor de posición se calcula en función de la resolución.



Messschritt z.B. 50 nm oder 0 = programmierbar für Service  
*Measuring step e.g. 50 nm or 0 = programmable for Service*  
Pas de mesure ex. 50 nm ou 0 = programmable pour SAV  
*Passo di misura ad. es. 50 nm oppure 0 = programmabile per assistenza tecnica*  
Paso de medición p.ej. 50 nm ó 0 = programmable para servicio

## Avvertenze per il montaggio · Indicaciones para el montaje



Keine Oberflächenbehandlung zulässig. (Blanke Flächen).

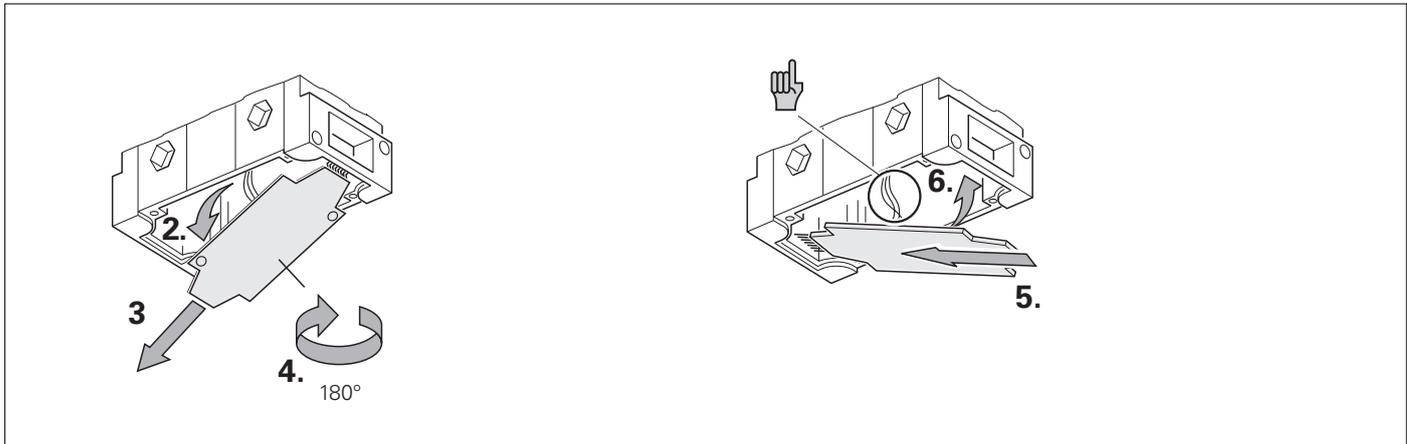
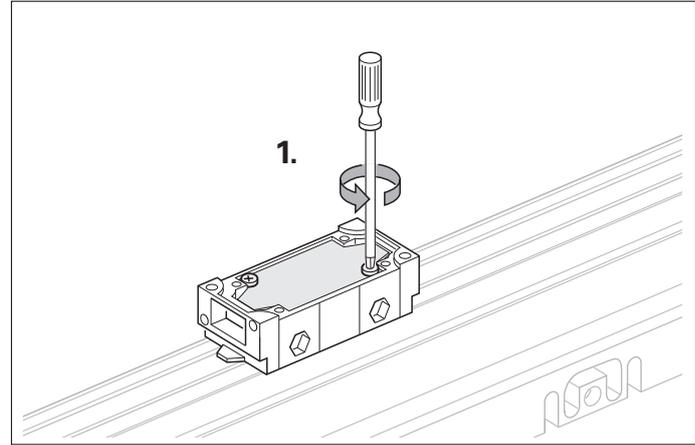
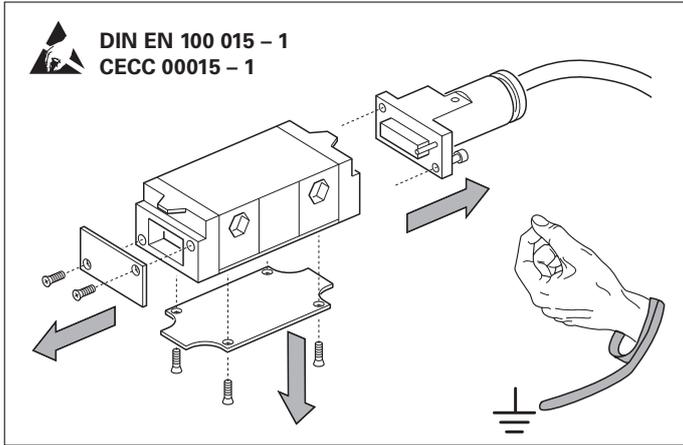
No surface treatment permissible (blank surfaces).

Aucun traitement des surfaces n'est autorisé. (surfaces nues).

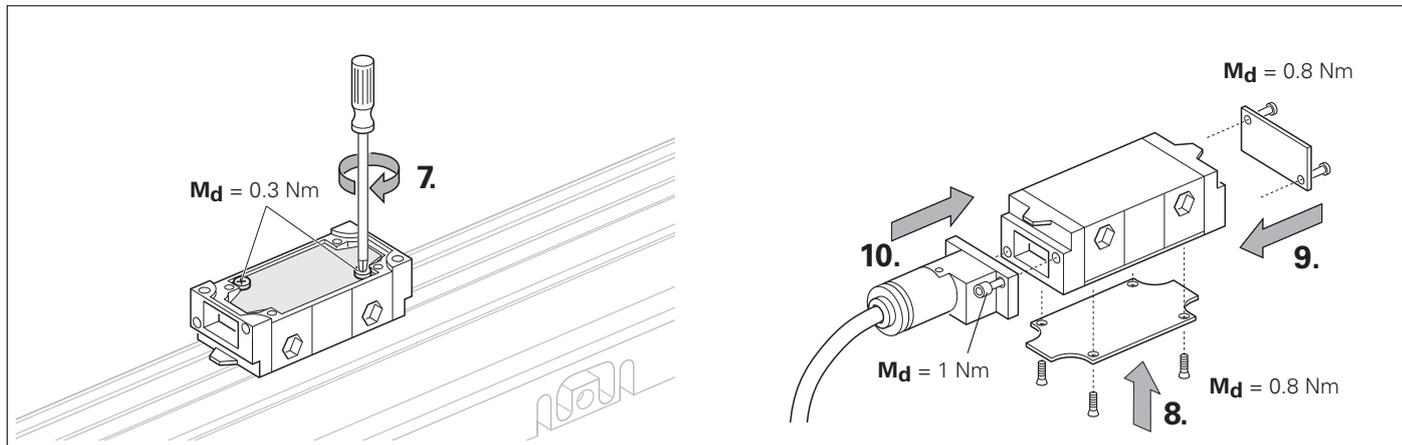
Non trattare la superficie (superfici lavorate non rivestite).

No se permite el tratamiento de la superficie (superficies en blanco).

Kabelausgang verlegen · *Changing the Cable Outlet* · Poser la sortie du câble



**Configurazione dell'uscita del cavo · Colocar cable de salida**

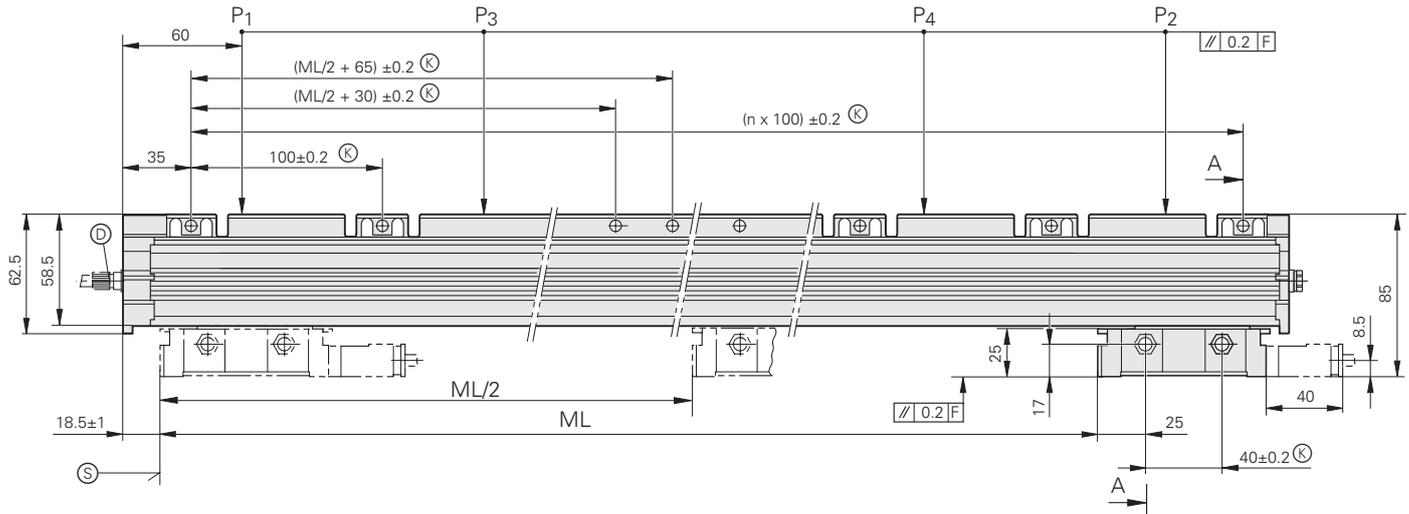
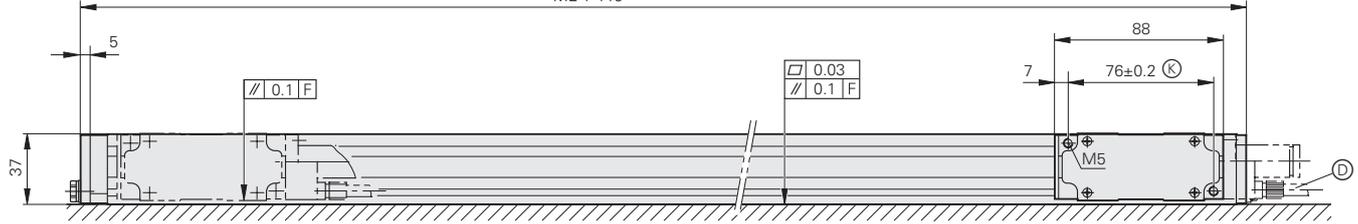


Abmessungen · Dimensions · Dimensions · Dimensioni · Dimensiones



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

ML + 119



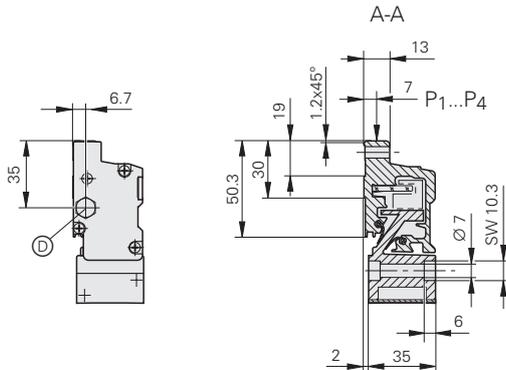
F = Maschinenführung  
*Machine guideway*  
*guidage de la machine*  
*guida della macchina*  
*guía de la máquina*

Ⓧ = Druckluftanschluss  
*Compressed air inlet*  
*raccordement d'air comprimé*  
*ingresso per pressurizzazione*  
*conexión de aire comprimido*

Ⓚ = Kundenseitige Anschlussmaße  
*Required mating dimensions*  
*conditions requises pour le montage*  
*dimensioni di collegamento lato cliente*  
*cotas de montaje requeridas*

P = Messpunkte zum Ausrichten  
*Gauging points for alignment*  
*points de mesure pour dé gauchissage*  
*punti di misura per allineamento*  
*puntos medición alineamiento*

Ⓛ = Beginn der Messlänge ML  
*Begin. of meas. length ML*  
*début longueur utile ML*  
*inizio lunghezza di misura ML*  
*comienzo longitud útil ML*

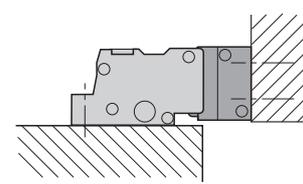
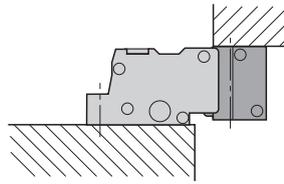
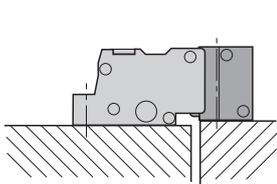
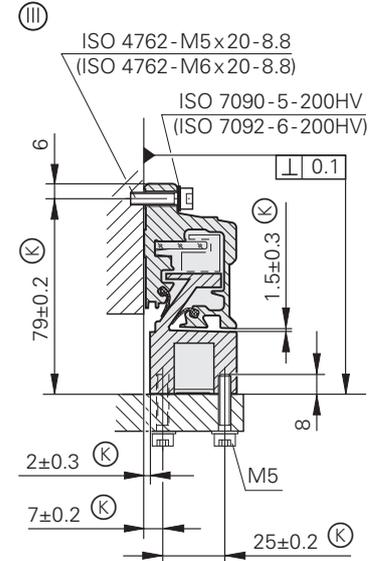
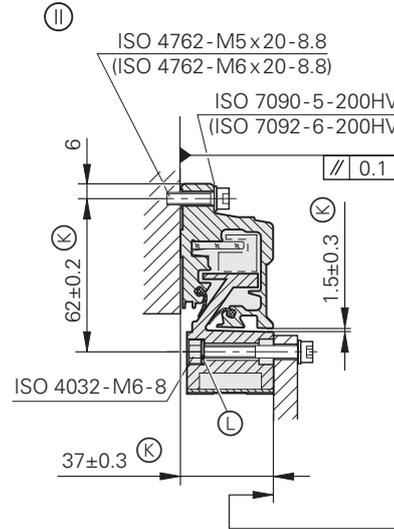
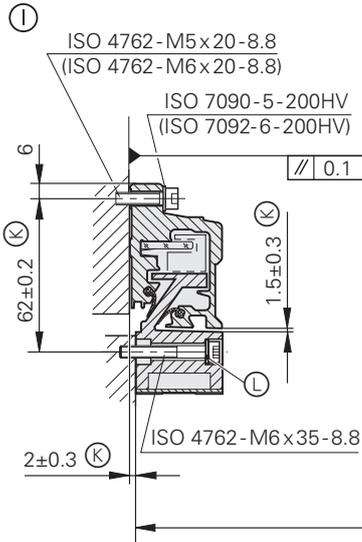


Anbaumaße · Mounting Dimensions · Cote d'encombrement · Dimensioni di montaggio · Medidas para el montaje

Ⓘ Ⓜ Ⓢ = Montage-Möglichkeiten  
 Mounting possibilities  
 Options de montage  
 Possibilità di montaggio  
 Posibilidades de montaje

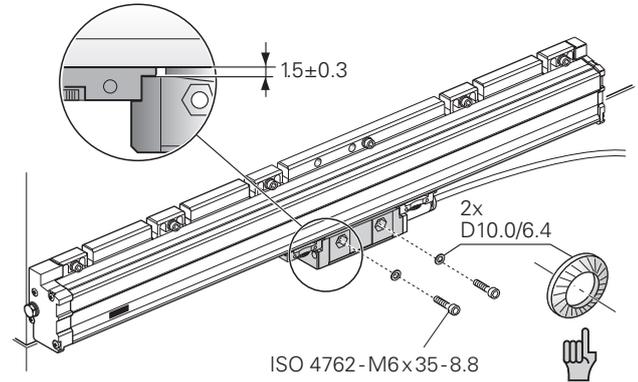
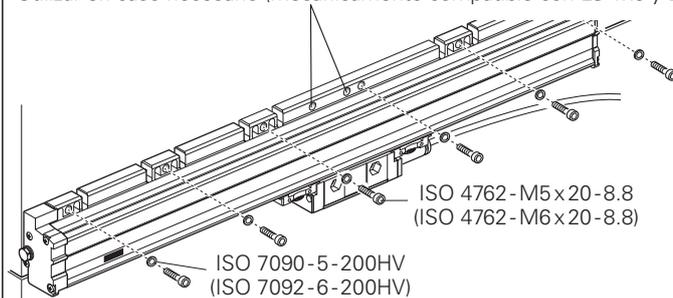
Ⓚ = Kundenseitige Anschlussmaße  
 Required mating dimensions  
 Conditions requises pour le montage  
 Dimensioni di collegamento lato cliente  
 Cotas de montaje requeridas

Ⓛ = Rippenscheibe D10.0/6.4 (Zubehör)  
 Ribbed look washer D10.0/6.4 (accessories)  
 Rondelle à nervures D10.0/6.4 (accessoires)  
 Rondella alettata D10.0/6.4 (Accessori)  
 Arandela nervada D10.0/6.4 (Accesorios)

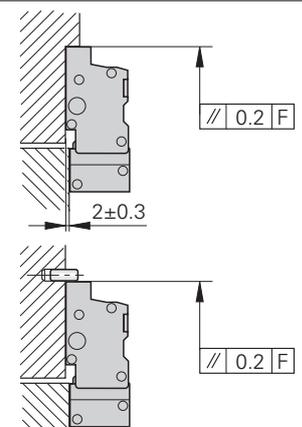
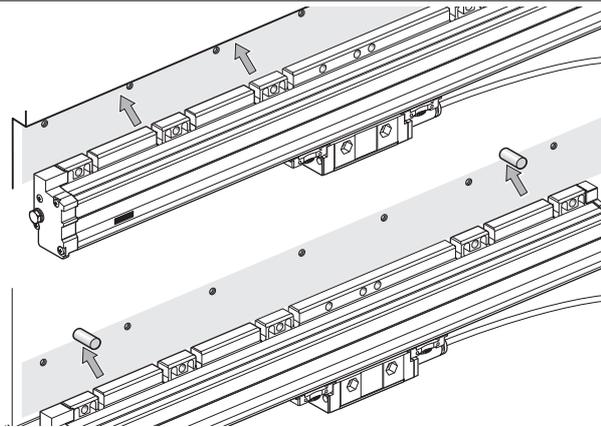


## Anbau des Maßstabs · *Mounting the scale* · Montage de la règle de mesure · *Montaggio della riga* · Montaje de la regla

bei Bedarf verwenden (Anbaukompatibel zu LS 1x6 und LC 1x1).  
*Use if necessary (mechanically compatible to LS 1x6 and LC 1x1).*  
 Utiliser en cas de besoin (montage compatible LS 1x6 et LC 1x1).  
*Utilizzare secondo necessità (montaggio compatibile con LS 1x6 e LC 1x1).*  
 Utilizar en caso necesario (mecánicamente compatible con LS 1x6 y LC 1x1).

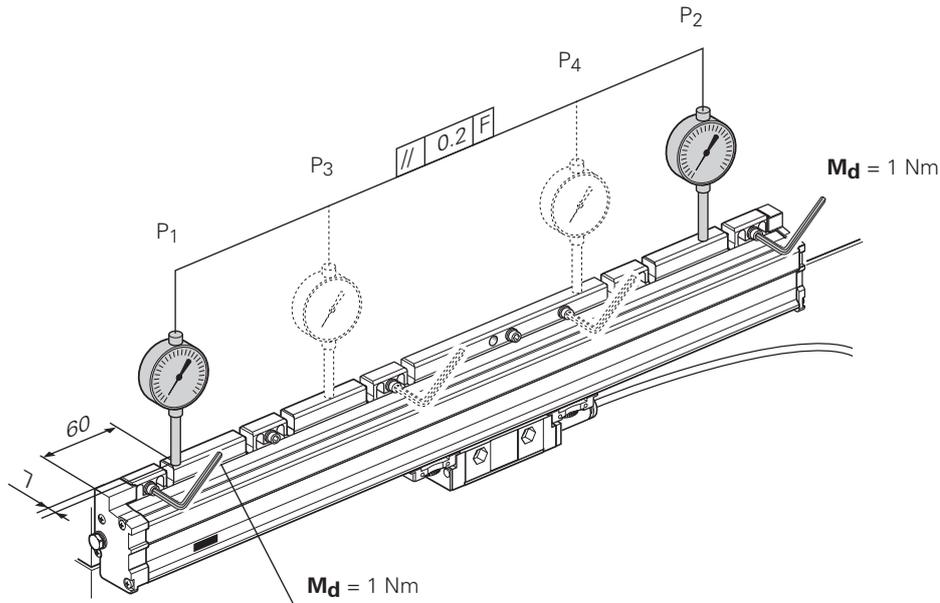


zusätzliche Anbaumöglichkeiten  
*Additional mounting options*  
 Possibilités de montage supplémentaires  
*Altre possibilità di montaggio*  
 Posibilidades de montaje adicionales



**Ausrichten · Alignment · Alignement · Allineamento · Alinear**

P = Messpunkte zum Ausrichten  
*Gauging points for alignment*  
 Points de mesure pour dé gauchissage  
*Punti di misura per allineamento*  
 Puntos medición alineamiento



| ML        |  |
|-----------|---|
| ≤ 840 mm  | <b>2x</b>   |
| ≤ 1740 mm | <b>3x</b>   |
| ≤ 3040 mm | <b>4x</b>   |

Befestigungsreihenfolge beachten  
Mittlere Befestigung zwingend notwendig („Thermischer Fixpunkt“)

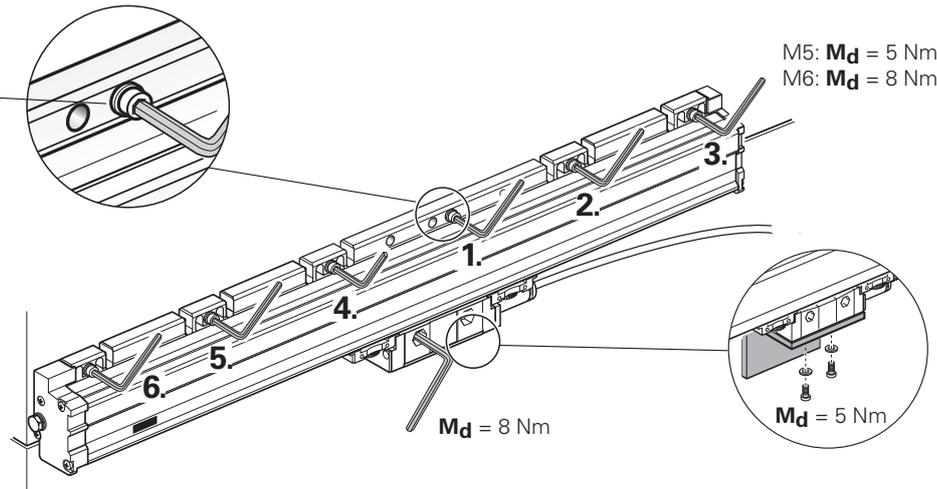
*Use the correct sequence when fastening  
Mid-point must be fastened (“thermal fixpoint”)*

Respecter l'ordre chronologique de la fixation  
Fixation centrale impérative („point fixe thermique“)

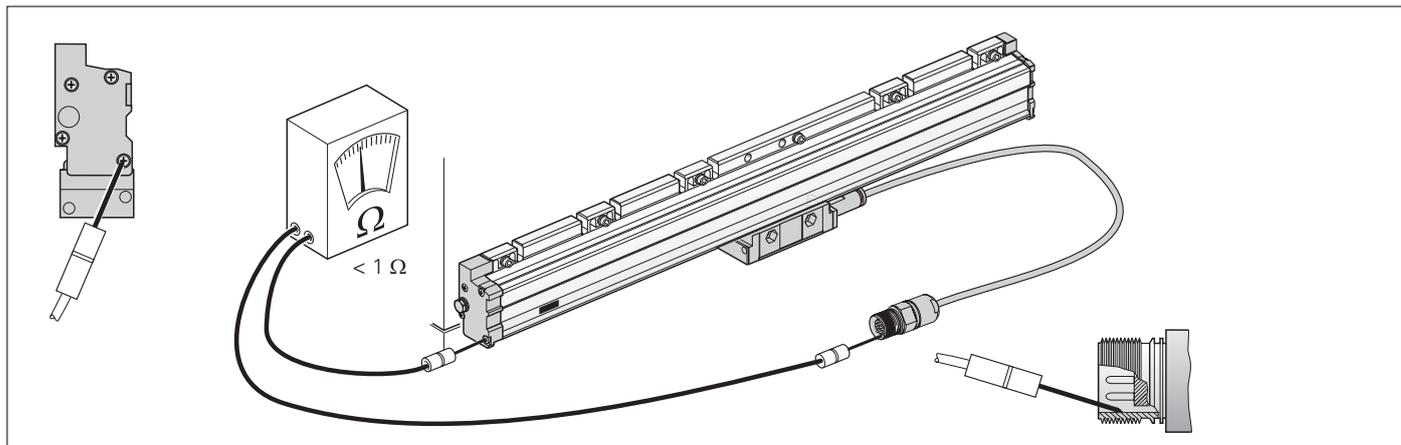
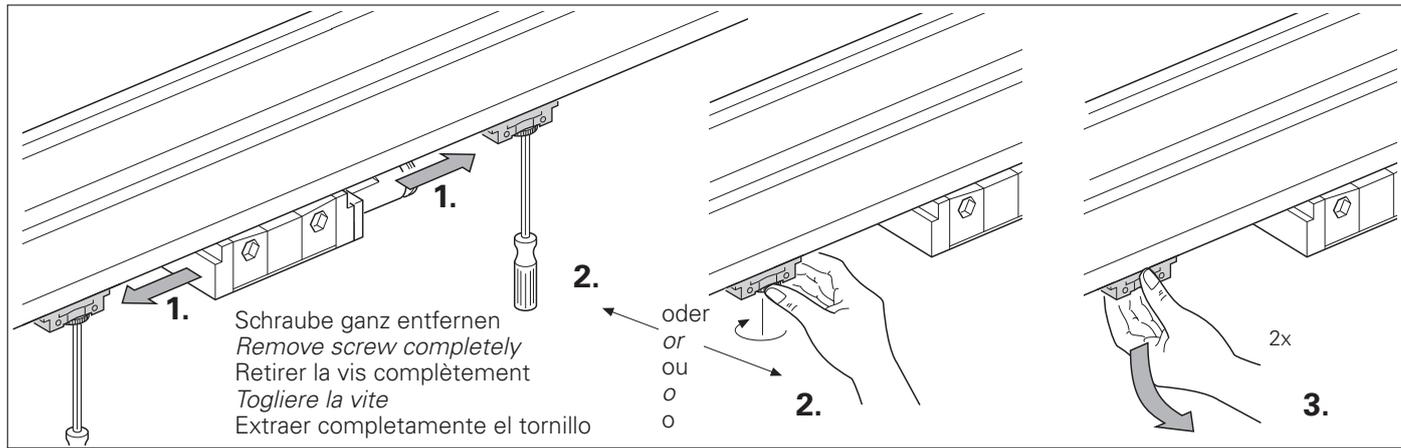
*Attenzione alla sequenza per il fissaggio  
Il punto di fissaggio centrale è obbligatorio („punto di fissaggio termico“)*

Tener en cuenta la secuencia de sujeción  
Sujeción central necesariamente obligatoria („Punto de fijación térmico“)

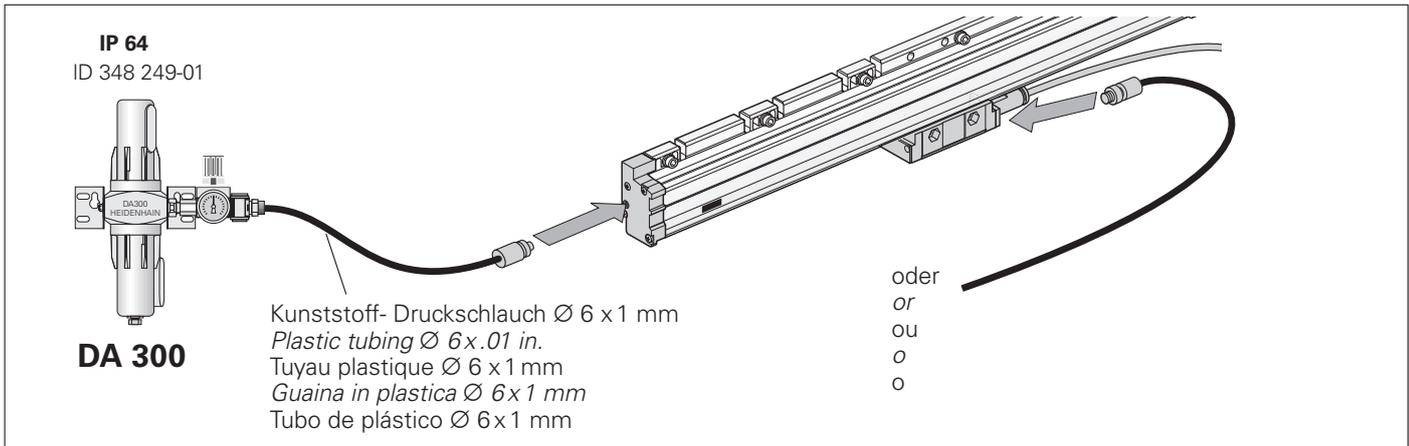
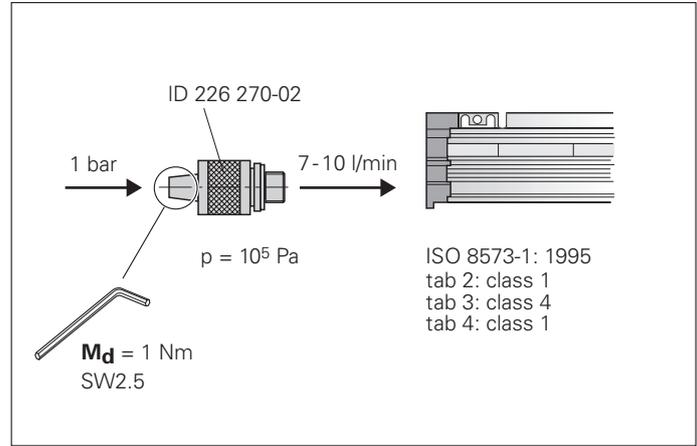
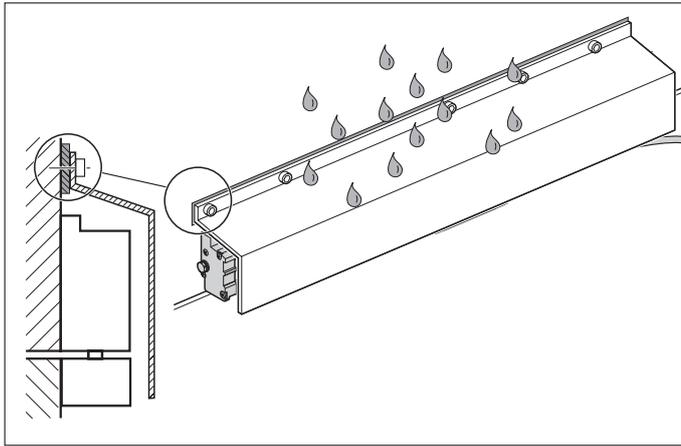
„Thermischer-Fixpunkt“  
„Thermal fixpoint“  
„Point fixe thermique“  
„Punto di fissaggio termico“  
„Punto de fijación térmico“



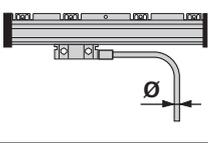
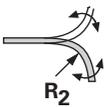
Abschließende Arbeiten · Final Steps · Opérations finales · Operazioni finali · Trabajos finales

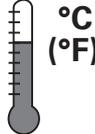
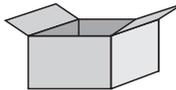


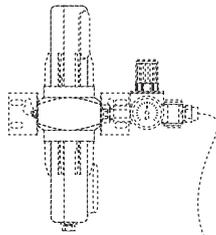
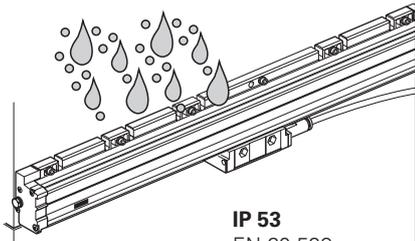
**Schutzmaßnahmen · Protective Measures · Mesures préventives · Precauzioni · Medidas de protección**

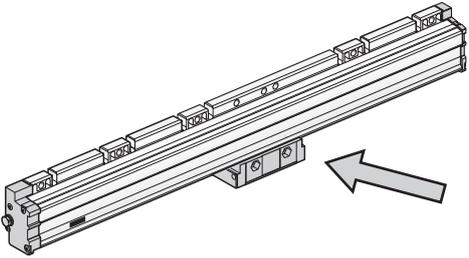


Technische Kennwerte · Specifications · Caractéristiques techniques · Dati tecnici · Datos técnicos

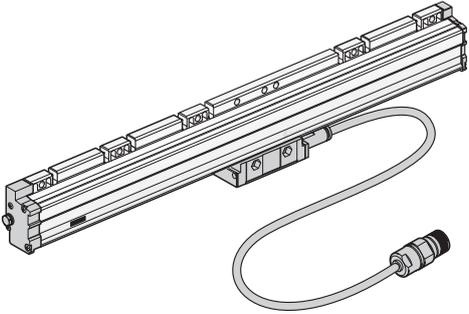
|   |   |   |
|---|---|---|
|                   |  |  |
| <b>Ø 6 mm</b>   | $R_1 \geq 20 \text{ mm}$  | $R_2 \geq 75 \text{ mm}$  |
| <b>Ø 10 mm</b>  | $R_1 \geq 35 \text{ mm}$  | $R_2 \geq 75 \text{ mm}$  |
| <br><b>Ø 8 mm</b> | $R_1 \geq 40 \text{ mm}$  | $R_2 \geq 100 \text{ mm}$   |

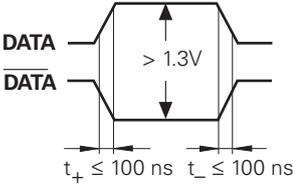
|   |  |
|---|--|
|  |                               |
|   | <p>-20 ... 70 °C<br/>(- 4 ... 158 °F)</p> <p><b>ML &gt; 3040 mm:</b><br/>-10 ... 50 °C<br/>(- 14 ... 122 °F)</p> |

|   |   |
|---|---|
| <p><b>IP 64</b><br/>EN 60 529</p>  <p><b>DA 300</b></p> |  <p><b>IP 53</b><br/>EN 60 529</p> |
|---|---|

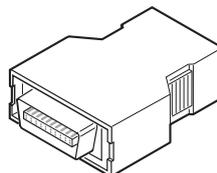
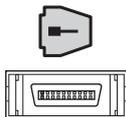
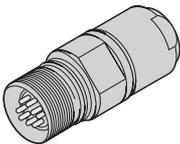
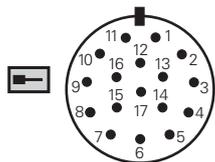


 RS-485  
 **Request Frame**  
 **Request Frame**  
 **$U_p = 5V \pm 5\%$**   
 (max. 300 mA)  
 EN 50 178/4.98; 5.2.9.5  
 IEC 364-4-41: 1992; 411(PELV/SELV)  
 (siehe, see, voir, vedi, véase  
 HEIDENHAIN D 231 929)



 RS-485  
**DATA**  
**DATA**  

**RS-485**  
**DATA**  
**DATA**  
 $> 1.3V$   
 $t_+ \leq 100 \text{ ns}$   $t_- \leq 100 \text{ ns}$

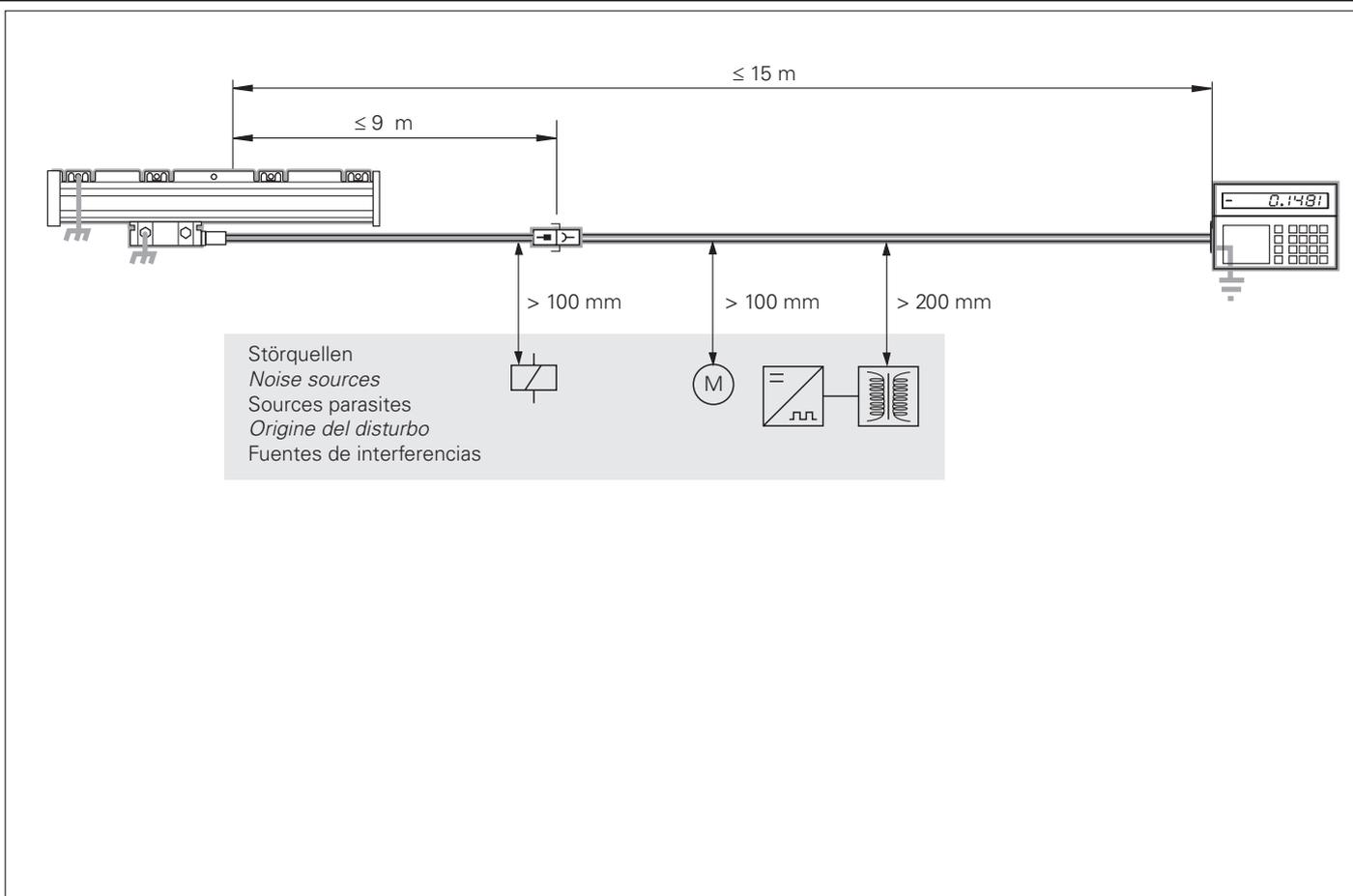
**Elektrischer Anschluss · Electrical connection · Raccordement électrique · Collegamento elettrico · Conexión eléctrica**



Außenschirm Gehäuse  
 External shield on housing  
 Blindage externe sur le boîtier  
 Schermo esterno sulla carcassa  
 Blindaje externo a carcasa

|  |  |                                      |   |   |   |   |  |  |
|--|--|--------------------------------------|---|---|---|---|--|--|
|  | <b>14</b>                              | <b>17</b>                            | <b>8</b>  | <b>9</b>                                      | <b>7</b> ● — ● <b>1</b>   | <b>10</b> ● — ● <b>4</b>                |  |  |
|  | <b>6</b>                               | <b>16</b>                            | <b>7</b>  | <b>17</b>                                     | <b>20</b>   | <b>19</b>                               | <b>1</b>   | <b>11</b>                                  |
|  | <b>DATA</b>                            | <b>DATA</b>                          | <b>Request Frame</b>                            | <b>Request Frame</b>                          | <b>5 V Up</b>   | <b>5 V sensor</b>                       | <b>0 V U<sub>N</sub></b>   | <b>0 V sensor</b>                          |
|  | grau<br>gray<br>gris<br>grigio<br>gris | rosa<br>pink<br>rose<br>rosa<br>rosa | violett<br>violet<br>violet<br>viola<br>violeta | gelb<br>yellow<br>jaune<br>giallo<br>amarillo | braun/grün<br>brown/green<br>brun/vert<br>marrone/verde<br>marron/verde | blau<br>blue<br>bleu<br>azzurro<br>azul | weiß/grün<br>white/green<br>blanc/vert<br>bianco/verde<br>blanco/verde | weiß<br>white<br>blanc<br>bianco<br>blanco |

Die Sensorleitung ist intern mit der Versorgungsleitung verbunden.  
*The sensor line is connected internally with the power supply.*  
 La ligne de palpeur est reliée de manière interne à la ligne d'alimentation.  
*La linea del sensore è collegata internamente con la linea di alimentazione.*  
 La línea de sensor está unida internamente con la línea de alimentación.



# HEIDENHAIN

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**Measuring systems** ☎ +49 (8669) 31-3104

E-Mail: [service.ms-support@heidenhain.de](mailto:service.ms-support@heidenhain.de)

**TNC support** ☎ +49 (8669) 31-3101

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