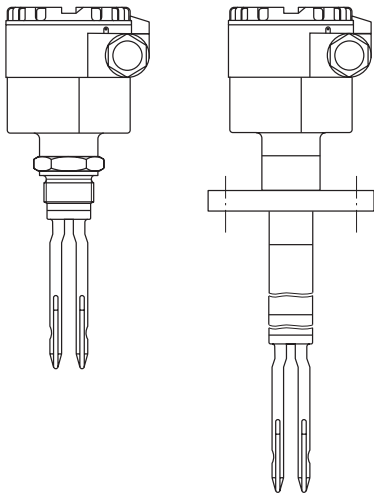


KA 022F/00/a6/06.00  
016097-0000

# *liquiphant II* FTL 360, FTL 361



- d** Füllstandgrenzschalter
- e** Level Limit Switch
- f** Détecteur de niveau
- es** Detector de nivel
- i** Interruttore di livello
- nl** Niveauschakelaar

Endress + Hauser

The Power of Know How



**d Inhalt**

Sicherheitshinweise	4
Geräte-Identifikation	6
Behandlung	10
Einbaubeispiele	12
Einbau	15
Einstellungen	23
Funktion	25
Anschluß	26
Wartung	30
Technische Daten	31
Zubehör	33
Ersatzteile	35
Ergänzende Dokumentation	36

**e Contents**

Notes on Safety	4
Device Identification	6
Handling	10
Mounting examples	12
Installation	15
Setting-up	23
Function	25
Connections	26
Maintenance	30
Technical Data	31
Accessories	33
Spare parts	35
Supplementary Documentation	36

**f Sommaire**

Conseils de sécurité	4
Dénomination	6
Manipulation	10
Exemples d'implantation	12
Montage	15
Réglage	23
Fonction	25
Raccordement	26
Entretien	30
Caractéristiques techniques	31
Accessoires	33
Pièces de rechange	35
Documentation complémentaire	36

<b>es</b>	<b>Indice</b>	
	Nota sobre seguridad	5
	Identificación del equipo	6
	Modo de empleo	10
	Ejemplos de montaje	12
	Montaje	15
	Ajuste	23
	Functionamiento	25
	Conexiones	26
	Mantenimiento	30
	Datos técnicos	31
	Accesorios	33
	Repuestos	35
	Documentación adicional	36

<b>i</b>	<b>Indice</b>	
	Note sulla sicurezza	5
	Identificazione dello strumento	6
	Accorgimenti	10
	Esempi di montaggio	12
	Montaggio	15
	Messa in servizio	23
	Funzionamento	25
	Collegamenti	26
	Manutenzione	30
	Dati tecnici	31
	Accessori	33
	Ricambi	35
	Documentazione supplementare	36

<b>nl</b>	<b>Inhoud</b>	
	Veiligheidsinstructies	5
	Instrument-identificatie	6
	Behandeling	10
	Inbouwvoorbeelden	12
	Inbouw	15
	Instellingen	23
	Functie	25
	Aansluitingen	26
	Onderhoud	30
	Technische gegevens	31
	Toebehoren	33
	Reserve-onderdelen	35
	Aanvullende documentatie	36

#### **d Sicherheitshinweise**

Der Liquiphant FTL 360, FTL 361 darf nur als Füllstandgrenzschalter für Flüssigkeiten in nicht explosionsgefährdeten Bereichen verwendet werden. Bei unsachgemäßem Einsatz können Gefahren von ihm ausgehen.

Das Gerät darf **nur von qualifiziertem und autorisiertem Fachpersonal** unter strenger Beachtung dieser Betriebsanleitung, der einschlägigen Normen, der gesetzlichen Vorschriften und der Zertifikate (je nach Anwendung) eingebaut, angeschlossen, in Betrieb genommen und gewartet werden.

#### **e Notes on Safety**

The Liquiphant FTL 360, FTL 361 is a level limit switch designed for use in non-hazardous areas. If used incorrectly it is possible that application-related dangers may arise. The level limit switch Liquiphant FTL 360, FTL 361 may be installed, connected, commissioned, operated and maintained **by qualified and authorised personnel only**, under strict observance of these operating instructions, any relevant standards, legal requirements, and, where appropriate, the certificate.

#### **f Conseils de sécurité**

Le Liquiphant FTL 360, FTL 361 doit être exclusivement utilisé comme détecteur de niveau pour liquides en zones non explosibles. Il peut être source de danger en cas d'utilisation non conforme aux prescriptions. L'appareil ne doit être installé, raccordé, mis en service et maintenu **que par un personnel qualifié et autorisé**, qui tiendra compte des indications contenues dans la présente mise en service, des normes en vigueur et des certificats disponibles (selon l'application)



#### **Achtung!**

= verboten; führt zu fehlerhaftem Betrieb oder Zerstörung.



#### **Caution!**

= forbidden; leads to incorrect operation or destruction.



#### **Attention !**

= interdit; peut provoquer des dysfonctionnements ou la destruction.

## es Notas sobre seguridad

El Liquiphant FTL 360, FTL 361 debe emplearse única y exclusivamente como detector de nivel con fluidos en zonas sin peligro de explosión. Su empleo inapropiado puede resultar peligroso. El equipo deberá ser montado, conectado, instalado y mantenido **única y exclusivamente por personal cualificado y autorizado**, bajo rigurosa observación de las presentes instrucciones de servicio, de las normativas y legislaciones vigentes, así como de los certificados (dependiendo de la aplicación).

## i Note sulla sicurezza

Il Liquiphant FTL 360, FTL 361 può essere utilizzato come sicurezza di troppo pieno, solo in aree sicure. Un'installazione non corretta può determinare pericolo. Lo strumento può essere montato **solamente da personale qualificato ed autorizzato**. La messa in esercizio e la manutenzione devono rispettare le indicazioni di collegamento, le norme e i certificati di seguito riportati.

## nl Veiligheidsinstructies

Gebruik de Liquiphant FTL 360, FTL 361 alléén als niveauschakelaar voor vloeistoffen in niet explosiegevaarlijke gebieden. Het instrument **alleen door gekwalificeerd en geautoriseerd personeel** laten inbouwen, aansluiten, in bedrijf nemen en onderhouden. Neem de instructies in deze Inbedrijfstellingsvoorschriften, de desbetreffende normen, de wettelijke voorschriften en eventuele certificaten in acht.



### ¡Atención!

= Prohibido; peligro de mal funcionamiento o de destrucción.



### Attenzione!

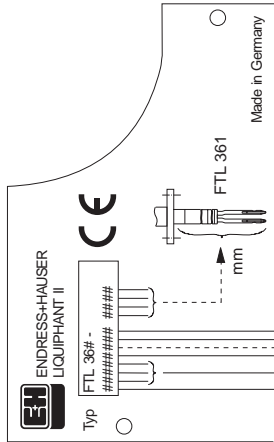
= Vietato; pericolo di malfunzionamento o di distruzione.



### Opgelet!

= verboden; leidt tot outieve werking of storing.

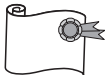
- d** Geräte-Identifikation
- e** Device Identification
- f** Dénomination
- es** Identificación del equipo
- i** Identificazione dello strumento
- nl** Instrument-identificatie



R = ...

D = DIBt Überfüllsicherung nach WHG

U = CSA General Purpose



GN2 = 1-11½ NPT, ANSI B1.20.1, 1.4571 (AISI 316 Ti)

GN5 = 1-11½ NPT, ANSI B1.20.1, Hastelloy C

GR2 = G1A, DIN ISO 228/1, 1.4571 (AISI 316 Ti)

GR5 = G1A, DIN ISO 228/1, Hastelloy C

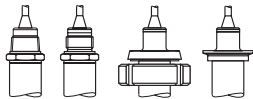
ME2 = DIN 11851 DN 50, 1.4571 (AISI 316 Ti)

TE2 = Triclamp 2" ISO 2852, 1.4571 (AISI 316 Ti)

..... = →



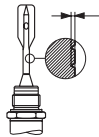
YY9 = ...

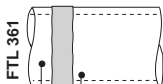



A = Standard / Standard / Standard

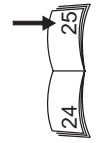
B = < 1,5 µm

Y = ...

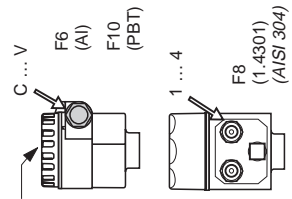




mm / in  
 A / 1 = 1.4571 (AISI 316 Ti)  
 B / 2 = 1.4571 (AISI 316 Ti) + ECTFE  
 C / 3 = Hastelloy C  
 G / 4 = 1.4571 (AISI 316 Ti)  < 1,5 µm  
 Y / Y = ...  
 --- = FTL 360

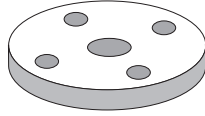


1 = FEL 31  
 2 = FEL 32  
 3 = FEL 33  
 4 = FEL 34  
 9 = ...



C = F10, IP 66, Pg 16 (IP 66)  
 K = F10, IP 66, Pg 16 (IP 66)  
 L = F10, IP 66, ½ NPT  
 M = F10, IP 66, G ½  
 O = F10, IP 66, M 20 x 1,5  
 R = F6, IP 66, Pg 16 (IP 66)  
 T = F6, IP 66, ½ NPT  
 U = F6, IP 66, G ½  
 V = F6, IP 66, M 20 x 1,5  
 1 = F8, IP 66, Pg 13,5 (IP 66)  
 2 = F8, IP 66, G ½  
 3 = F8, IP 66, M 20 x 1,5  
 4 = F8, IP 66, ½ NPT  
 Y = ...

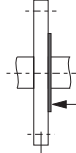
--- = ohne / without / sans /  
 sin / senza / zonder  
 ... = andere / others / autres /  
 otros / altri / andere



Typ

FTL 36# -  
##### ###

Made in Germany

**ANSI B 16.5 RF 1.4571 (AISI 316 Ti)**

AA2 = 1/4", 150 psi
AC2 = 1/2", 150 psi
AC7 = 1/2", 150 psi + ECTFE
AE2 = 2", 150 psi
AE5 = 2", 150 psi + Hastelloy
AE7 = 2", 150 psi + ECTFE
AG2 = 2", 300 psi
AG5 = 2", 300 psi + Hastelloy
AG7 = 2", 300 psi + ECTFE
AK2 = 2 1/2", 300 psi
AL2 = 3", 150 psi
AL7 = 3", 150 psi + ECTFE
AN2 = 3", 300 psi
AP2 = 4", 150 psi
AR2 = 4", 300 psi
AV2 = 6", 150 psi
A12 = 6", 300 psi

**DIN**

BA2 = DN 32, PN 6, DIN 2527 (B)
BB2 = DN 32, PN 40, DIN 2527 (B)
BC2 = DN 40, PN 6, DIN 2527 (B)
BD2 = DN 40, PN 40, DIN 2527 (B)
BD7 = DN 40, PN 40, DIN 2527 (B) + ECTFE
BE2 = DN 50, PN 6, DIN 2527 (B)
BE7 = DN 50, PN 6, DIN 2527 (B) + ECTFE
BG2 = DN 50, PN 40, DIN 2527 (B)
BG7 = DN 50, PN 40, DIN 2527 (B) + ECTFE
BK2 = DN 65, PN 40, DIN 2527 (B)
BM2 = DN 80, PN 16, DIN 2527 (B)



BN2 = DN 80, PN 40, DIN 2527 (B)  
BN7 = DN 80, PN 40, DIN 2527 (B) + ECTFE  
BQ2 = DN 100, PN 16, DIN 2527 (B)  
BQ7 = DN 100, PN 16, DIN 2527 (B) + ECTFE  
BR2 = DN 100, PN 40, DIN 2527 (B)

CA5 = DN 32, PN 6, DIN 2526 (C) + Hastelloy  
CE5 = DN 50, PN 6, DIN 2526 (C) + Hastelloy  
CG2 = DN 50, PN 40, DIN 2526 (C)  
CG5 = DN 50, PN 40, DIN 2526 (C) + Hastelloy  
CN2 = DN 80, PN 40, DIN 2526 (C)  
CN5 = DN 80, PN 40, DIN 2526 (C) + Hastelloy  
CQ2 = DN 100, PN 16, DIN 2526 (C)  
CQ5 = DN 100, PN 16, DIN 2526 (C) + Hastelloy

FG2 = DN 50, PN 40, DIN 2512 (F)

NG2 = DN 50, PN 40, DIN 2512 (N)

-----

#### JIS B 2210

KE2 = 10 K, 50  
KE5 = 10 K, 50 + ECTFE  
KE7 = 10 K, 50 + Hastelloy

YY9 = ...

--- = ohne / without / sans /  
sin / senza / zonder

... = andere / others / autres /  
otros / altri / andere

**d** **Behandlung**

Am Gehäuse, Flansch oder Verlängerungsrohr anfassen

**e** **Handling**

Hold by housing, flange or extension tube

**f** **Manipulation**

Tenir par le boîtier, la bride ou le tube prolongateur

**es** **Modo de empleo**

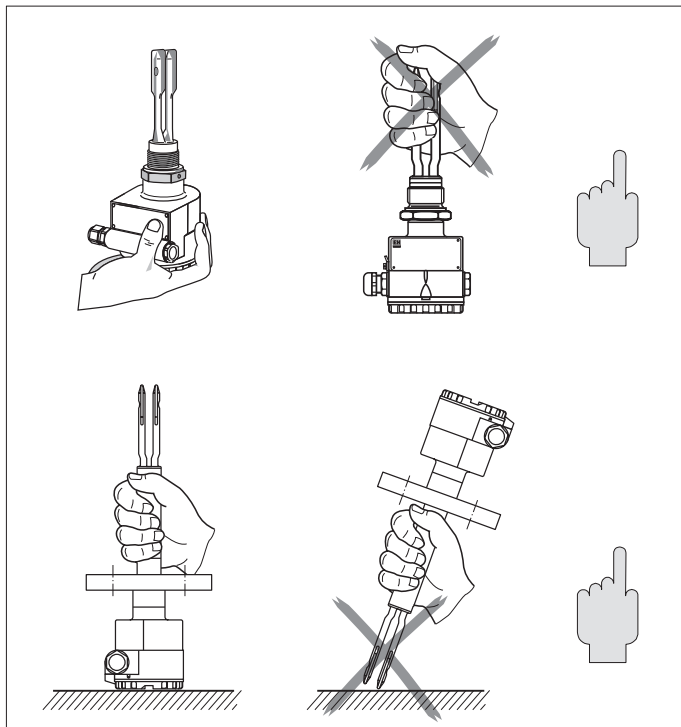
Coger por el cabezal, brida o tubo de extensión

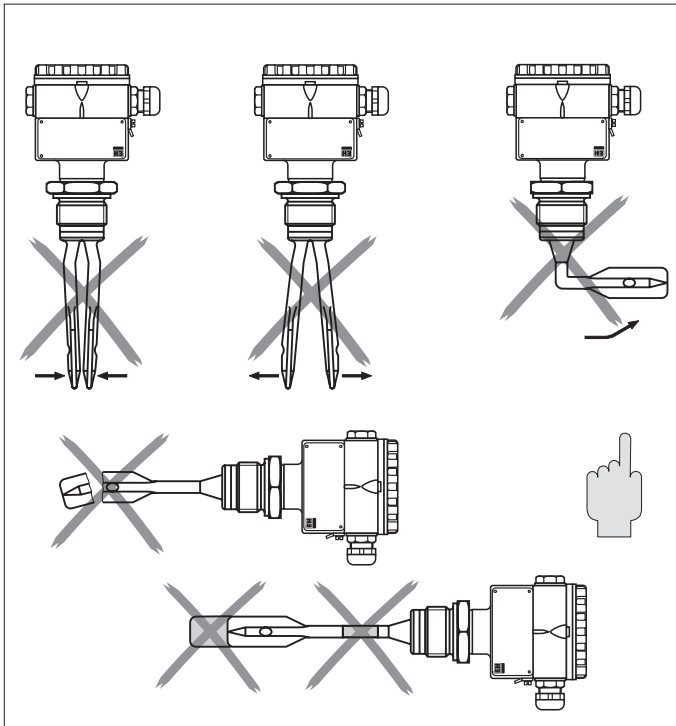
**i** **Accorgimenti**

Afferrare per la custodia, per la flangia o per il tubo di estensione

**nl** **Behandeling**

Vastpakken via behuizing, flens of verlengbuis





**d** **Nicht** verbiegen  
**Nicht** kürzen  
**Nicht** verlängern

**e** Do **not** bend  
Do **not** shorten  
Do **not** lengthen

**f** **Ne pas** déformer  
**Ne pas** raccourcir  
**Ne pas** rallonger

**es** **No** torcer  
**No** acortar  
**No** alargar

**i** **Non** stringere o allargare  
**Non** accorciare o allungare  
**Non** piegare

**nl** **Niet** verbuigen  
**Niet** inkorten  
**Niet** verlengen

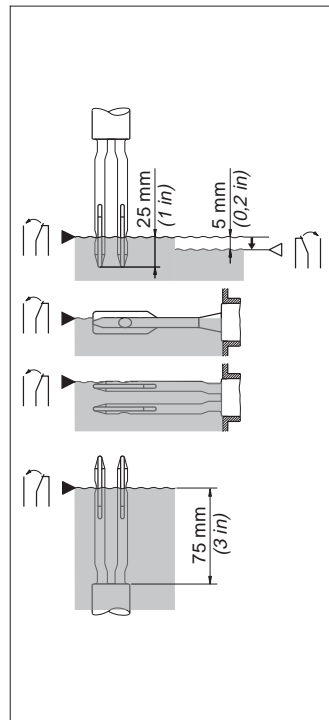
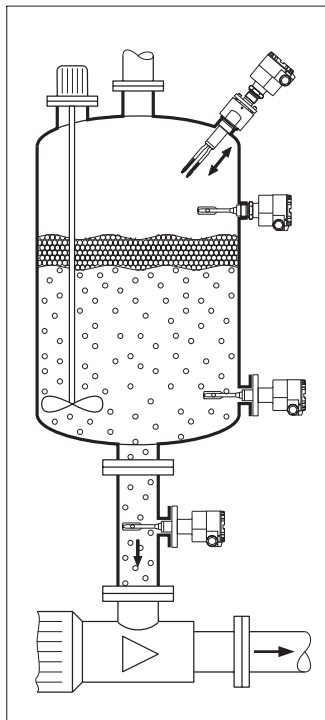
- d** Einbaubeispiele
- e** Mounting examples
- f** Exemples d'implantation
- e** Ejemplos de montaje
- i** Esempi di montaggio
- nl** Inbouwvoorbeelden



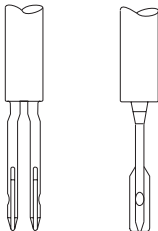
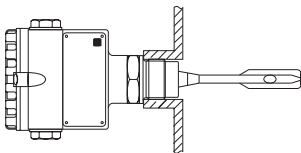
- d** Schaltpunkt
- e** Switchpoint
- f** Point de commutation
- es** Punto de conmutación
- i** Punto di commutazione
- nl** Schakelpunt



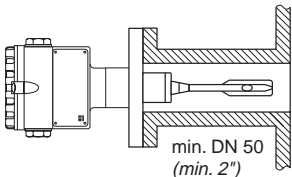
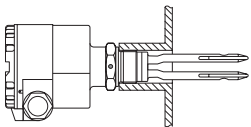
- d** Schalthysterese
- e** Switching hysteresis
- f** Hystérésis
- es** Histerésis de conmutación
- i** Isteresi
- nl** Schakelhysterese



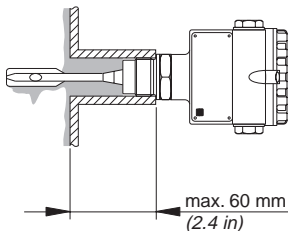
$v = 0 \dots 10000 \text{ mm}^2/\text{s}$   
( $v = 0 \dots 10000 \text{ cSt}$ )



$v = 0 \dots 2000 \text{ mm}^2/\text{s}$   
( $v = 0 \dots 2000 \text{ cSt}$ )

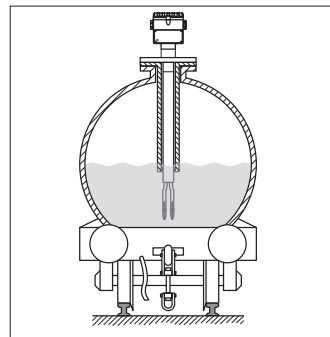
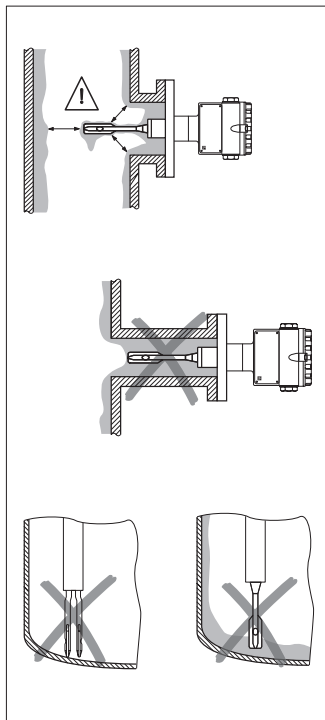


$v > 2000 \text{ mm}^2/\text{s}$   
( $v > 2000 \text{ cSt}$ )

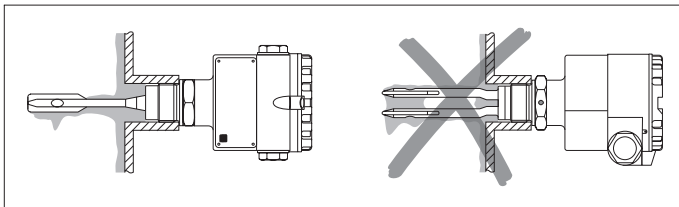


- d** Einbaubeispiele in Abhängigkeit von der Viskosität  $v$  der Flüssigkeit
- e** Mounting examples as a function of liquid viscosity  $v$
- f** Exemples d'implantation dépendant de la viscosité  $v$  du liquide
- es** Ejemplos de montaje dependiendo de la viscosidad  $v$  del líquido
- i** Esempi di montaggio come funzione di viscosità  $v$  del liquido
- nl** Inbouwvoorbeelden afhankelijk van de viscositeit  $v$  van de vloeistof

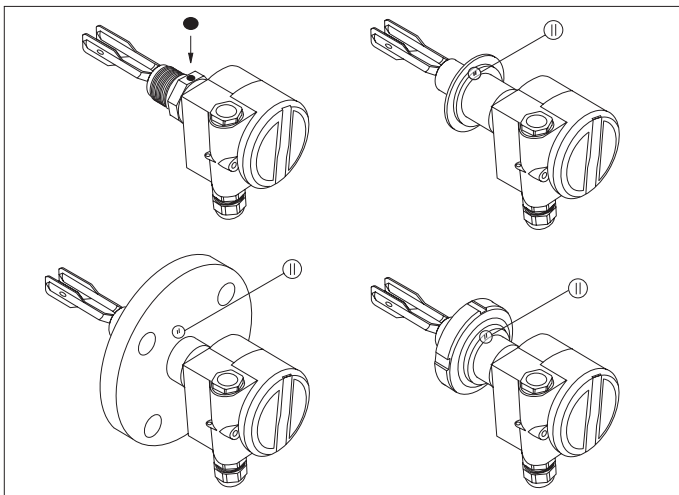
- d** Schwinggabel darf Behälterwand nicht berühren.  
Ansatzbildung berücksichtigen
- e** Fork must not touch tank wall.  
Consider build-up
- f** Ne pas faire toucher les lames aux parois.  
Tenir compte du colmatage
- es** La horquilla no debe tocar la pared del depósito.  
¡Considerare incrustación!
- i** La forcella non deve toccare la parete del serbatoio.  
Tenere conto dell'incrostazione
- nl** Vork mag tankwand niet raken.  
Rekening houden met aangroei!



- d** FTL 361 bei starker dynamischer Belastung abstützen
- e** In cases of high dynamic forces support FTL 361
- f** En cas d'importantes contraintes latérales, étayer le tube
- es** En caso de cargas dinámicas altas el FTL 361 debe ser apoyado
- i** In caso di forti carichi dinamici, rinforzare l'FTL 361 con un supporto meccanico
- nl** FTL 361 bij zware mechanische belasting verstevigen

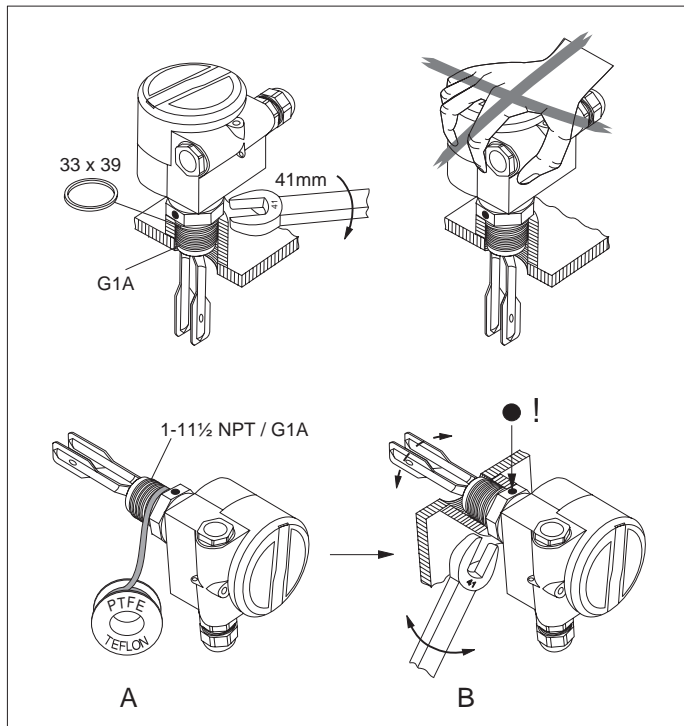


- d** Einbau
- e** Installation
- f** Montage
- es** Montaje
- i** Montaggio
- nl** Inbouw

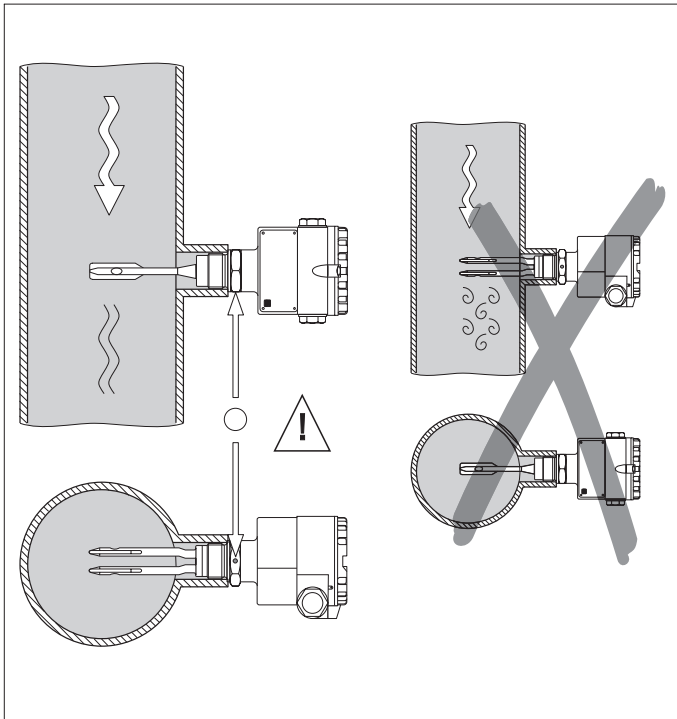


- d** Schwinggabel ausrichten:  
Markierung beachten
- e** Orientation of fork tines:  
Note marking
- f** Repérage de la position  
des lames vibrantes:  
voir repères
- es** Orientación de la horquilla:  
Atención a la marca
- i** Allineamento della forcella:  
prendere nota  
del contrassegno
- nl** Vork uitrichten:  
oriëntatie m.b.v. de  
markering

- d** Liquiphant einschrauben.  
**Nicht** am Gehäuse drehen.
- e** Screw Liquiphant into process connection.  
**Don't** use housing to turn.
- f** Visser le Liquiphant.  
**Ne pas** se servir du boîtier pour le montage.
- es** Roscar el Liquiphant a la conexión a proceso.  
**No** girar el cabezal.
- i** Avvitare il Liquiphant all'attacco al processo.  
**Non** avvitarlo dalla custodia.
- nl** Schroef de Liquiphant in de procesaansluiting.  
Draai hierbij **niet** aan de behuizing.

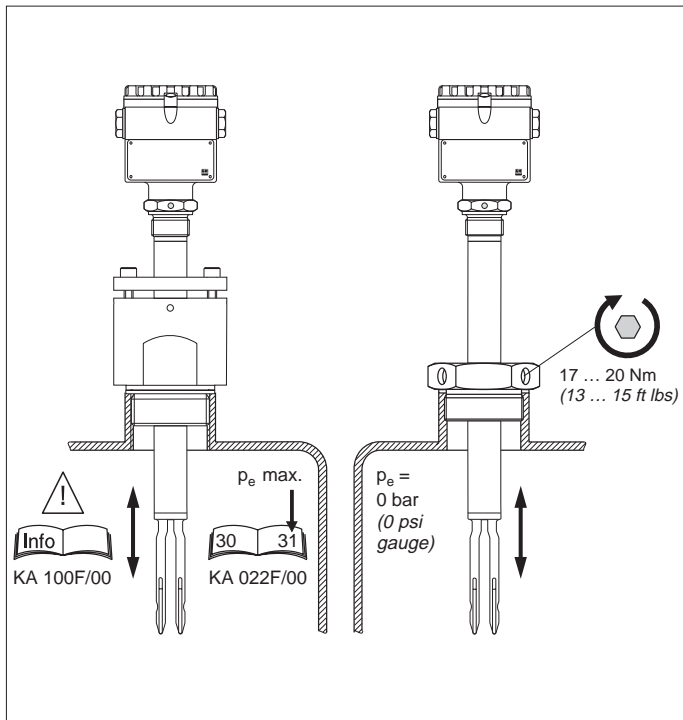


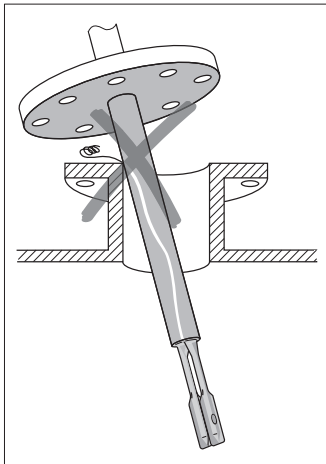




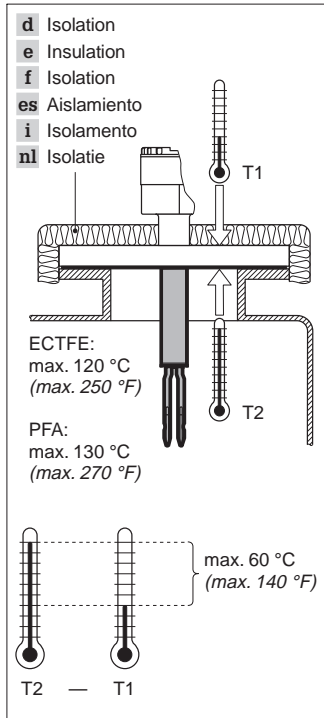
- d** Ausrichten in Rohren
- e** Orientation in pipes
- f** Montage et positionnement sur une tuyauterie
- es** Montaje y orientación dentro de tuberías
- i** Allineamento per montaggio in tubazioni
- nl** Opstelling in leidingen

- d** FTL 361 mit Schiebemuffe
- e** FTL 361 with sliding sleeve
- f** FTL 361 avec manchon coulissant
- es** FTL 361 con manguito deslizante
- i** FTL 361 con manicotto scorrevole
- nl** FTL 361 met schuifmof



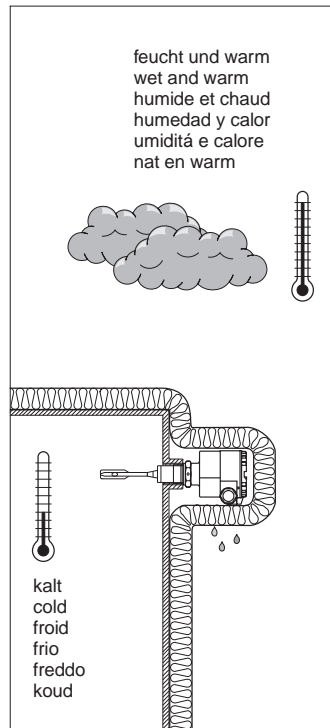
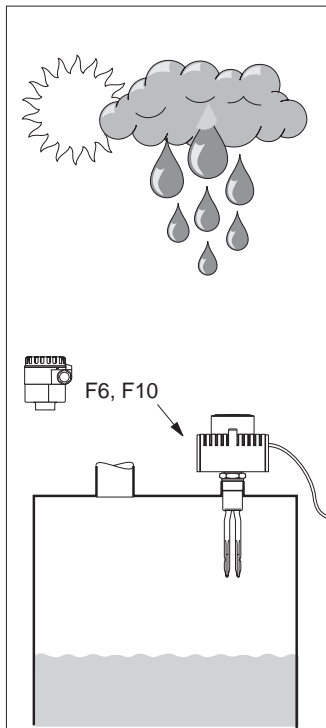


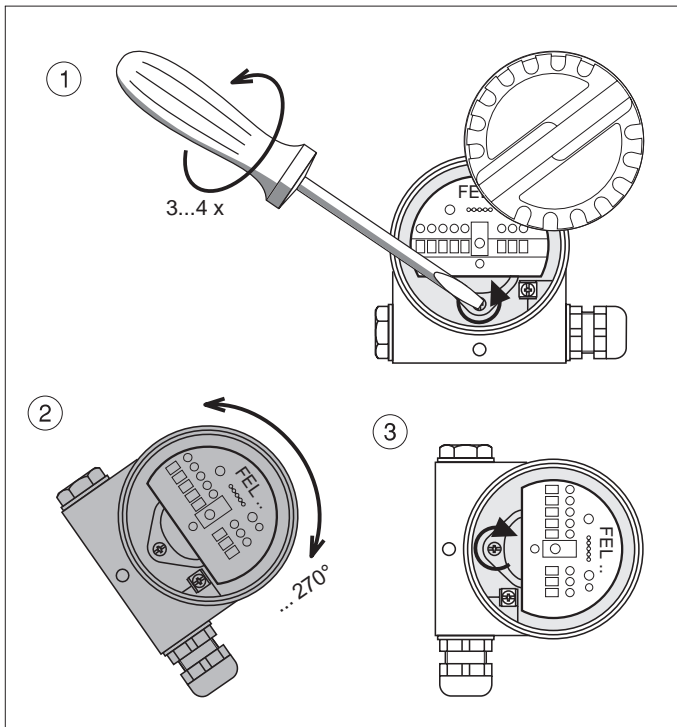
- d** Nicht zerkratzen!
- e** Don't scratch!
- f** Eviter de rayer le revêtement!
- es** No rayar!
- i** Non graffiare il rivestimento!
- nl** Niet beschadigen!



- d** FTL mit Beschichtung aus ECTFE oder PFA. Temperatur beachten!
- e** FTL with ECTFE or PFA coating. Note temperature!
- f** FTL avec revêtement ECTFE ou PFA. Respecter la température!
- es** FTL con revestimiento de ECTFE o PFA. ¡Preste atención a la temperatura!
- i** FTL con rivestimento in ECTFE o PFA. Tenere conto della temperatura!
- nl** FTL met ECTFE of PFA bekleding. Rekening houden met de max. temperatuur!

- d** Kondensatschutz:  
Wetterschutzhaube  
Isolation      ▷ ▷
- e** Condensation protection:  
Weatherproof cover  
Insulation      ▷ ▷
- f** Protection contre la  
condensation:  
Protection climatique  
Isolation      ▷ ▷
- es** Protección contra  
condensaciones:  
Cubierta para intemperie  
Aislamiento      ▷ ▷
- i** Protezione anticondensa:  
Tettuccio anti-intemperie  
Isolamento      ▷ ▷
- nl** Condensatie bescherming:  
Zonnekap  
Isolatie      ▷ ▷





**d** Kabeleinführung ausrichten

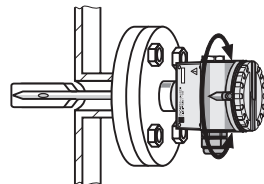
**e** Cable gland orientation

**f** Positionnement de l'entrée de câble

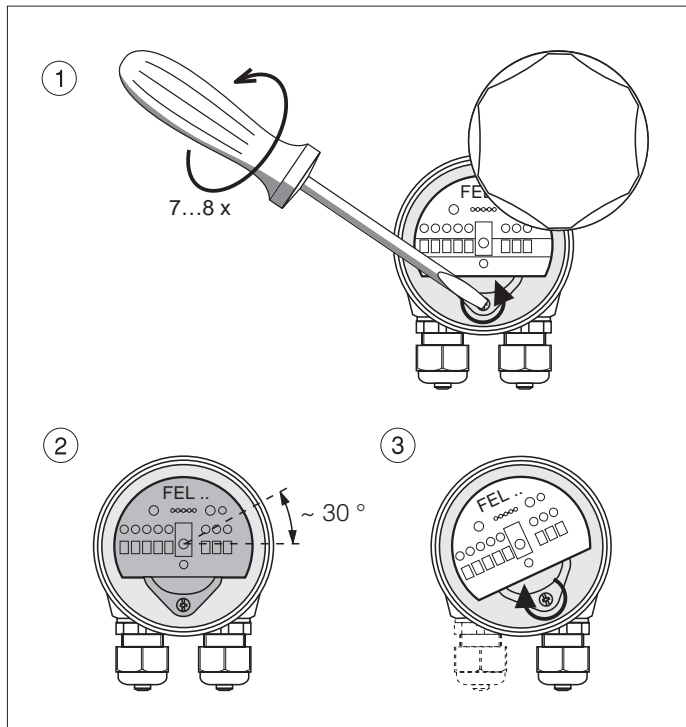
**es** Ajuste del prensaestopa

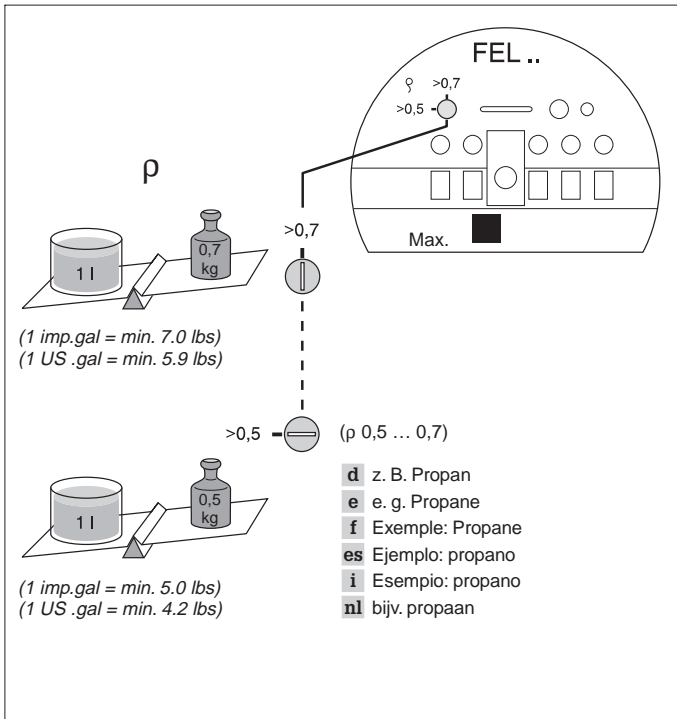
**i** Posizionamento del passacavo

**nl** Kabelvoer uitrichten



- d** Gehäuse F8:  
Elektronikeinsatz ausrichten
- e** Housing F8:  
Align electronic insert
- f** Boîtier F8:  
Aligner l'électronique
- es** Caja F8:  
Alinear electrónica
- i** Custodia F8:  
Allineare l'inserto elettronico
- nl** Behuizing F8:  
Elektronica-unit positioneren





**d** Einstellungen

**e** Setting-up

**f** Réglage

**es** Ajuste

**i** Messa in servizio

**nl** Instellingen

**d** Dichte der Flüssigkeit.  
Dichte  $\rho$  gemessen in  $\text{g}/\text{cm}^3$   
oder in  $\text{kg}/\text{l}$

**e** Liquid density.  
Density  $\rho$  measured in  $\text{g}/\text{cm}^3$   
or in  $\text{kg}/\text{l}$

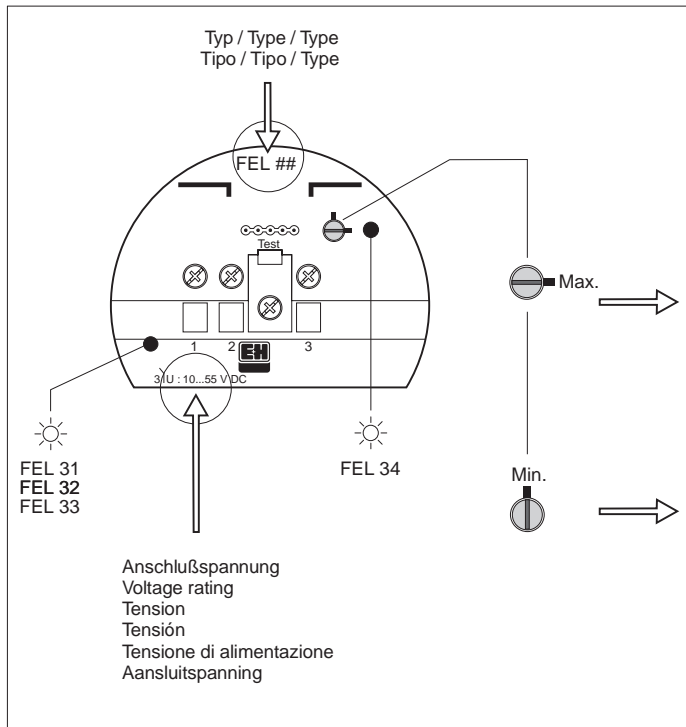
**f** Densité du liquide.  
Unité de mesure de la  
densité  $\rho$ :  $\text{g}/\text{cm}^3$  ou  $\text{kg}/\text{l}$

**es** Densidad de líquidos.  
Densidad  $\rho$  medida en  $\text{g}/\text{cm}^3$   
o en  $\text{kg}/\text{l}$

**i** Densità del liquido.  
Densità misurata in  $\text{g}/\text{cm}^3$   
o in  $\text{kg}/\text{l}$

**nl** Dichtheid van de vloeistof.  
Dichtheid  $\rho$  gemeten in  
 $\text{g}/\text{cm}^3$  of in  $\text{kg}/\text{l}$

- d** Sicherheitsschaltung wählen
- e** Setting fail-safe mode
- f** Choisir la commutation de sécurité
- es** Ajustar del modo de seguridad
- i** Impostazione la modalità di sicurezza
- nl** Kies fail-safe instelling (rustroomprincipe)





		FEL 31	FEL 32	FEL 33	FEL 34
			PNP	NPN	

- d** Funktion
- e** Function
- f** Fonction
- es** Funcionamiento
- i** Funzione
- nl** Functie

**d Anschluß FEL 31**

Zweidraht-Wechselstrom-  
anschluß

**e Connections FEL 31**

Two-wire AC connection

**f Raccordement FEL 31**

Raccordement 2 fils pour  
courant alternatif

**es Conexiones FEL 31**

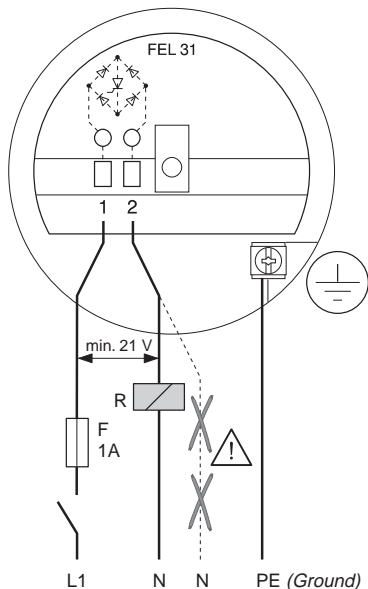
Conexión a corriente alterna  
a dos hilos

**i Collegamenti elettrici FEL 31**

Collegamento bifilare con  
corrente alternata

**nl Aansluiting FEL 31**

2-draads wissel-  
spanningsaansluiting

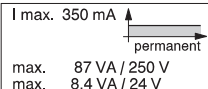
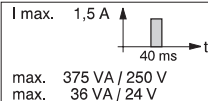


U~ max. 253 V (AC)  
50/60 Hz

R = externe Last  
external load  
charge extérieure  
carga exterior  
carga esterna  
externe belasting

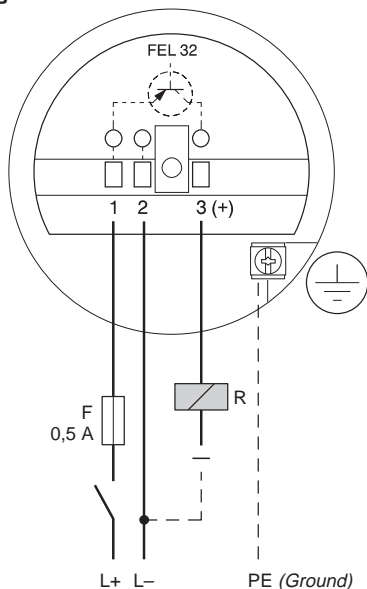


I



min. 2,5 VA / 250 V (10 mA)  
min. 0,5 VA / 24 V (20 mA)

PNP



$U \approx 10 \text{ V} \dots 55 \text{ V (DC)}$

R = externe Last  
external load  
charge extérieure  
carga exterior  
carga esterna  
externe belasting



$I_{\text{max.}} 350 \text{ mA}$   
 $U_{\text{max.}} 55 \text{ V}$



**d Anschluß FEL 32**

Gleichstrom-Anschluß PNP

**e Connections FEL 32**

DC connection PNP

**f Raccordement FEL 32**

Courant continu PNP

**es Conexiones FEL 32**

Alimentación CC PNP

**i Collegamenti elettrici FEL 32**

Collegamento CC PNP

**nl Aansluiting FEL 32**

Gelijkspanningsaansluiting  
PNP

**d Anschluß FEL 33**

Gleichstrom-Anschluß NPN

**e Connections FEL 33**

DC connection NPN

**f Raccordement FEL 33**

Courant continu NPN

**es Conexiones FEL 33**

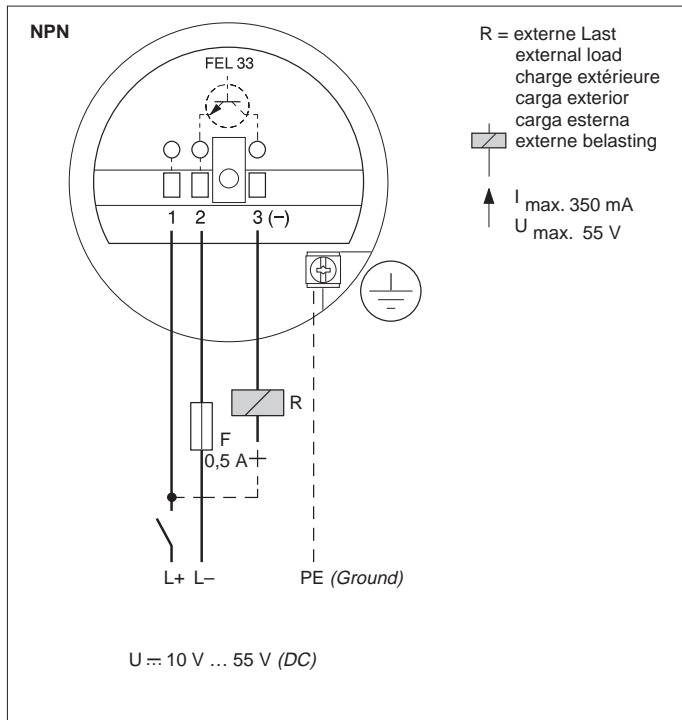
Alimentación CC NPN

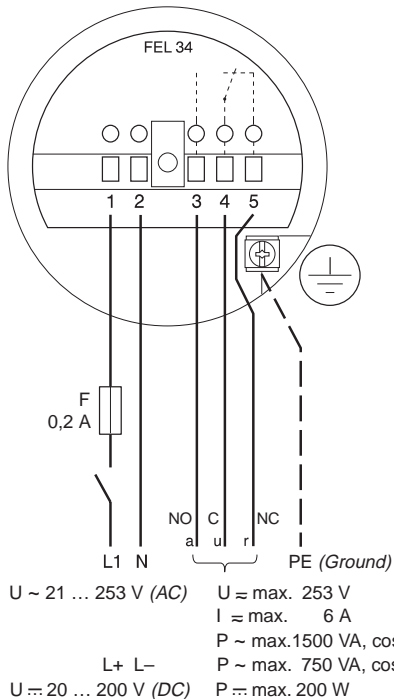
**i Collegamenti elettrici FEL 33**

Collegamento CC NPN

**nl Aansluiting FEL 33**

Gelijkspanningsaansluiting NPN





**d Anschluß FEL 34**

Allstromanschluß  
Relaisausgang

**e Connections FEL 34**

Universal connection  
Relay output

**f Raccordement FEL 34**

Courant alternatif ou continu  
Sortie relais

**es Conexiones FEL 34**

Conexión universal  
Salida de relé

**i Collegamenti elettrici FEL 34**

Collegamento  
corrente universale  
Uscita rele

**nl Aansluiting FEL 34**

Universele  
spanningsaansluiting  
Relais-uitgang

**d** **Wartung**

Dicke Krusten entfernen

**e** **Maintenance**

Removal of thick encrustation

**f** **Entretien**

Enlever les dépôts et incrustations

**es** **Mantenimiento**

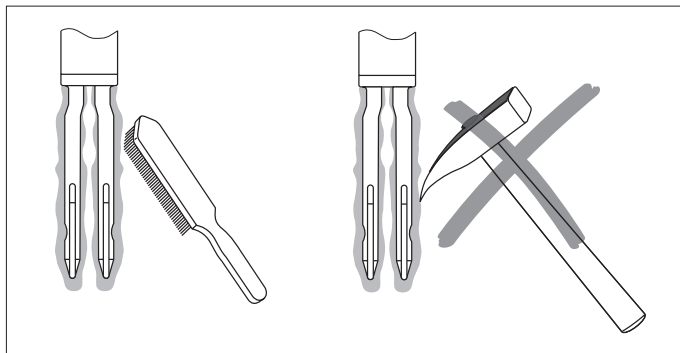
Eliminación de adherencias

**i** **Manutenzione**

Rimozione di depositi scarsi

**nl** **Onderhoud**

Aangroei verwijderen



**d** **Nicht** besteigen!

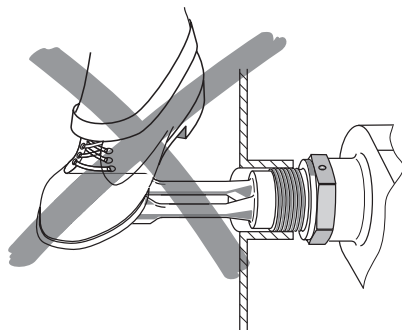
**e** **Don't** use a a step!

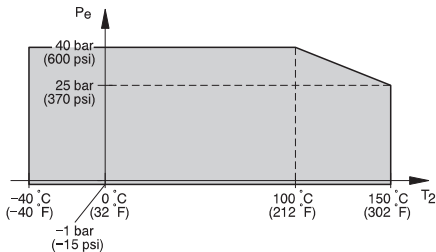
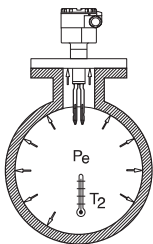
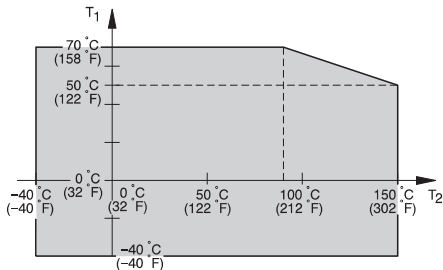
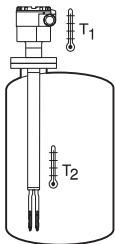
**f** **Ne pas** marcher sur les lames vibrantes!

**es** **No** usar como peldaño

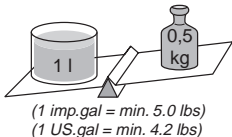
**i** **Non** usare come scalino!

**nl** **Niet** op staan!





Dichte  $\rho$   
Density  $\rho$   
Densité  $\rho$   
Densidad  $\rho$   
Densità  $\rho$   
Dichtheid  $\rho$



Viskosität  $v$   
Viscosity  $v$   
Viscosité  $v$   
Viscosidad  $v$   
Viscosità  $v$   
Viskosität  $v$



## d Technische Daten

Umgebungstemperatur  $T_1$   
Betriebstemperatur  $T_2$   
Betriebsdruck  $p_e$

## e Technical Data

Surrounding temperature  $T_1$   
Operating temperature  $T_2$   
Operating pressure  $p_e$

## f Caractéristiques techniques

Température ambiante pour le boîtier  $T_1$   
Température dans le réservoir  $T_2$   
Pression de service  $p_e$

## es Datos técnicos

Temperatura ambiente  $T_1$   
Temperatura de servicio  $T_2$   
Presión de servicio  $p_e$

## i Dati tecnici

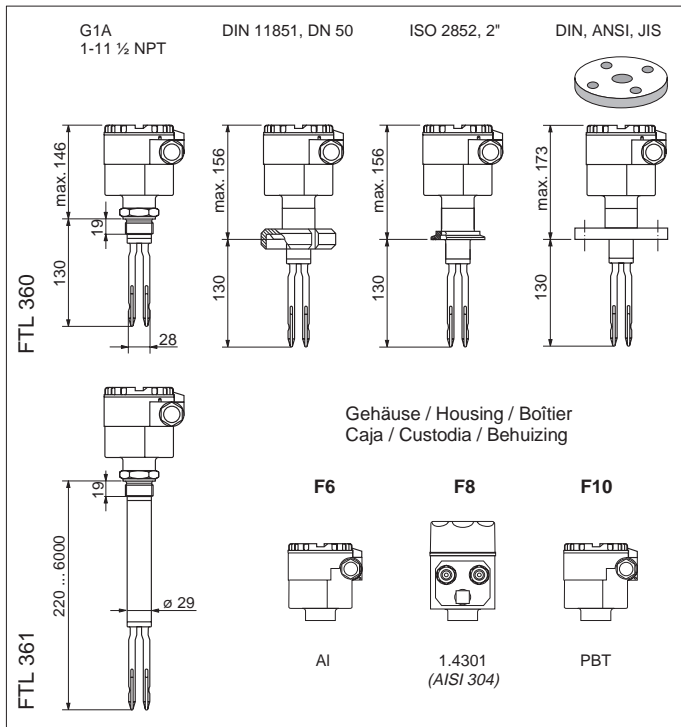
Temperatura ambiente  $T_1$   
Temperatura di servizio  $T_2$   
Pressione di servizio  $p_e$

## nl Technische gegevens

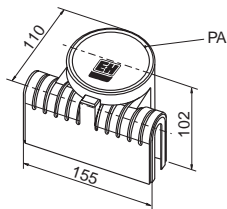
Omgevingstemperatuur  $T_1$   
Bedrijfstemperatuur  $T_2$   
Bedrijfsdruk  $p_e$

- d** Abmessungen in mm
- e** Dimensions in mm
- f** Dimensions en mm
- es** Dimensiones en mm
- i** Dimensioni in mm
- nl** Afmetingen in mm

100 mm = 3.94 in  
1 in = 25.4 mm



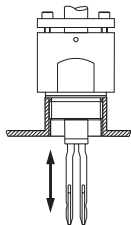




F6, F10  
 Wetterschutzhaube  
 Weather-proof cover  
 Capot de protection  
 Cubierta para intemperie  
 Tettuccio protettivo  
 Beschermkap

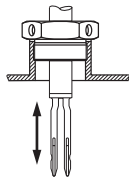
E+H 942 262-0000

**d** Zubehör  
**e** Accessories  
**f** Accessoires  
**es** Accesorios  
**i** Accessori  
**nl** Toebehoren



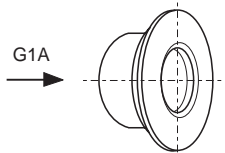
Hochdruckschiebemuffe  
 High pressure sliding sleeve  
 Manchon coulissant pour pression élevée  
 Manguito deslizante para alta presión  
 Manicotto scorrevole per alta pressione  
 Hoge-druk schuifmof met schroefdraad

G 1½ A: (1.4571/AISI 316 Ti) E+H 943090-0001  
 1½ - 11½ NPT: (1.4571/AISI 316 Ti) E+H 943090-0101  
 G 1½ A: (Hastelloy 2.4610) E+H 943090-0003  
 1½ - 11½ NPT: (Hastelloy 2.4610) E+H 943090-0103

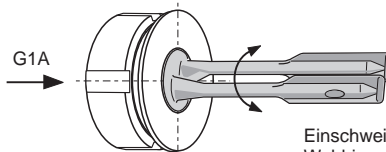


Schiebemuffe für drucklosen Betrieb  
 Sliding sleeve for pressureless operation  
 Manchon coulissant pour pression atmosphérique  
 Manguito deslizante para servicio sin presión  
 Manicotto scorrevole per servizio senza pressione  
 Schuifmof voor drukloze toepassingen

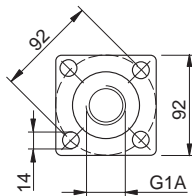
G 1½ A: (1.4571/AISI 316 Ti) E+H 918161-0000



Einschweißmuffe für frontbündige Montage  
 Weld-in socket for flush mounting  
 Manchon à souder pour montage affleurant  
 Brida soldada para montaje "flush"  
 Flangia saldata per montaggio preciso  
 Inlasflens voor sanitaire montage  
 1.4301 (AISI 304) E+H 917969-1000



Einschweißmuffe für frontbündige Montage  
 Weld-in socket for flush mounting  
 Manchon à souder pour montage affleurant  
 Brida soldada para montaje "flush"  
 Flangia saldata per montaggio preciso  
 Inlasflens voor sanitaire montage  
 1.4571 (AISI 316 Ti) E+H 215159-0000

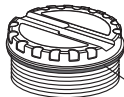



Vierkantflansch  
 Square flange  
 Bride carrée  
 Brida cuadrada  
 Flangia quadrangolare  
 Vierkantflens  
 1.4301 (AISI 304) E+H 918158-0000



FEL 31  
FEL 32  
FEL 33  
FEL 34

E+H 919 908-0001  
E+H 919 908-0002  
E+H 919 908-0003  
E+H 919 908-0004

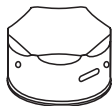


F6 (Al)   
F10 (PA)  
F10 (PBT)

E+H 919 278-0000  
E+H 919 229-0001  
E+H 919 229-0000

73x3 (F6: EPDM)  
73x3 (F10: MVQ)

E+H 014 850-0000  
E+H 014 850-0007



F8 (1.4301)

E+H 942 870-0001



MVQ

E+H 942 876-0000

## d Ersatzteile

Elektronikeinsätze  
Gehäuse F6, F8, F10

## e Spare parts

Electronic inserts  
Housings F6, F8, F10

## f Pièces de rechange

Electroniques  
Boîtiers F6, F8, F10

## es Repuestos

Electrónicas  
Caja F6, F8, F10

## i Ricambi

Inserti elettronici  
Custodia F6, F8, F10

## nl Reserve-onderdelen

Elektronica  
Behuizing F6, F8, F10

**d** Ergänzende  
Dokumentation

**e** Supplementary  
Documentation

**f** Documentation  
complémentaire

**es** Documentación  
adicional

**i** Documentazione  
supplementare

**nl** Aanvullende  
documentatie

**d** TI 184F/00/de  
Technische Information und Projektierungshinweise  
für die Füllstandgrenzscharter Liquiphant II FTL 360 und FTL 361

**e** TI 184F/00/en  
Technical information and project planning notes  
for the level limit switches Liquiphant II FTL 360 and FTL 361

**f** TI 184F/14/fr  
Informations techniques et conseils d'utilisation  
des détecteurs de niveau Liquiphant II FTL 360 et FTL 361

**es** TI 184F/23/es  
Información técnica e indicaciones para planificación  
de proyectos para los conmutadores de nivel límite  
Liquiphant II FTL 360 y FTL 361

**i** TI 184F/16/it  
Informazioni tecniche ed indicazioni per la scelta  
dell'interruttore di livello Liquiphant II FTL 360 e FTL 361

**nl** TI 184F/15/nl  
Technische informatie over de niveauschakelaars  
Liquiphant II FTL 360 en FTL 361

---

#### Endress+Hauser Sales Centers

**AT** Tel. (01) 8 80 56-0, Fax (01) 8 80 56-35

**B+L** Tel. (02) 2 48 06 00, Fax (02) 2 48 05 53

**CAN** Tel. (905) 6 81 92 92, Fax (905) 6 81 94 44

**CH** Tel. (061) 7 15 62 22, Fax (061) 7 11 16 50

**DE** Tel. (07621) 9 75 01, Fax (07621) 97 55 55

**DK** Tel. (31) 67 31 22, Fax (31) 67 30 45

**ES** Tel. (93) 4 80 33 66, Fax (93) 4 73 38 39

**FR** Tel. 89 69 67 68, Fax 89 69 48 02

**GB** Tel. (0161) 2 86 50 00, Fax (0161) 9 98 18 41

**HK** Tel. 25 28 31 20, Fax 28 65 41 71

**IT** Tel. (02) 9 21 92-1, Fax (02) 9 21 92-3 62

**JP** Tel. (0422) 54 06 11, Fax (0422) 55 02 75

**MAL** Tel. (03) 7 33 48 48, Fax (03) 7 33 88 00

**NO** Tel. (032) 85 10 85, Fax (032) 85 11 12

**NL** Tel. (035) 6 95 86 11, Fax (035) 6 95 88 25

**SE** Tel. (08) 6 26 16 00, Fax (08) 6 26 94 77

**SF** Tel. (90) 8 59 61 55, Fax (90) 8 59 60 55

**SGP** Tel. 4 68 82 22, Fax 4 66 68 48

**THA** Tel. (2) 9 96 78 11-20, Fax (2) 9 96 78 10

**USA** Tel. (317) 5 35-71 38, Fax (317) 5 35-14 89

**ZA** Tel. (011) 4 44 13 86, Fax (011) 4 44 19 77

**INTERNATIONAL** Tel. + Fax: see »D«

<http://www.endress.com>

06.00



016097-0000