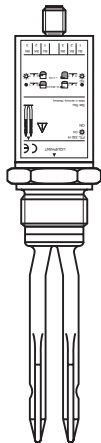


KA 080F/00/a6/11.99  
017265-0000

# *liquiphant* FTL 330 H



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

**d Inhalt**

Sicherheitshinweise	4
Geräte-Identifikation	6
Behandlung	8
Einbaubeispiele	10
Einbau	12
Anschluß	16
Funktion	17
Test	18
Reinigung	19
Technische Daten	20
Zubehör, Ersatzteile	22

**e Contents**

Notes on Safety	4
Device Identification	6
Handling	8
Mounting examples	10
Installation	12
Connection	16
Function	17
Test	18
Cleaning	19
Technical data	18
Accessories, spare parts	22

**f Sommaire**

Conseils de sécurité	4
Dénomination	6
Manipulation	8
Exemples d'implantation	10
Montage	12
Raccordement	16
Fonction	17
Test	18
Nettoyage	19
Caractéristiques techniques	18
Accessoires, pièces de rechange	22

**es Índice**

Nota sobre seguridad	5
Identificación del equipo	6
Modo de empleo	8
Ejemplos de montaje	10
Montaje	12
Conexiones	16
Funcionamiento	17
Comprobación	18
Limpieza	19
Datos técnicos	20
Accesorios, repuestos	22

**i Índice**

Note sulla sicurezza	5
Identificazione dello strumento	6
Accorgimenti	8
Esempi di montaggio	10
Montaggio	12
Collegamenti	16
Funzionamento	17
Test	18
Pulizia	19
Dati tecnici	20
Accessori, ricambi	22

**nl Inhoud**

Veiligheidsinstructies	5
Instrument-identificatie	6
Behandeling	8
Inbouwvoorbeelden	10
Inbouw	12
Aansluitingen	16
Functie	17
Test	18
Reiniging	19
Technische gegevens	20
Toebehoren, reserve-onderdelen	22

#### **d Sicherheitshinweise**

Der Liquiphant FTL 330 H 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 besonderer Beachtung dieser Betriebsanleitung, der einschlägigen Normen, der gesetzlichen Vorschriften und der Zertifikate

(je nach Anwendung)

eingebaut, angeschlossen, in Betrieb genommen und gewartet werden.

Schutz bei indirektem

Berühren gemäß EN 60204-1

bzw. EN 61010-1!

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

The Liquiphant FTL 330 H 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 330 H 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.

Indirect contact protection to EN 60204-1 or EN 61010-1!

#### **f Conseils de sécurité**

Le Liquiphant FTL 330 H 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)

Protection contact indirect selon EN 60204-1 or EN 61010-1!



#### **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 330 H 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).  
Protección contra contacto indirecto según EN 60204-1 y EN 61010-1!

**i** **Note sulla sicurezza**

Il Liquiphant FTL 330 H 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.  
Protezione contro contatto indiretto conforme a EN 60204-1 o EN 61010-1!

**nl** **Veiligheidsinstructies**

Gebruik de Liquiphant FTL 330 H 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.  
Bescherming tegen aanraking conform EN 60204-1 resp. EN 61010-1!



**¡Atención!**

X = Prohibido; peligro de mal funcionamiento o de destrucción.



**Attenzione!**


X = Vietato; pericolo di malfunzionamento o di distruzione.


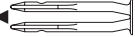


**Opgelet!**

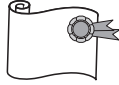
X = verboden; leidt tot foutieve werking of storing.

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

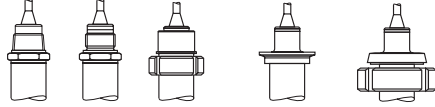
▲ LIQUIPHANT ▲ 

FTL 330 H- # # # # #  
  


Ser. No./n  
 Made in Germany  
 10...55 V



R = ----



1 = 1 - 11½ NPT, ANSI B 1.20.1

G = G 1 A, DIN ISO 228/1

F = ø 42

U = Triclamp 1½", ISO 2852

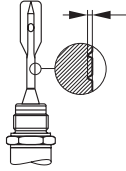
T = Triclamp 2", ISO 2852

M = DN 50, DIN 11851

A = Standard / Standard / Standard  
Standard / Standard / Standard

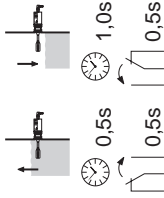
B = < 1,5  $\mu\text{m}$

S = < 0,5  $\mu\text{m}$



2 = U<sub>DC</sub> 10 ... 55 V PNP

3 = U<sub>DC</sub> 10 ... 55 V PNP



0 = Standard / Standard / Standard  
Standard / Standard / Standard

9 = . . . .

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

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

**d** **Behandlung**

Am Gehäuse anfassen,  
**nicht** an der Schwinggabel

**e** **Handling**

Hold by the housing,  
**not** by the sensor forks

**f** **Manipulation**

Tenir par le boîtier,  
et **non** par la fourche

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

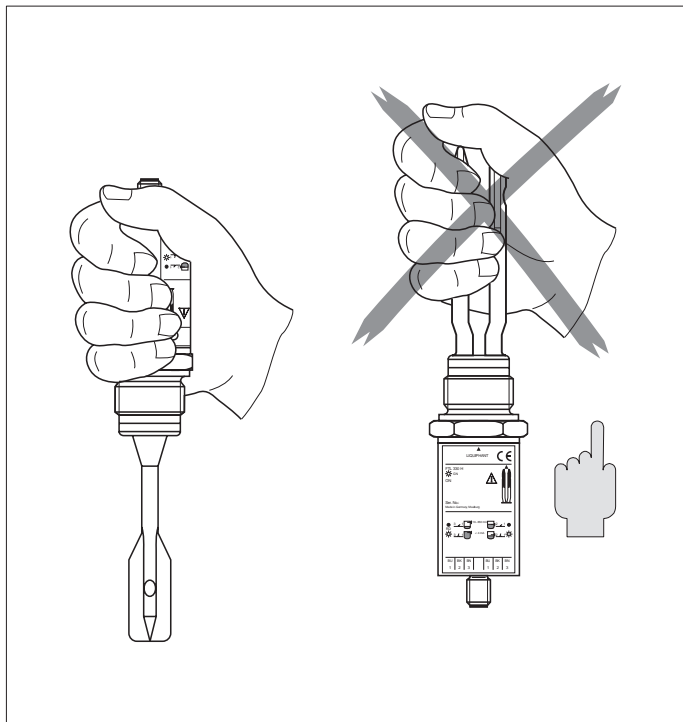
Coger por el cabezal,  
**no** por las horquillas

**i** **Accorgimenti**

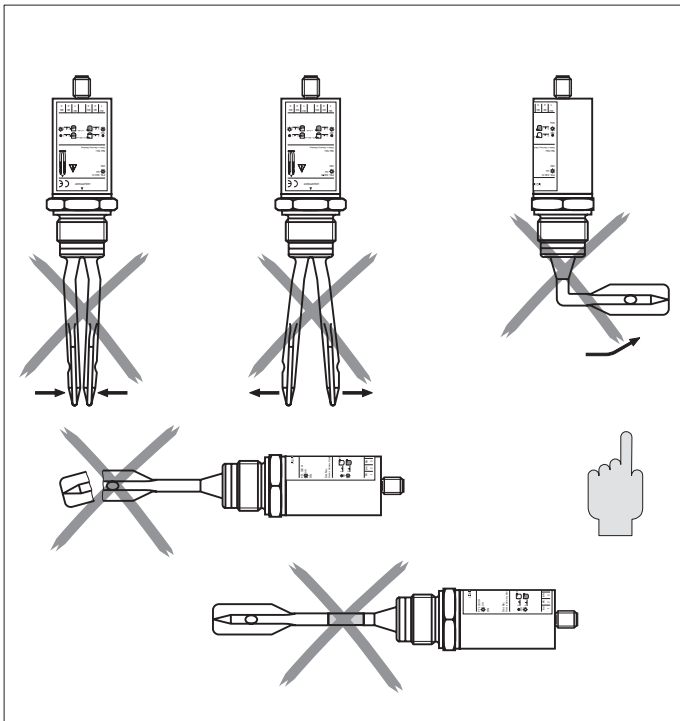
Afferrare la custodia,  
**non** i rebbi

**nl** **Behandeling**

De behuizing vastpakken,  
**niet** de trilvork







**d** **Nicht** verbiegen  
**Nicht** verkürzen  
**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

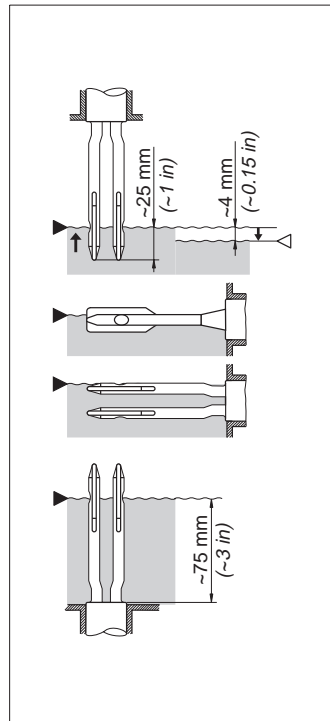
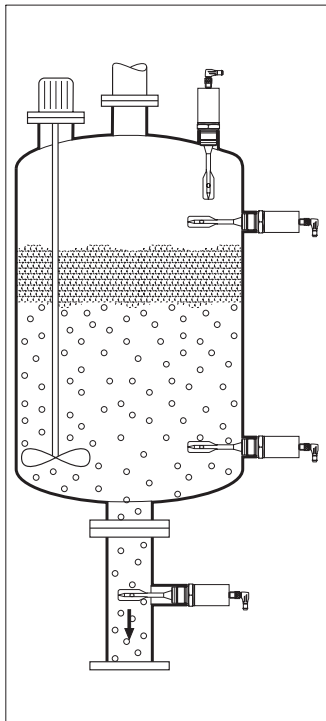
- d** Einbaubeispiele
- e** Mounting examples
- f** Exemples d'implantation
- es** Ejemplos de montaje
- i** Esempi di montaggio
- nl** Inbouwvoorbeelden

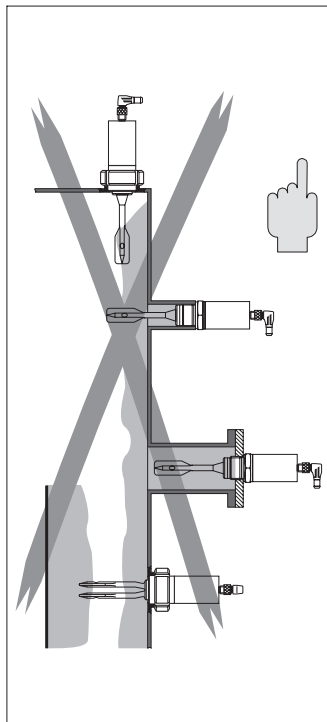
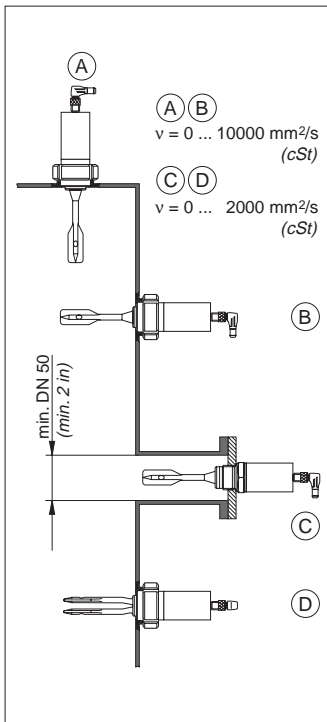


- d** Schaltpunkt
- e** Switchpoint
- f** Point de commutation
- es** Punto de conmutación
- i** Punto di commutazione
- nl** Schakelpunt



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





- d** Viskosität und Ansatzbildung berücksichtigen
- e** Take account of viscosity and build-up
- f** Tenir compte de la viscosité et du colmatage
- es** Tener en cuenta la viscosidad y la formación de adherencias
- i** Attenzione alla viscosità e ai depositi
- nl** Houdt rekening met de viscositeit en de vorming van aangroei

**d Einbau**

Prozeßanschluß G  
G 1 A, DIN ISO 228/1

**e Mounting**

Process connection G  
G 1 A, DIN ISO 228/1

**f Montage**

Raccord process G  
G 1 A, DIN ISO 228/1

**es Montaje**

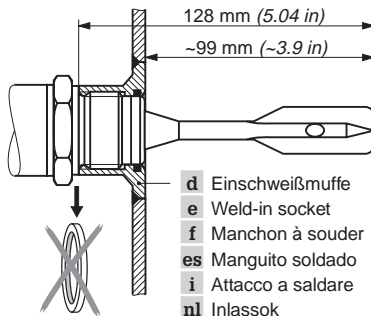
Conexión a proceso G  
G 1 A, DIN ISO 228/1

**i Montaggio**

Attacco al processo G  
G 1 A, DIN ISO 228/1

**nl Inbouw**

Procesaansluiting G  
G 1 A, DIN ISO 228/1

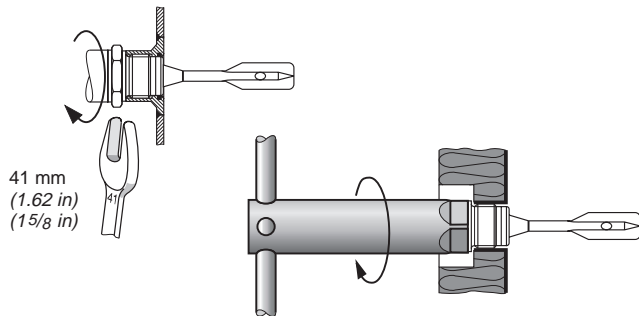


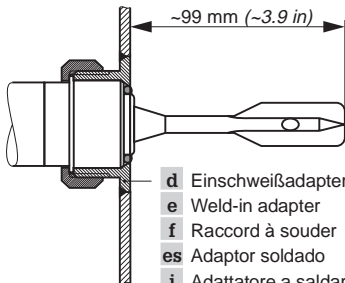
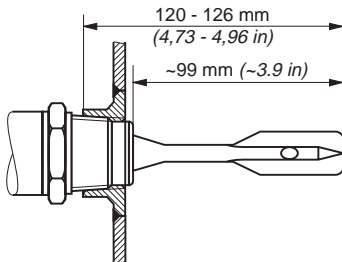
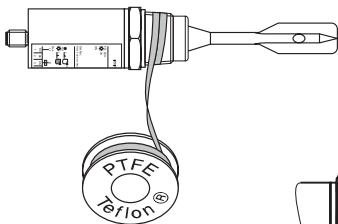
max. 150 °C / 25 bar  
(max. 300 °F / 360 psi)

max. 100 °C / 40 bar  
(max. 210 °F / 580 psi)



917969-1000





frontbündig  
flush mounting  
montage affleurant  
montaje enrasado  
montaggio a filo flangia  
direct aan proceszijde

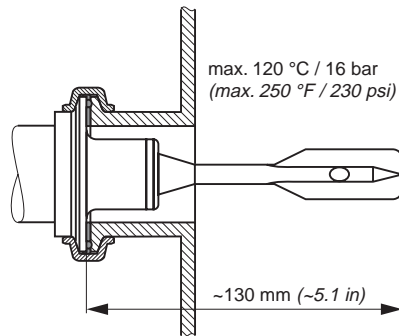
- d** Einschweißadapter
- e** Weld-in adapter
- f** Raccord à souder
- es** Adaptor soldado
- i** Adattatore a saldare
- nl** Hygiënische inlasadapter

942329-0001

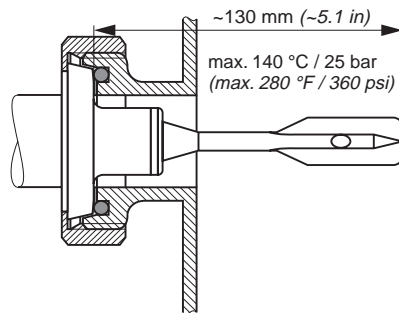
- d** Prozeßanschluß 1  
1 - 11½ NPT, ANSI B 1.20.1
- e** Process connection 1  
1 - 11½ NPT, ANSI B 1.20.1
- f** Raccord process 1  
1 - 11½ NPT, ANSI B 1.20.1
- es** Conexión a proceso 1  
1 - 11½ NPT, ANSI B 1.20.1
- i** Attacco al processo 1  
1 - 11½ NPT, ANSI B 1.20.1
- nl** Procesaanluiting 1  
1 - 11½ NPT, ANSI B 1.20.1

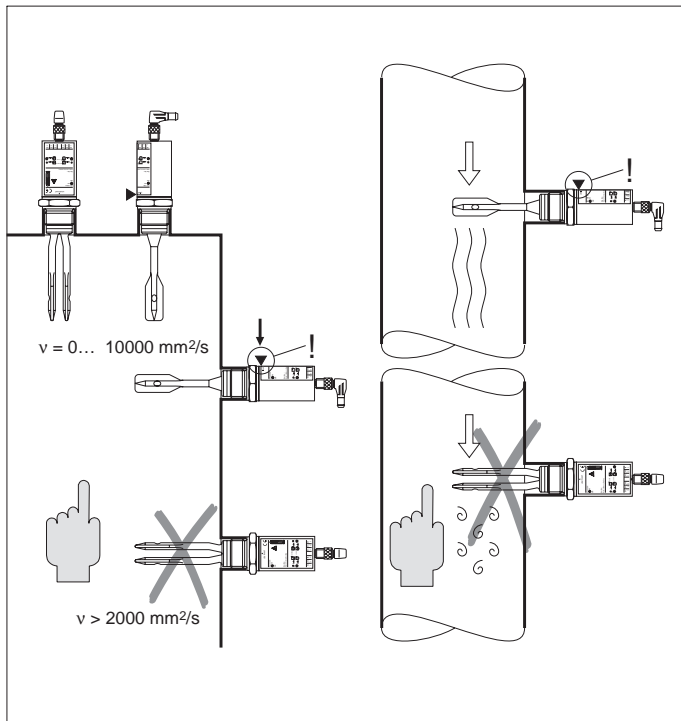
- d** Prozeßanschluß F
- e** Process connection F
- f** Raccord process F
- es** Conexión a proceso F
- i** Attacco al processo F
- nl** Procesaanluiting F

- d** Prozeßanschluß U, T  
Triclamp 1½", 2", ISO 2852
- e** Process connection U, T  
Triclamp 1½", 2", ISO 2852
- f** Raccord process U, T  
Triclamp 1½", 2", ISO 2852
- es** Conexión a proceso U, T  
Triclamp 1½", 2", ISO 2852
- i** Attacco al processo U, T  
Triclamp 1½", 2", ISO 2852
- nl** Procesaansluiting U, T  
Triclamp 1½", 2", ISO 2852



- d** Prozeßanschluß M  
DN 50, DIN 11851
- e** Process connection M  
DN 50, DIN 11851
- f** Raccord process M  
DN 50, DIN 11851
- es** Conexión a proceso M  
DN 50, DIN 11851
- i** Attacco al processo M  
DN 50, DIN 11851
- nl** Procesaansluiting M  
DN 50, DIN 11851





- d** Schwinggabel ausrichten  
Markierung ▼ beachten
- e** Align sensor forks  
Note mark ▼
- f** Orienter la fourche  
Tenir compte du repère ▼
- es** Orientación de las horquillas  
Atención a la marca ▼
- i** Orientare la forcella.  
Osservare il contrassegno ▼
- nl** Trilvork uitrichten  
Let op de markering ▼

**d Anschluß**

Max. = Maximum-  
Min. = Minimum-  
Sicherheitschaltung

**e Connection**

Max. = max. fail-safe mode  
Min. = min. fail-safe mode

**f Raccordement**

Max. = sécurité maximum  
Min. = sécurité minimum

**es Conexiones**

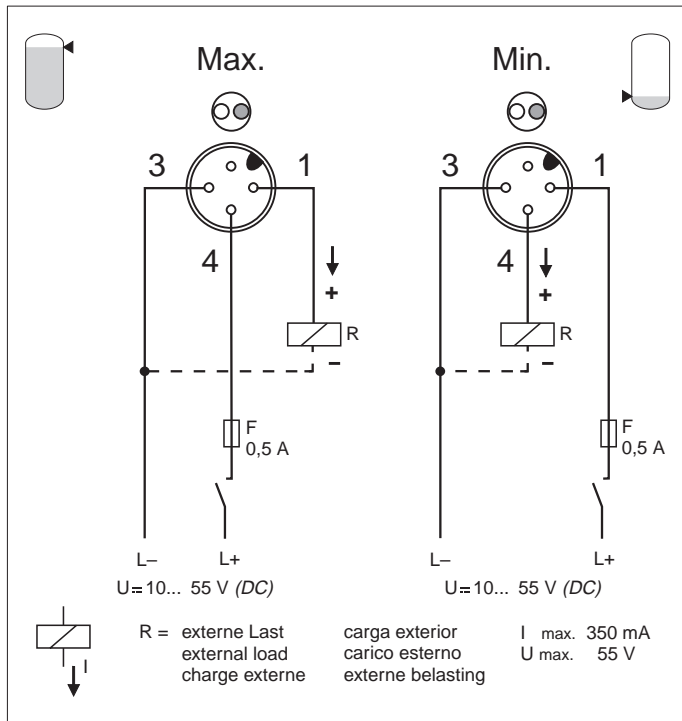
Máx. = Conexión de  
seguridad máxima  
Mín. = Conexión de  
seguridad mínima

**i Collegamenti**



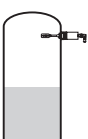
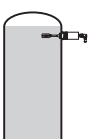





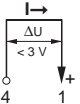
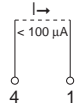
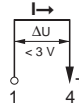
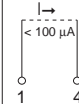
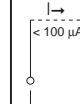








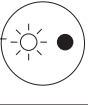
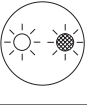

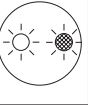
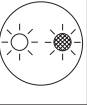

Max. = Sicurezza di massimo  
Min. = Sicurezza di minimo

**nl Aansluiting**

Max. = max.  
veiligheidsschakeling  
Min. = min.  
veiligheidsschakeling  
(ruststroomprincipe)





	Max.		Min.		$\hookrightarrow$	
					Störung Fault Défaut Fallo Guasto Storing	  
$U_{\text{ref}} (DC)$						
PNP						
						
	○ = grün / green / vert / verde / verde / groen					
	● = rot / red / rouge / rojo / rosso / rood					

**d Funktion**

Max. und Min. =  
Sicherheitschaltung

**e Funktion**

Max. and Min. =  
fail-safe mode

**f Fonction**

Max. et Min. =  
commutation de sécurité

**es Funcionamiento**

Conexión de seguridad  
máxima y mínima

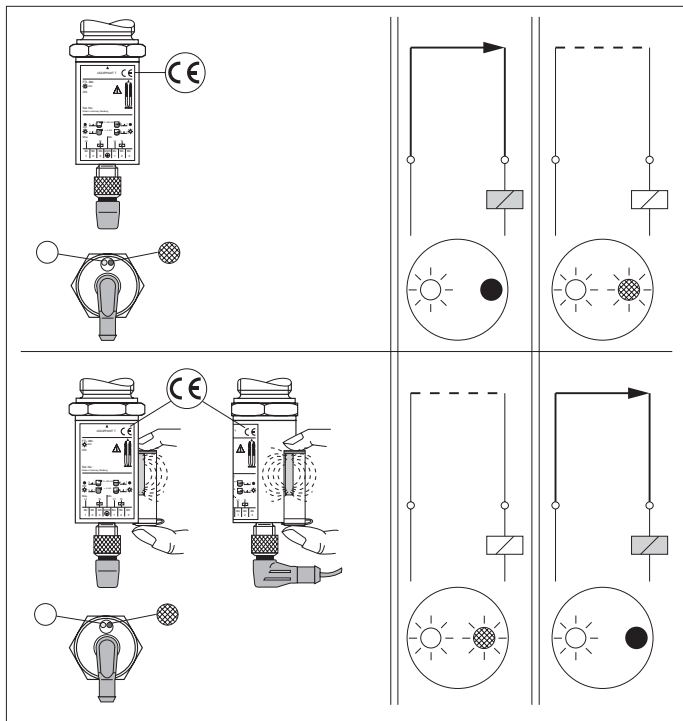
**i Funzionamento**

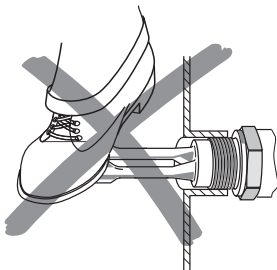
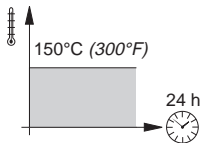
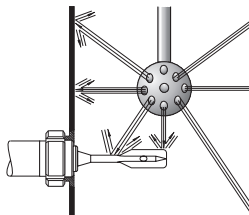
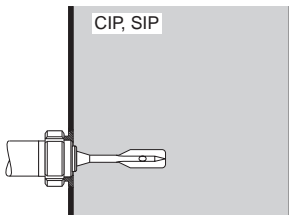
Sicurezza di massimo e di  
minimo

**nl Functie**

Max. en Min. =  
veiligheidsschakeling  
(ruststroomprincipe)

- d Test**  
mit Prüfmagnet
- e Test**  
with test magnet
- f Test**  
avec aimant de contrôle
- es Comprobación**  
Prueba magnética
- i Test**  
Test magnetico
- nl Test**  
met testmagneet





- d** Nicht besteigen!
- e** Don't use as a step!
- f** Ne pas marcher sur les lames vibrantes!
- es** No usar como peldaño!
- i** Non calpestare!
- nl** Niet op staan!



- d** Reinigung
- e** Cleaning
- f** Nettoyage
- es** Limpieza
- i** Pulizia
- nl** Reiniging

**d Technische Daten**

Abmessungen in mm  
und Werkstoffe

**e Technical Data**

Dimensions in mm  
and materials

**f Caractéristiques techniques**

Dimensions en mm  
et matériaux

**es Datos técnicos**

Dimensiones en mm  
y materiales

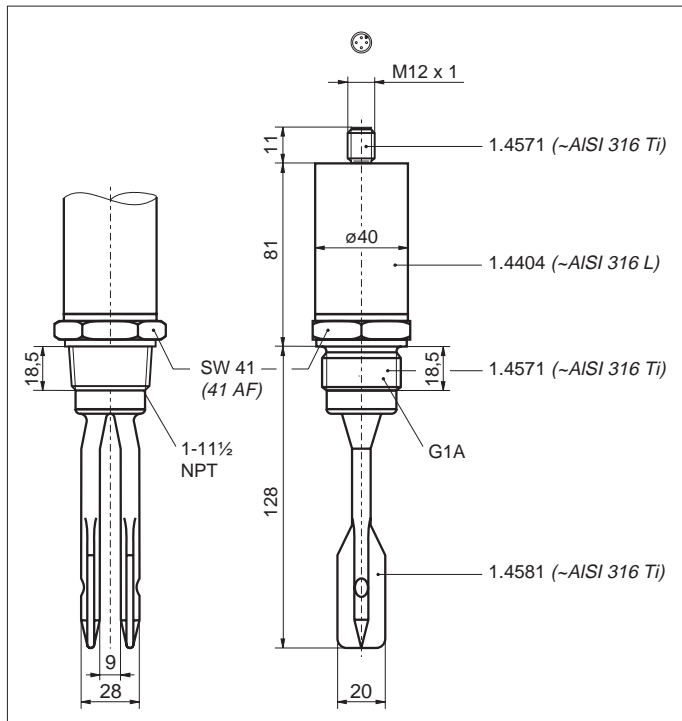
**i Dati tecnici**

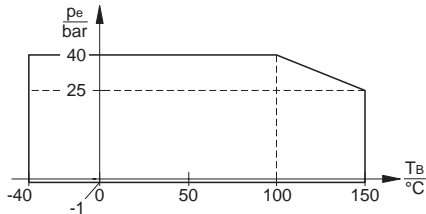
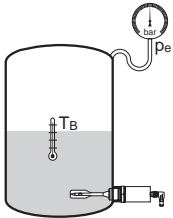
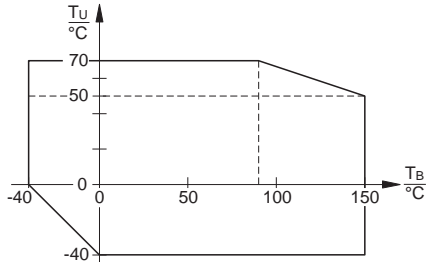
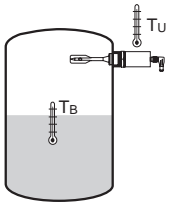
Dimensioni in mm  
e materiali

**nl Technische gegevens**

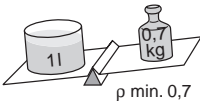
Afmetingen in mm  
en materialen

100 mm = 3.94 in

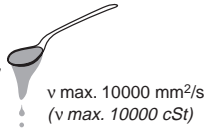




Dichte  $\rho$   
 Density  $\rho$   
 Densité  $\rho$   
 Densidad  $\rho$   
 Densità  $\rho$   
 Dichtheid  $\rho$



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



- d** Umgebungstemperatur  $T_U$   
 Betriebstemperatur  $T_B$   
 Betriebsdruck  $p_e$
- e** Ambient temperature  $T_U$   
 Operating temperature  $T_B$   
 Operating pressure  $p_e$
- f** Température ambiante  $T_U$   
 Température de service  $T_B$   
 Pression de service  $p_e$
- es** Temperatura ambiente  $T_U$   
 Temperatura de trabajo  $T_B$   
 Presión de trabajo  $p_e$
- i** Temperatura ambiente  $T_U$   
 Temperatura d'esercizio  $T_B$   
 Pressione d'esercizio  $p_e$
- nl** Omgevingstemperatuur  $T_U$   
 Procestemperatuur  $T_B$   
 Procesdruk  $p_e$

$$X \text{ } ^\circ\text{C} = (1.8x + 32) \text{ } ^\circ\text{F}$$

$$1 \text{ bar} = 14.5 \text{ psi}$$

**d** **Zubehör**  
**Ersatzteile**  
Abmessungen in mm

**e** **Accessories**  
**Spare parts**  
Dimensions in mm

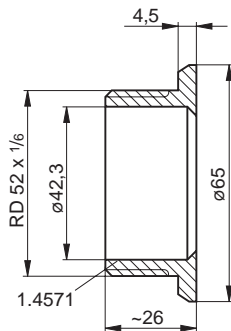
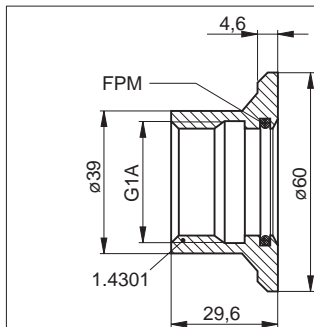
**f** **Accessoires**  
Pièces de rechange

**es** **Accesorios y repuestos**  
Dimensiones en mm

**i** **Accessori e ricambi**  
Dimensioni in mm

**nl** **Toebehoren**  
**Reserve-onderdelen**  
Afmetingen in mm

100 mm = 3.94 in



**d** Einschweißmuffe  
für Prozeßanschluß G

**e** Weld-in socket  
for process connection G

**f** Manchon à souder  
pour raccord process G

**es** Manguito soldado para  
conexión a proceso G

**i** Attacco a saldare per attacco  
al processo G

**nl** Inlassok  
voor procesaansluiting G  
917969-1000

**d** Einschweißadapter  
für Prozeßanschluß F

**e** Weld-in adapter  
for process connection F

**f** Raccord à souder  
pour raccord process F

**es** Adaptor soldado para  
conexión a proceso F

**i** Adattatore a saldare per  
attacco al processo F

**nl** Hygiënische inlasadapter  
voor procesaansluiting F  
942329-0001

- d** FPM-O-Ring für Einschweißmuffe G
- e** FPM O-ring for weld-in socket G
- f** Joint torique FPM pour manchon à souder G
- es** Junta en FPM para manguito soldado G
- i** O-ring in FPM per attacco a saldare G
- nl** FPM O-ring voor inlasadapter G

013543-0000

- d** MVQ-Dichtung für Prozeßanschluß F
- e** MVQ seal for process connection F
- f** Joint MVQ pour raccord process F
- es** Sello en MVQ para conexión a proceso F
- i** Guarnizione in MVQ per attacco al processo F
- nl** MVQ-afdichting voor procesaansluiting F

942816-0000

**d** Dichtungen

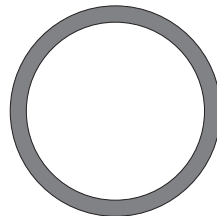
**e** Seals

**f** Joints

**es** Juntas

**i** Guarnizioni

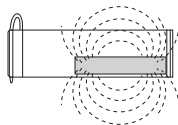
**nl** Afdichtingen



- d** Für Montage und Test
- e** For mounting and test
- f** Pour montage et test
- es** Para montaje y comprobación
- i** Accessori di montaggio e verifica
- nl** Voor montage en test



942667-0000



016920-0000

- d** Steckschlüssel SW 41 für Prozeßanschluß G
- e** Socket spanner 41 AF for process connection G
- f** Clé de 41
- es** Llave de fijación SW 41
- i** Chiave a tubo SW 41
- nl** Pijpsleutel SW 41
  
- d** Prüfmagnet
- e** Test magnet
- f** Aimant de contrôle
- es** Imán
- i** Magnete di controllo
- nl** Testmagneet



017265-0000