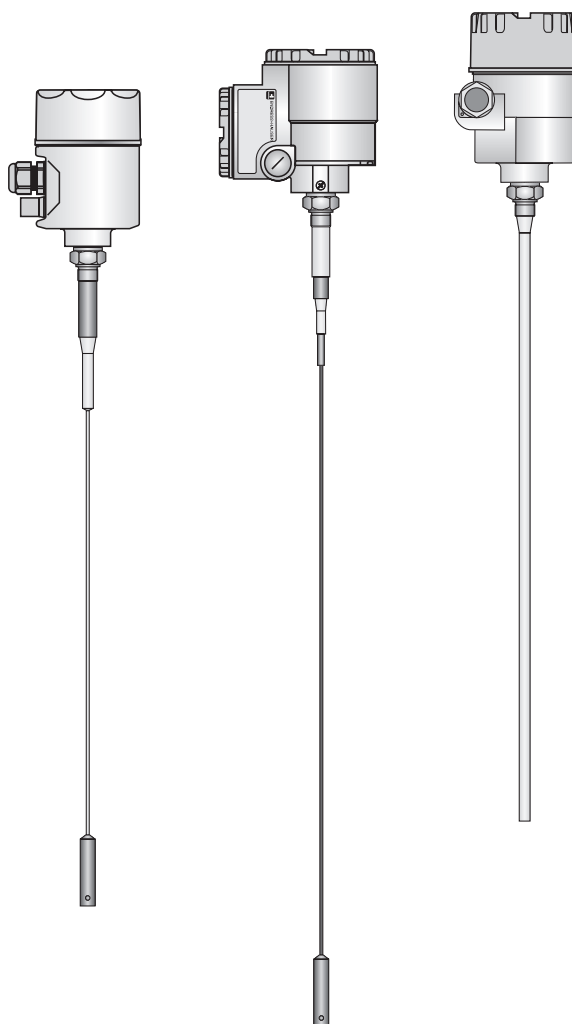
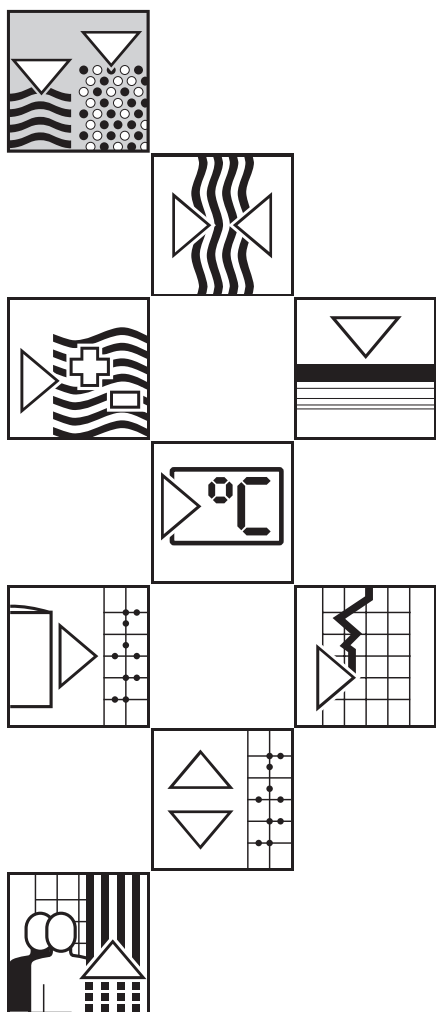


multicap T
DC 12 TE
DC 11/16/21/26 TEN
DC 11/16/21/26 TES
Level Probes

Operating Instructions



Endress + Hauser

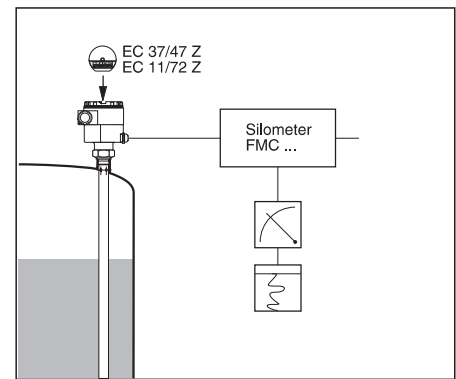
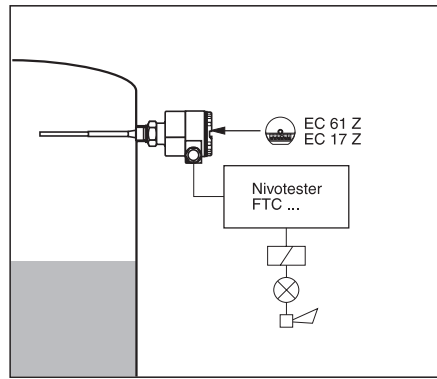
The Power of Know How



Measuring System

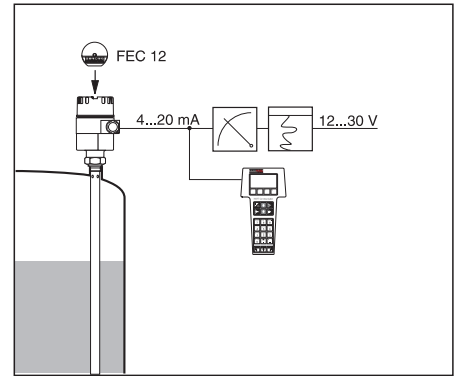
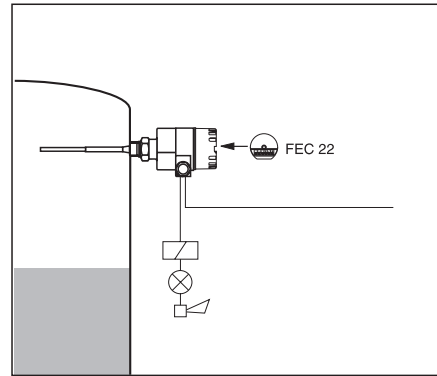
Left:
Limit detection with
separate Nivotester
switching unit

Right:
Level measurement
with separate Silometer
transmitter

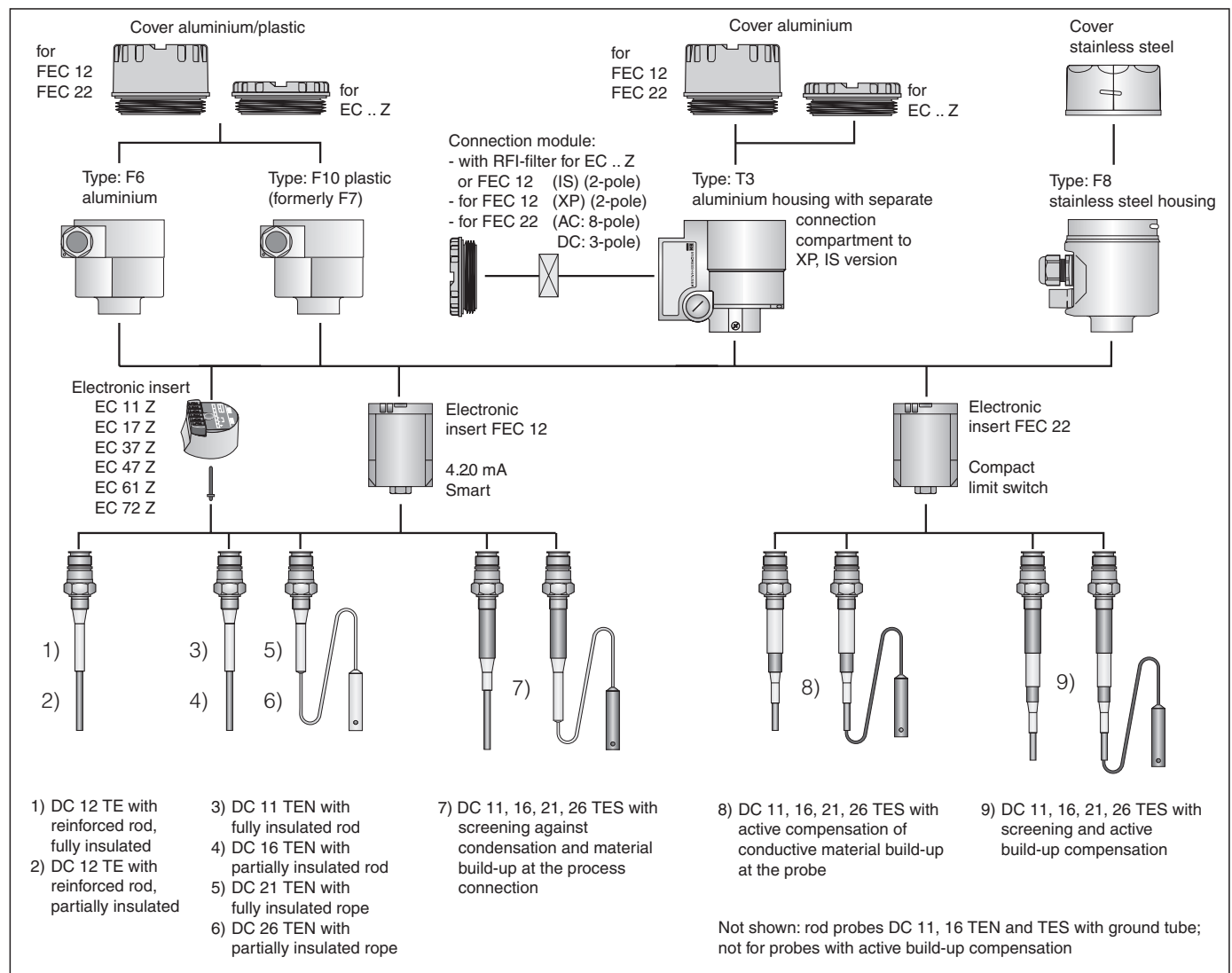


Left:
Compact level switch
with relay or transistor
output

Right:
Compact
loop-powered level
measurement system
with standard 4.20 mA
current output.
The FEC 12 is a
smart electronic insert
which allows remote
calibration over the
4.20 mA output
(HART protocol)



Probe Selection



Notes on Installation

Approved Usage

Multicap T capacitance probes are designed for level measurement or limit detection in tanks containing liquids or small silos containing light bulk solids. They have been designed to operate safely in accordance with current technical and safety standards, and must be installed by qualified personnel in accordance with the instructions which follow.

The manufacturer accepts no responsibility for any damage arising from incorrect use, installation or operation of the equipment. Changes or modifications not expressly approved in the following instructions or by the bodies responsible for compliance may make the user's authority to operate the equipment null and void.

Personnel

The equipment may be installed, commissioned and maintained by authorised personnel only. The instructions which follow must have been read and understood before the equipment is installed.

Explosion Hazardous Areas

When installing equipment in explosion hazardous areas the instructions included in the accompanying certification as well as any local standards must be observed. Please note that where the quoted technical data differs from that in the certificate, the certificate applies.

Operating Conditions

Before installing the probe, check that it is suitable for the operating conditions to be encountered, in particular:

- the chemical resistance of all probe materials
- the permitted operating temperature and pressure
- the approvals for use in explosion hazardous areas.

Unpacking

To avoid damage to the probe, remove the packaging on-site just before mounting.

Compare the code on the nameplate of the probe with the product designation on Page 14...18 to ensure that the correct probe is mounted. Check the probe length (for shortening see page 5).

Preparations for Installation

When installing in explosion hazardous areas observe all national and local regulations as well as the specifications in the certificate.

When the electronic insert is not installed, connect the probe terminal in the housing to the ground terminal.

Possibilities for connection: Insert plug or wire jumper in both sockets - to be found adjacent to the central thread.

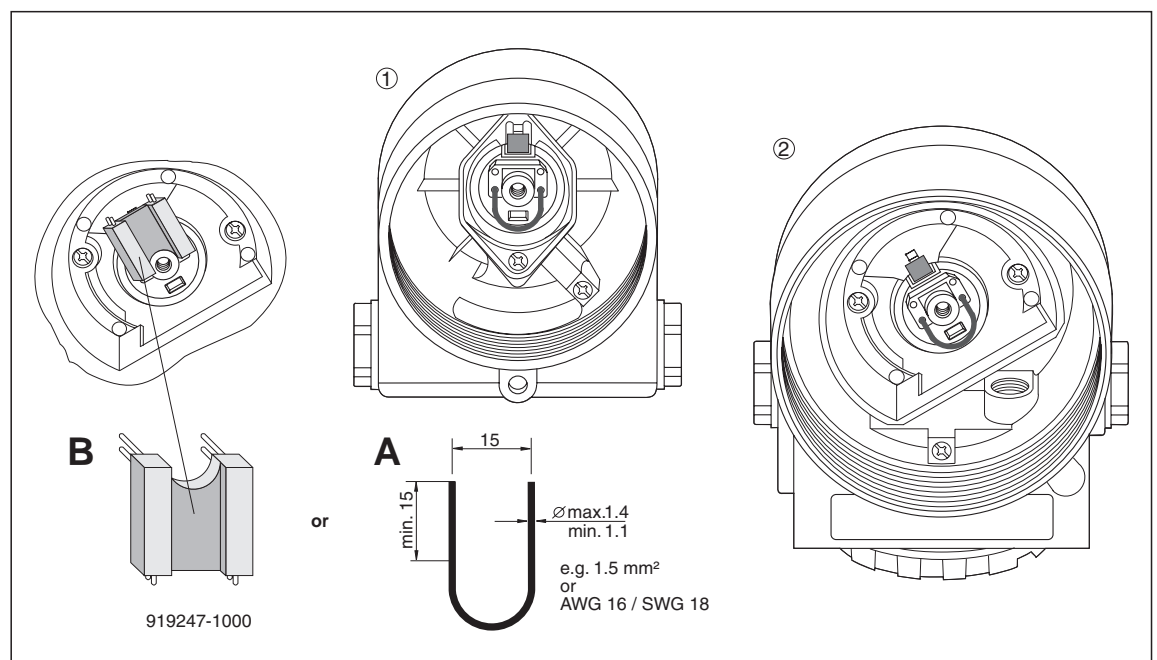
Before the electronic insert is installed, remove the plug or jumper.

Grounding the probe rod or rope in the housing:

- 1) type F6 / F8 / F10
- 2) type T3

A Jumper, e.g. made from bare wire, 1.5 mm²

B Plug: supplied with probes without electronic insert

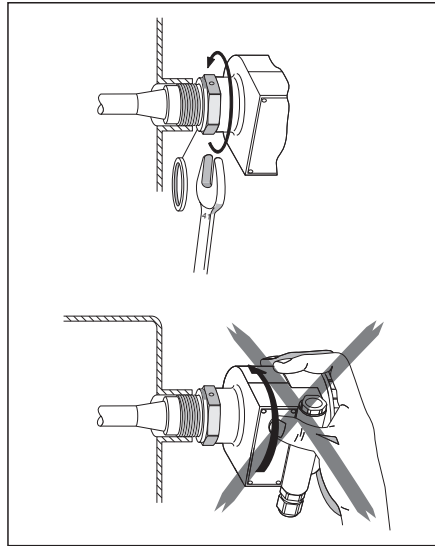


Mounting

Mounting the probe

Protect the insulation

Ensure that the insulation of the probe is not damaged when inserting the probe through the process connection of the vessel.



Probe with parallel thread G ¾ A and with sealing ring: Tighten at the hexagonal nut to max. 100 Nm (G 1 A to max. 180 Nm)

Do not tighten by rotating the housing!

Probe with Triclamp, sanitary thread or flange:

Use a sealing material suitable for the application.

If the flange is PTFE-cladded, then this is generally a suitable seal up to the permitted operating pressure.

Probe with thread

- G ¾ A or G 1 A (parallel):
Use the elastomer/fibre seal provided or any other chemically resistant seal which can withstand temperatures up to 300 °C.
- ¾ - 14 NPT or 1 - 11½ NPT (tapered):
Wrap suitable sealing material around the thread.
- When tightening, rotate the probe at the hexagonal nut only, not at the housing!
- For probes with a G ¾ A parallel thread and seal: a torque of 30 Nm is sufficient for a tight seal against pressures in the vessel up to 25 bar. (G 1 A: sufficient torque = 50 Nm).

Rotating the Housing

The housing can be rotated to reposition the cable entry.

In order to provide optimal protection from the entry of moisture, particular when the probe is mounted outdoors, we strongly recommend:

- A probe mounted laterally in the tank with *one* cable entry, should have the cable entry pointing downwards
- A probe mounted laterally in the tank with *two* cable entries, should have both cable entries positioned horizontally
- When mounted with protective cover the cable entries should always be positioned horizontally

Small housing (type F6, F8, F10)

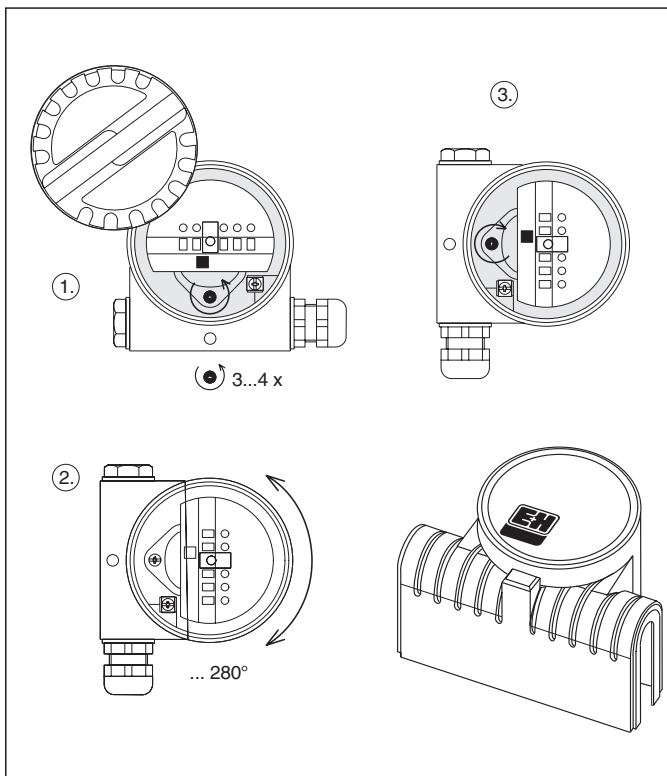
- Unscrew cover
- Loosen the Phillips screw in the base of the housing by 3 or 4 turns
- The housing can now be rotated through 280° from one stop to the other
- Retighten the Phillips screw in the base of the housing.

Large housing (type T3)

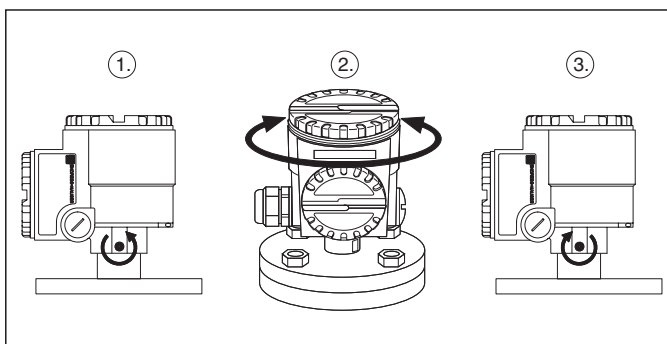
- Loosen the Phillips screw on the housing collar
- The housing can now be rotated through 280° from one stop to the other
- Retighten the Phillips screw at the housing collar.

Rotating the small housing (type F6, F8, F10)
1. - 2. - 3.

Below right:
Protective cover for the small housing (type F6, F10).
Always to be used when the probe is mounted outdoors



Rotating the large housing (type T3)
1. - 2. - 3.



Sealing the Probe Housing

It is important that no moisture enters the probe housing when mounting the probe, connecting the electronic insert or when operating the probe.

The housing cover and the cable entries must, therefore, always be screwed tight.

The O-ring seal at the housing cover and the thread of the aluminium cover are both smeared with a lubricant when delivered.

If the lubricant has been removed, it must be replaced e.g. with silicone or graphite, so that the cover is an air-tight seal and the aluminium thread does not seize when screwed down.

Under no circumstances should an oil-based lubricant be used as this would destroy the O-ring.

Altering the Probe Length

A *fully insulated* rod probe cannot be shortened or lengthened.

Shortening a rope probe

See instructions supplied with the rope shortening kit.

Shortening a partly insulated rod probe

- Clamp the probe by the bare rod, *not by the insulation and not by the process connection* so that the rod connection is not under strain and cannot be damaged.
Saw off the rod and deburr.
If the uninsulated rod is less than 100 mm, shorten the insulation accordingly.
- Change the length specification stated on the nameplate.

Lengthening a partially insulated rod probe

- Remove the electronic insert from the probe housing
- Weld on a section of rod or tube (use 1.4435 stainless steel)
Note:
 - Do not damage or overheat the insulation
 - The weld must be as rugged and corrosion-resistant as the probe rod itself
 - A longer or thicker probe rod is subjected to higher loads by the movement of material, the maximum lateral load will be reduced.
 - Do not exceed the permitted probe length. See appropriate certificate
- Change the length specification stated on the nameplate
- Replace the electronic insert.

Connection

Refer to the appropriate Technical Information for connecting the electronic insert EC or FEC in the probe housing.

For T3 housing, the connection designations in the separate connection compartment are the same as those on the built-in electronic insert.

Insulated mounting of the probe in a metal container: Connect the ground terminal of the probe to the container with the aid of a short cable.

Mounting in a plastic container: Connect the ground terminal of the probe to the counterelectrode with the aid of a short cable.

Ensure that the probe housing is tightly sealed.

Calibration

Refer to the operating manual for the transmitter connected or the electronic insert FEC 12 or FEC 22 which is installed.

Replacing components

Mounting without electronic insert Exchange of electronic inserts

- After the defective electronic insert has been removed and the replacement properly installed, the instrument must be recalibrated and checked for correct function.

- If fully insulated multicap probes are mounted in explosion hazardous areas without the electronic insert, and there is a risk of dangerous electronic discharges, then the probe terminal in the housing must be short-circuited with the ground terminal.

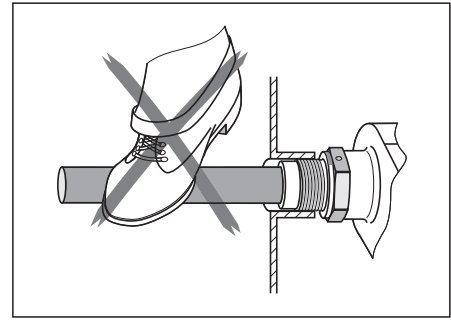
Maintenance

Cleaning and inspecting the vessel:

- Check the probe insulation for damage
- Remove material build-up especially at the process connection
- Check the housing cover and the cable entry for tightness.

Caution!

The probe can be damaged if used as a grip or support when inspecting the container.



Return of Goods

If a probe is to be returned to Endress+Hauser for repair or disposal, then all residue must be removed from it. This is especially important if the product measured can impair health.

Please do not return goods if the last traces of dangerous products cannot be removed, e.g. product has penetrated into fissures or diffused into plastic parts.

Disposal

Packaging

All sales and transportation packaging from Endress+Hauser is produced in conformance to the regulations governing packaging for reuse and recycling.

Instruments

For a small charge, Endress+Hauser will accept and recycle any instruments manufactured in its own E+H production program. These will then be disposed of according to the German regulations covering the disposal of electronics. Delivery to Endress+Hauser, Hauptstraße 1, 79689 Maulburg, Germany.

Accessories

- ❑ Protective cover for the small probe housing (type F6, F10) see Technical Information "Probe accessories"
The protective cover shields the probe from excessive heat and prevents condensation from forming in the housing when temperatures vary over a wide range.

- ❑ Slip-on plate for partially insulated probe DC 12 TE for increasing the switching safety for limit detection
- ❑ Rope shortening kit for fully insulated probes
- ❑ Rope shortening kit for partially insulated probes

Supplementary Documentation

Technical Information

- ❑ Probe accessories
Technical Information TI 229F/00/en
- ❑ Electronic insert FEC 12
Technical Information TI 250F/00/en
- ❑ Electronic insert FEC 22
Technical Information TI 251F/00/en
- ❑ Electronic insert EC 17 Z
Technical Information TI 268F/00/en
- ❑ Electronic insert EC 61
Technical Information TI 267F/00/en
- ❑ Electronic insert EC 37 Z, EC 47 Z
Technical Information TI 271F/00/en

- ❑ Electronic insert EC 11, EC 72
Technical Information TI 270F/00/en
- ❑ Transmitters for limit detection and continuous level measurement on request

Certificates

See product structure on page 14/16.

Dimensions (Dimensions in mm)

DC 12 TE

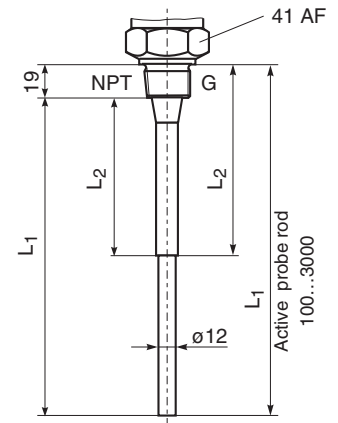
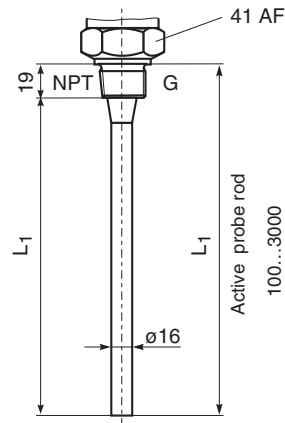
L1 = Length of active probe rod
 L2 = Length of partial insulation
 minimum: 75 mm
 maximum: length L1 minus 50 mm

Thread options: G ¾ A, G 1 A
 ¾ - 14 NPT, 1 - 11½ NPT

DC 12 TE
 Rod probe with
 reinforced rod for high
 lateral load

Left:
 fully insulated

Right:
 partially insulated



Dimensions (Dimensions in mm)

DC 11/16/21/26 TEN

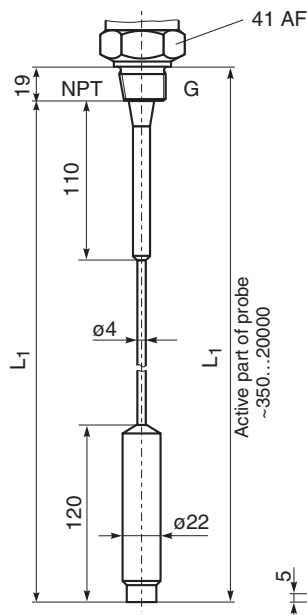
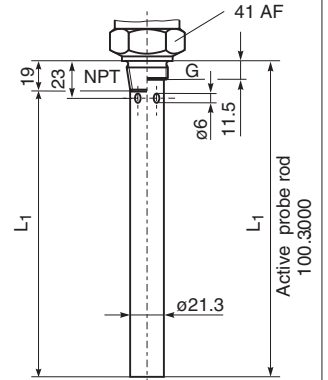
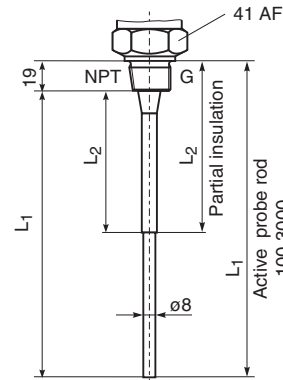
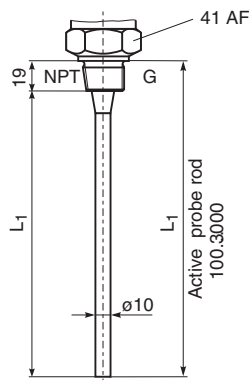
L1 = Length of active probe rod or probe rope
 L2 = Length of partial insulation
 minimum: 75 mm
 maximum: length L1 minus 50 mm

Thread options: G ¾ A, G 1 A
 ¾ - 14 NPT, 1 - 11½ NPT

Left:
 DC 11 TEN
 Fully insulated rod probe

Centre:
 DC 16 TEN
 Partially insulated rod
 probe

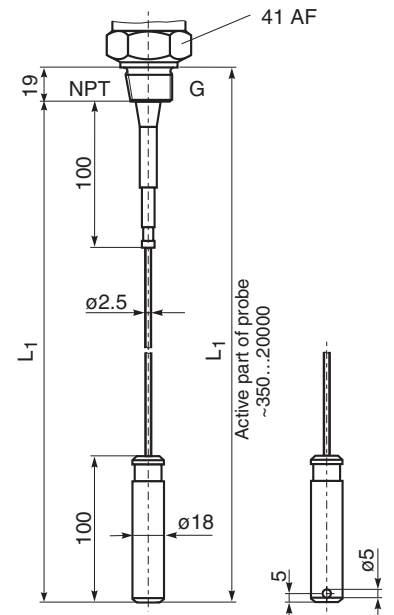
Right:
 DC 11, 16 TEN
 with ground tube
 (fully or partially
 insulated probe rod)



Left:
 DC 21 TEN
 Fully insulated rope
 probe

Right:
 DC 26 TEN
 Partially insulated rope
 probe

Tensioning weight
 with anchor hole



Dimensions

(Dimensions in mm)

DC 11/16/21/26 TES

All probes on this page are shown with partial insulation. All versions are available with full insulation

L1 = Length of active probe rod or probe rope

L2 = Length of partial insulation see page 7

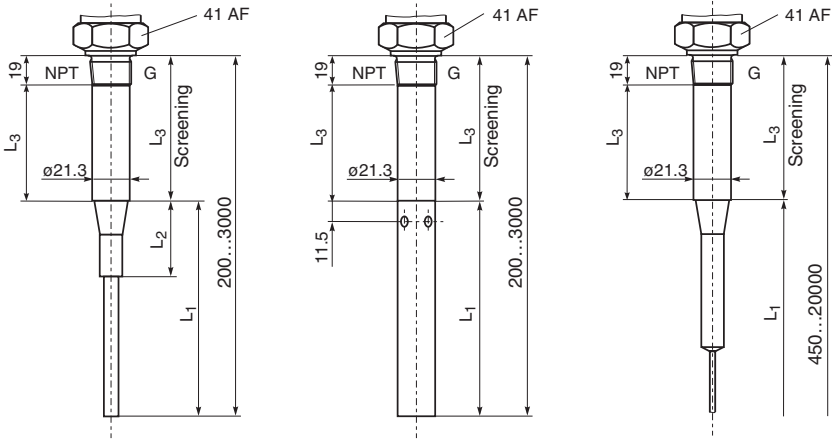
Thread options: G ¾ A, G 1 A
 ¾ - 14 NPT, 1 - 1½ NPT

Probes with **screening**
L3 against condensation and material build-up on the process connection

Left:
 Rod probe DC 11 TES
 or DC 16 TES

Centre:
 Rod probe DC 11 TES
 or DC 16 TES with ground tube

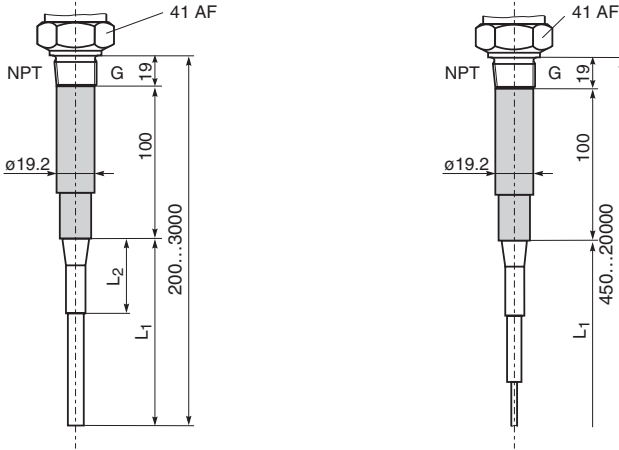
Right:
 Rope probe DC 21 TES
 or DC 26 TES



Probes with **active build-up compensation**
 (always 100 mm)

Left:
 Rod probe DC 11 TES
 or DC 16 TES

Right:
 Rope probe DC 21 TES
 or DC 26 TES



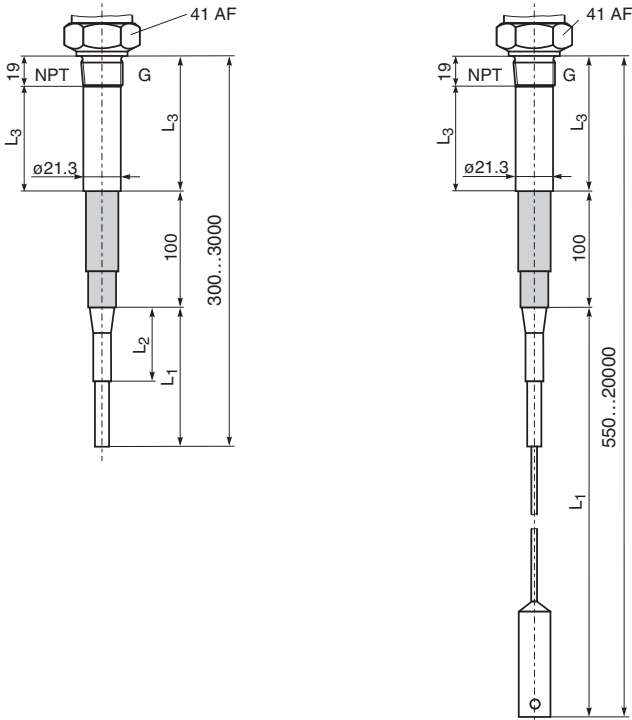
Probes with **screening L3** and with **active build-up compensation**

Left:
 Rod probe DC 11 TES
 or DC 16 TES

Right:
 Rope probe DC 21 TES
 or DC 26 TES

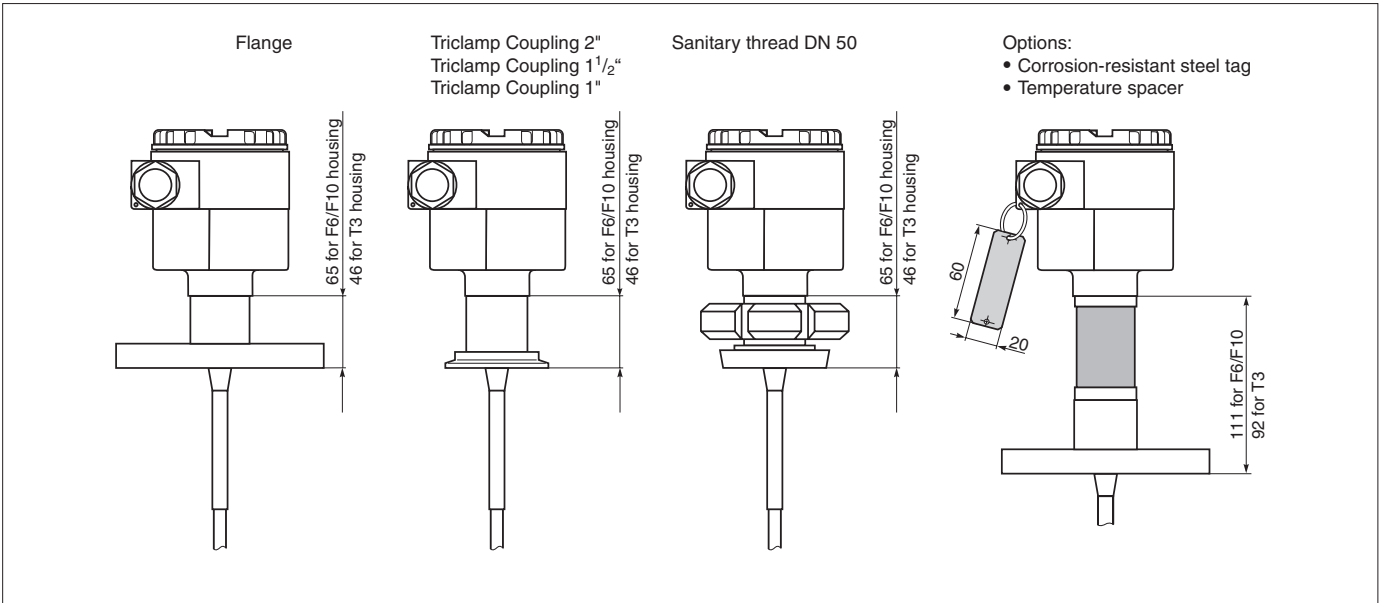
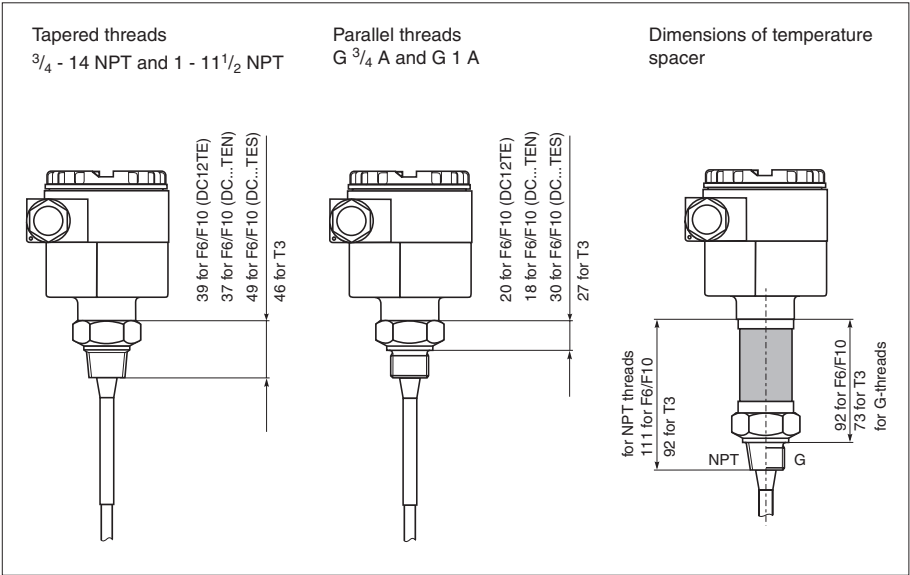
L3
 The screening is available in three standard lengths:
 L3 = 150 mm,
 L3 = 250 mm,
 L3 = 500 mm

Special lengths on demand
 L3 min. 100 mm
 L3 max. 1500 mm



Dimensions Continued / Additional Process Connections

All probes shown with type F6/F10 housing
Dimensions for type T3 housing are also shown



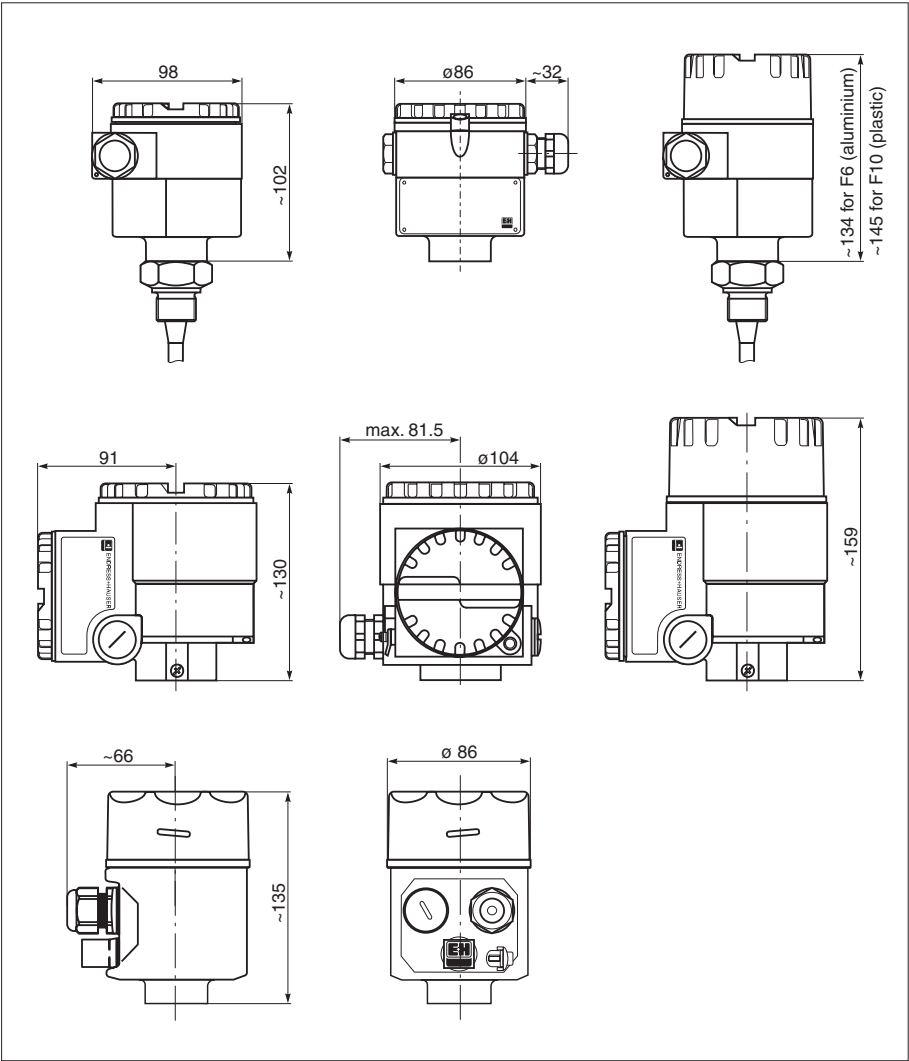
Housing Dimensions

Top row:
Housings in aluminium (type F6) or plastic (type F10, formerly F7)

Bottom row:
Housings in aluminium (type T3) with separate connection compartment;
- with RFI filter for small electronic inserts
EC 17 Z, EC 61 Z
EC 37 Z, EC 47 Z,
EC 11 Z, EC 72 Z
- with RFI filter and terminal connection module for FEC 12 (EEEx ia)
- with RFI filter and safety barriers for FEC 12 (EEEx d)
- terminal connection module for FEC 22

Stainless steel housing (type F8) for electronic inserts
EC ... Z/FEC ... ,
with two cable entries,
one sealed with a blind plug.

Both housings:
- with low cover for small electronic inserts EC ... Z,
- with raised cover for electronic inserts FEC 12, FEC 22;
with two cable entries,
one sealed with a blind plug



Technical Data

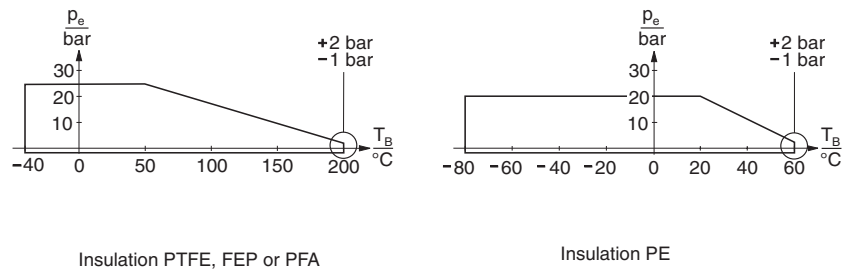
General Information

Manufacturer	Endress+Hauser GmbH+Co. D-79689 Maulburg, Germany
Instrument family	Multicap T
Instrument types	DC 12 TE, DC 11, 16, 21, 26 TEN / TES
Function	Probes for capacitive level measurement and limit detection

Operating data

Operating pressure	max. 25 bar depending on material - see below
Operating temperature	max. 200 °C depending on material - see below
Lateral load on probe rod	DC 12 TE: 30 Nm at 20 °C, static DC 11, 16: 15 Nm at 20 °C, static
Max. tension on probe rope	200 N at 20 °C, static

Permitted operating pressures p_e and operating temperatures T_B

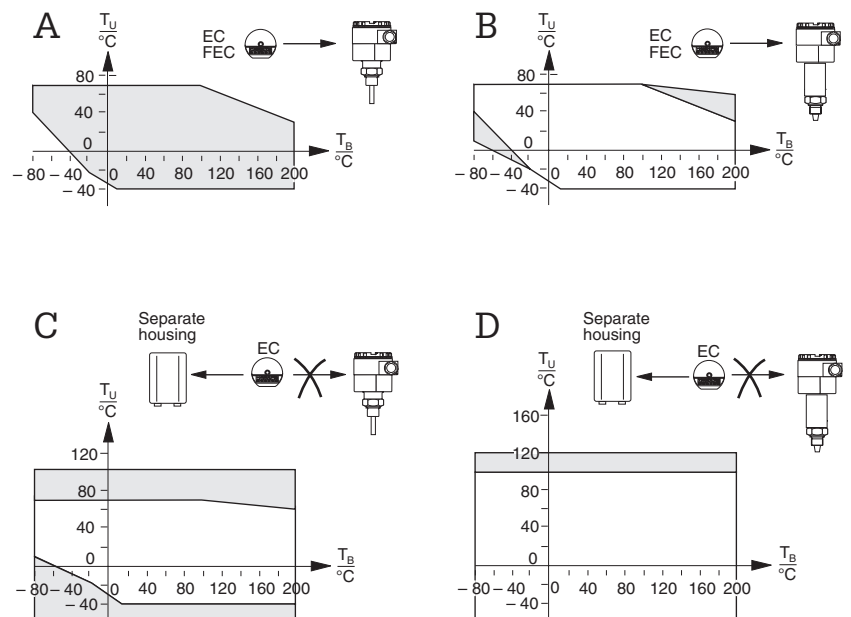


Mounting of the electronic insert as a function of operating temperature T_B and ambient temperature T_U :

- A Basic probe
- B Probe with temperature spacer
- C Electronic insert in separate housing
- D Probe with temperature spacer and electronic insert in separate housing

The graphs A and B apply to **all** electronic inserts

The graphs C and D apply to the small electronic inserts
EC 17 Z, EC 61 Z,
EC 37 Z, EC 47 Z
EC 11 Z, EC 72 Z



Probe Lengths

Total length of rod probe	min. 100 mm, max. 3000 mm, see dimensions
Total length of rope probe	min. 350 mm, max. 20000 mm, see dimensions

Capacitance values of the probe

Basic capacitance:	approx. 30 pF
Temperature spacer:	approx. 5 pF
Active build-up compensation:	< 10 pF

Operating data (continued)

Additional capacitances

Probe 250 mm from a conductive vessel wall	Probe rod: approx. 1.3 pF/100 mm in air Probe rope: approx. 1.0 pF/100 mm in air
Insulated probe rod in water:	approx. 38 pF/100 mm DC TE approx. 50 pF/100 mm DC 11 TEN/TES
Insulated probe rope in water:	approx. 20 pF/100 mm
Rod probe with ground tube	insulated probe rod in air approx. 6,4 pF/100 mm in water approx. 50 pF/100 mm uninsulated probe rod in air approx. 5,6 pF/100 mm

Probe Lengths for continuous measurement in conducting liquids

EC with $\Delta C_{\max} = 2000$ pF (EC 47 Z, EC 72 Z, FEC 12)	Rope probe up to 8000 mm (up to 20000 mm in non conducting liquids) Rod probe up to 3000 mm
EC with $\Delta C_{\max} = 4000$ pF (EC 37 Z, EC 11 Z)	Rope probe up to 20000 mm Rod probe up to 3000 mm

Accuracy:

Length tolerances	up to 1 m: +0 mm, - 5 mm rod probe/ -10 mm rope probe up to 3 m: +0 mm, - 10 mm rod probe/ -20 mm rope probe up to 6 m: +0 mm, - 30 mm up to 20 m: +0 mm, - 40 mm
The following specifications apply to fully insulated probes operating in conducting liquids	
Linearity error	< 1 % for 1 m **
Temperature dependence of the probe rod	< 0,1 % per K DC 12 TE ** < 0,12 % per K DC 11 TE **
Pressure dependence of the probe rod	0,12...0,34 % per bar **
Temperature dependence of the probe rope	< 0,1 % per K **
Pressure dependence of the probe rope	< 0,1 % per bar **
** Error in non-conducting materials insignificant	

Process Connections

Parallel thread G ¾ A or G 1 A	DIN ISO 228/I, with sealing ring 27x32 or 33x39 to DIN 7603
Tapered thread ¾ - 14 NPT or 1 - 11 ½ NPT	ANSI B 1.20.1
DIN flanges without raised face	DIN 2527, Form B
DIN flanges with tongue	DIN 2512, Form F
DIN flanges with groove	DIN 2512, Form N
ANSI flanges	ANSI B 16.5
Sanitary thread	DIN 11851
Triclamp coupling	ISO 2852

**Operating data
(Continued)**

Materials

Aluminium housing (F6, T3)	GD-Al Si 10 Mg, DIN 1725, plastic coated (blue/grey)
Plastic housing (F10)	fibre-glass reinforced polyester (blue/grey)
Sainless steel housing (F8)	stainless steel 1.4301 (AISI 304), unvarnished
Seal for housing cover	type F6, T3 housings: O-ring in EPDM (elastomer) type F10 housing: O-ring in silicone rubber type F8 housing: profiled O-ring in silicone
Cable gland IP 66 for cable entry Pg 16	Polyamide with neoprene CR seal for cable diameter 7...12 mm; ambient temperature up to 80°C
Sealing ring for process connection G 3/4 A or G 1 A	Elastomer-fibre, asbestos-free, resistant to oils, solvents, steam, weak acids and alkalis; up to 300°C and 100 bar
Temperature spacer	Stainless steel SS 304 (1.4301) or similar
Probe rod, ground tube process connection, screening, build-up compensation, tensioning weight for rope probe	AISI 316L (1.4435)
Probe rope	AISI 316 (1.4401)
Further material specifications	see Product Structure on Page 14...18

DC 12 TE	Multicap T DC 12 TE				Rod probe for standard applications				Basic weight 1,2 kg including ¾" process connection and F10 housing								
	Certificate																
	A For non-hazardous areas																
	B ATEX II 1/2 G EEx ia IIC T6																
	D For non-hazardous areas								Overspill protection to WHG								
	E ATEX II 2 G EEx d [ia] IIC T6																
	F ATEX II 1/2 G EEx ia IIC T6								Overspill protection to WHG								
	K FM XP Class I, Div. 1, Groups A-D																
	R CSA XP Class I, Div. 1, Groups B-D																
	Y Special version																
	1 ATEX II 2 G EEx d (ia) IIB T6																
	2 ATEX II 1/2 G EEx ia IIB T6								Overspill protection to WHG								
	3 ATEX II 1/2 G EEx ia IIB T6																
	4 ATEX II 2 G EEx d (ia) IIC T6*																
	5 ATEX II 1/2 G EEx ia IIC T6*								Overspill protection to WHG								
	6 ATEX II 1/2 G EEx ia IIC T6*																
*) With note: "Avoid electrostatic charge"																	
Type of insulation								Additional weight									
1 Fully insulated probe																	
6 Partiall insulated probe																	
Length of insulation L2																	
Amm (75 mm...3000 mm)								partially insulated PTFE				0,1 kg/m					
Bmm (75 mm...3000 mm)								partially insulated PFA				0,1 kg/m					
Cmm (75 mm...3000 mm)								partially insulated PE				0,1 kg/m					
Y Special version																	
1 Fully insulated probe																	
Active length L1, Material																	
Amm (100 mm...3000 mm)								fully insulated PTFE				1 kg/m					
Bmm (100 mm...3000 mm)								fully insulated PFA				1 kg/m					
Cmm (100 mm...3000 mm)								fully insulated PE				1 kg/m					
Y Special version																	
1mm (100 mm...3000 mm)								partially insulated				0,9 kg/m					
Process connection, Material																	
A G ¾ A,								Thread		ISO 228		316L					
B G 1 A,								Thread		ISO 228		316L		0,1 kg			
C ¾" NPT								Thread		ANSI		316L					
D 1" NPT								Thread		ANSI		316L		0,1 kg			
E DN 50 PN 40										DIN 11851		316L					
								Hygienic connection						0,5 kg			
F DN 40-51 (2")										ISO 2852		316L					
								Tri-Clamp connection						0,5 kg			
G DN 38 (1½")										ISO 2852		316L					
								Tri-Clamp connection									
H DN 25 (1")										ISO 2852		316L					
								Tri-Clamp connection									
L DN 38 (1½") removable,										ISO 2852		316L, A3					
								Tri-Clamp connection									
Y Special version																	
5 Flanged process connection												316L					
Flange type, Material																	
1B without process flange connection																	
1C DN 25 PN 6 B										DIN 2527		316L		0,6 kg			
1D DN 25 PN 25/40 B										DIN 2527		316L		1,2 kg			
1E DN 32 PN 6 B										DIN 2527		316L		1,0 kg			
1F DN 32 PN 25/40 B										DIN 2527		316L		1,8 kg			
1G DN 40 PN 6 B										DIN 2527		316L		1,2 kg			
1H DN 40 PN 25/40 B										DIN 2527		316L		2,2 kg			
1K DN 50 PN 6 B										DIN 2527		316L		1,4 kg			
1L DN 50 PN 25/40 B										DIN 2527		316L		3,0 kg			
2D DN 25 PN 25/40										DIN 2527		PTFE >316L		1,2 kg			
2F DN 32 PN 25/40										DIN 2527		PTFE >316L		1,8 kg			
2H DN 40 PN 25/40										DIN 2527		PTFE >316L		2,2 kg			
2K DN 50 PN 6										DIN 2527		PTFE >316L		1,4 kg			
2L DN 50 PN 25/40										DIN 2527		PTFE >316L		3,0 kg			
3F DN 32 PN 40 F										DIN 2512		316L		1,8 kg			
3H DN 40 PN 40 F										DIN 2512		316L		2,2 kg			
3L DN 50 PN 40 F										DIN 2512		316L		3,0 kg			
4F DN 32 PN 40 N										DIN 2512		316L		1,8 kg			
4H DN 40 PN 40 N										DIN 2512		316L		2,2 kg			
4L DN 50 PN 40 N										DIN 2512		316L		3,0 kg			
Continued Page 15																	
DC 12 TE -																Product designation (first part)	

Please don't forget:

Length of

Partial insulation L2 mm

Active probe length L1 mm

Option	
1 Basic version	
2 TAG number	
3 Temperature spacer	0,2 kg
4 Temperature spacer and TAG number	0,2 kg
9 Special version	



Product Structure

DC 11 TEN- MULTICAP T DC 11 TEN		Fully insulated rod probe for standard applications	Basic weight including ¾" process connection and F10 housing, for rope probes with tensioning weight	1,2 kg
DC 16 TEN- MULTICAP T DC 16 TEN		Partially insulated rod probe for standard applications		1,2 kg
DC 21 TEN- MULTICAP T DC 21 TEN		Fully insulated rope probe for standard applications		1,4 kg
DC 26 TEN- MULTICAP T DC 26 TEN		Partially insulated rope probe for standard applications		1,4 kg
DC 11 TES- MULTICAP T DC 11 TES		Fully insulated rod probe with protection features		1,2 kg
DC 16 TES- MULTICAP T DC 16 TES		Partially insulated rod probe with protection features		1,2 kg
DC 21 TES- MULTICAP T DC 21 TES		Fully insulated rope probe with protection feature		1,4 kg
DC 26 TES- MULTICAP T DC 26 TES		Partially insulated rope probe with protection features		1,4 kg
Certificate				
A For non-hazardous areas				
B ATEX II 1/2 G EEx ia IIC T6				
D For non-hazardous areas Overspill protection to WHG				
E ATEX II 2 G EEx d (ia) IIC T6				
Y Special version				
1 ATEX II 2 G EEx d (ia) IIB T6				
3 ATEX II 1/2 G EEx ia IIB T6				
4 ATEX II 2 G EEx d (ia) IIC T6*				
6 ATEX II 1/2 G EEx ia IIC T6*				
*) With note: "Avoid electrostatic charge"				
Build-up protection				Additional weight
DC 11, 16, 21, 26 TEN				
A Protection feature not selected				
DC 11, 16, 21, 26 TES				
B 100 mm active guard				0,2 kg
C 150 mm L3 screening				0,2 kg
D 250 mm L3 screening				0,3 kg
E 500 mm L3 screening				0,6 kg
Fmm (100 mm...1500 mm) L3 screening				1,2 kg/m
G 150 mm L3 screening and 100 mm active guard				0,4 kg
H 250 mm L3 screening and 100 mm active guard				0,5 kg
K 500 mm L3 screening and 100 mm active guard				0,9 kg
Lmm (100 mm...1500 mm) L3 screening and 100 mm active guard				1,7 kg/m + 0,2 kg
Y Special version				
Probe insulation				
DC 11 TEN/TES, DC 21 TEN/TES				
1 Fully insulated probe				
DC 16 TEN/TES				
Amm (75 mm...3000 mm) partially insulated PTFE				0,06 kg/m
DC 26 TEN/TES				
D rope type; 2,5 mm				
9 Special version				
Active length L1, Material				
DC 11 TEN/TES				
1mm (100 mm...3000 mm)				316L+PTFE 0,5 kg/m
2mm (100 mm...3000 mm) with ground tube				316L+PTFE 1,2 kg/m
DC 16 TEN/TES				
1mm (100 mm...3000 mm)				Rod 316L 0,4 kg/m
2mm (100 mm...3000 mm) with ground tube				Rod 316L 1,1 kg/m
DC 21 TEN/TES				
1mm (100 mm...20000 mm) tensioning weight with anchor hole				316+FEP 0,04 kg/m
DC 26 TEN/TES				
1mm (100 mm...20000 mm)				316+FEP 0,03 kg/m
9 Special version				
Continued Page 17				
DC . . TE . -				
Product designation (first part)				

Product Structure (Continued)

Process connection, Material				Additional weight
A	G ¾ A	Thread	ISO 228	316L
B	G 1 A	Thread	ISO 228	316L
C	¾" NPT	Thread	ANSI	316L
D	1" NPT	Thread	ANSI	316L
E	DN 50 PN 40		DIN 11851	316L
	Hygienic connection			
F	DN 40-51 (2")		ISO 2852	316L
	Tri-Clamp connection			
Y	Special version			
5	Flanged process connection			316L

Flange type, Material

1B	without process flange connection			
1C	DN 25 PN 6 B	DIN 2527	316L	0,6 kg
1D	DN 25 PN 25/40 B	DIN 2527	316L	1,2 kg
1E	DN 32 PN 6 B	DIN 2527	316L	1,0 kg
1F	DN 32 PN 25/40 B	DIN 2527	316L	1,8 kg
1G	DN 40 PN 6 B	DIN 2527	316L	1,2 kg
1H	DN 40 PN 25/40 B	DIN 2527	316L	2,2 kg
1K	DN 50 PN 6 B	DIN 2527	316L	1,4 kg
1L	DN 50 PN 25/40 B	DIN 2527	316L	3,0 kg
2D	DN 25 PN 25/40	DIN 2527	PTFE >316L	1,2 kg
2F	DN 32 PN 25/40	DIN 2527	PTFE >316L	1,8 kg
2H	DN 40 PN 25/40	DIN 2527	PTFE >316L	2,2 kg
2K	DN 50 PN 6	DIN 2527	PTFE >316L	1,4 kg
2L	DN 50 PN 25/40	DIN 2527	PTFE >316L	3,0 kg
3F	DN 32 PN 40 F	DIN 2512	316L	1,8 kg
3H	DN 40 PN 40 F	DIN 2512	316L	2,2 kg
3L	DN 50 PN 40 F	DIN 2512	316L	3,0 kg
4F	DN 32 PN 40 N	DIN 2512	316L	1,8 kg
4H	DN 40 PN 40 N	DIN 2512	316L	2,2 kg
4L	DN 50 PN 40 N	DIN 2512	316L	3,0 kg
5A	1" 150 lbs, RF,	ANSI B16.5	316L	0,7 kg
5B	1" 300 lbs, RF,	ANSI B16.5	316L	1,2 kg
5E	1½" 150 lbs, RF,	ANSI B16.5	316L	1,3 kg
5F	1½" 300 lbs, RF,	ANSI B16.5	316L	2,5 kg
5G	2" 150 lbs, RF,	ANSI B16.5	316L	2,2 kg
5H	2" 300 lbs, RF,	ANSI B16.5	316L	3,0 kg
6A	1" 150 lbs, RF,	ANSI B16.5	PTFE >316L	0,7 kg
6B	1" 300 lbs, RF,	ANSI B16.5	PTFE >316L	1,2 kg
6E	1½" 150 lbs, RF,	ANSI B16.5	PTFE >316L	1,3 kg
6F	1½" 300 lbs, RF,	ANSI B16.5	PTFE >316L	2,5 kg
6G	2" 150 lbs, RF,	ANSI B16.5	PTFE >316Ti	2,2 kg
6H	2" 300 lbs, RF,	ANSI B16.5	PTFE >316L	3,0 kg

only DC 11, 16 TEN/TES and DC 21 TEN

7A	10 K 25 A	RF,	JIS B2210	316L
7B	10 K 40 A	RF,	JIS B2210	316L
7C	10 K 50 A	RF,	JIS B2210	316L
7D	10 K 80 A	RF,	JIS B2210	316L
7L	10 K 100 A	RF,	JIS B2210	316L
8A	10 K 25 A	RF,	JIS B2210	PTFE >316L
8B	10 K 40 A	RF,	JIS B2210	PTFE >316L
8C	10 K 50 A	RF,	JIS B2210	PTFE >316L
8D	10 K 80 A	RF,	JIS B2210	PTFE >316L
8L	10 K 100 A	RF,	JIS B2210	PTFE >316L

DC 21 TES

7C	10 K 50 A	RF,	JIS B2210	316L
8A	10 K 25 A	RF,	JIS B2210	PTFE >316L

DC 26 TEN/TES

7A	10 K 25 A	RF,	JIS B2210	316L
7C	10 K 50 A	RF,	JIS B2210	316L
8A	10 K 25 A	RF,	JIS B2210	PTFE >316L

9Y Special version

Basic type

Certificate

Build-up protection

Probe insulation

Active length L1

Continued Page 18

DC .. TE ..

Product designation (second part)




Additional weight

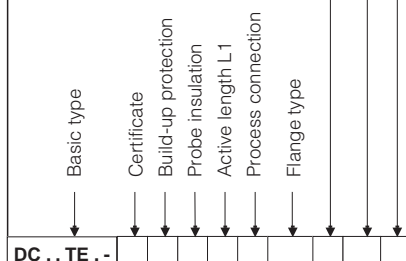
A	prepared for ECxx electronic insert with low housing cover	Additional weight
B	with EC 61 Z, 3-wire insert	0,2 kg
C	with EC 11 Z, 3-wire Tx, 33 kHz	0,2 kg
D	with EC 72 Z, 3-wire Tx, 1 Mhz	0,2 kg
E	with EC 17 Z, 2-wire PFM	0,2 kg
G	with EC 37 Z, 2-wire PFM, 33 kHz	0,2 kg
H	with EC 47 Z, 2-wire PFM, 1 Mhz	0,2 kg
K	with FEC 12, 2-wire 4-20 mA HART	0,3 kg**+ 0,3 kg
M	with FEC 22, 90...253 V AC, DPDT relay	0,3 kg**+ 0,3 kg
N	with FEC 22, 10...55 V DC, 3-wire PNP	0,3 kg**+ 0,3 kg
P	with FEC 14, PROFIBUS PA	
V	with FEC 14, Local operation FHB 20 and PROFIBUS PA	
Y	Special version	
2	prepared for FECxx electronic insert	
1	with raised housing cover	0,3 kg**

0,3 kg**

A	Polyester	F10 Housing	gland Pg16	IP66	
E	Polyester	F10 Housing	HNA24x1,5	IP66	
F	Aluminium	F6 Housing	HNA24x1,5	IP66	
G	Aluminium	T3 Housing	HNA24x1,5	IP66	
K	Polyester	F10 Housing	gland M20x1,5	IP66	
L	Aluminium	F6 Housing	gland M20x1,5	IP66	
M	Aluminium	T3 Housing	gland M20x1,5	IP66	1,0 kg
N	Aluminium	T3 Housing	PA-plug M12	IP66	1,0 kg
O	316L	F8 Housing	PA-plug M12	IP66	1,0 kg
P	Polyester	F10 Housing	Nema4X, NPT ½"		
S	Aluminium	T3 Housing	Nema4X, NPT ¾"		
T	Aluminium	T3 Housing	entry G ½ A	IP66	
Y	Special version				
1	316L	F8 Housing	gland Pg13,5	IP66	
2	316L	F8 Housing	entry G ½"	IP66	
3	316L	F8 Housing	gland M20x1,5	IP66	
4	316L	F8 Housing	entry NPT ½"	IP66	
5	Polyester	F10 Housing	PA-plug M12	IP66	
6	Aluminium	F6 Housing	PA-plug M12	IP66	

1	Basic version	
2	TAG number	
3	Temperature spacer	0,2 kg
4	Temperature spacer and TAG number	0,2 kg
9	Special version	

Length of						
Screening	L3		mm			
Partial insulation	L2		mm			
Active probe length	L1		mm			



Complete product designation for DC . . TEN / TES

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