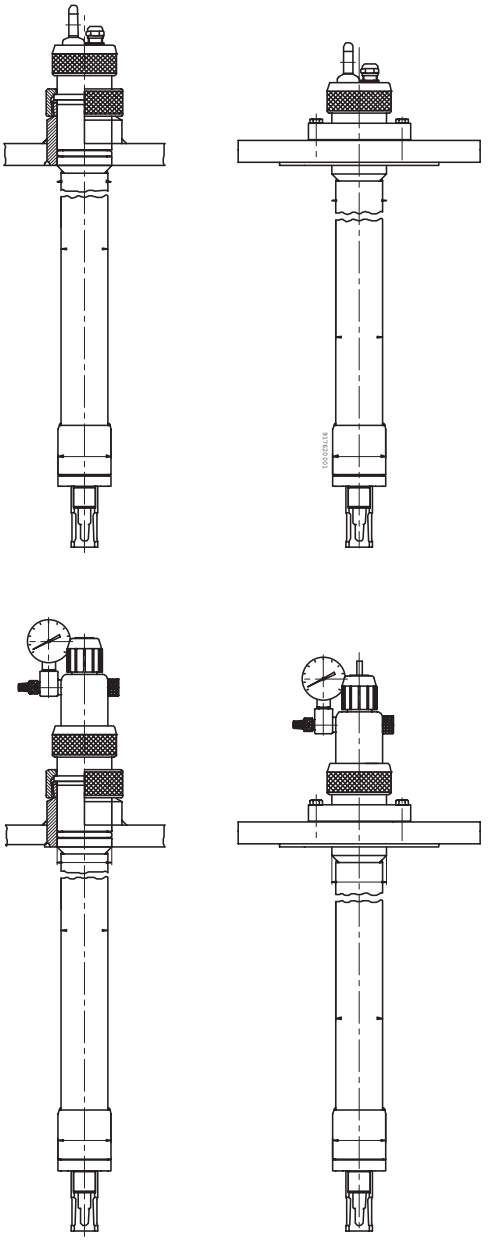
METTLER TOLEDO

InFit® 762
InFit® 763

Instruction manual



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Instruction manual

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Contents

1. Introduction

These operating instructions describe how to use the insertion housings InFit® 762 and InFit® 763.

The housings are state of the art, high grade engineering products, tested by METTLER TOLEDO. Nevertheless, improper handling could be dangerous.

Conventions

This pictogram represents safety and hazard warnings which, if ignored, could result in injuries to personnel and/or material damage.

Work on the housings should be assigned only to trained personnel.

Observe local regulations concerning the safety of people and property.

Be sure to follow the instructions in this operating manual carefully.

2. Important notes

2.1 General

Immediately on receipt, check that the housing is complete and in good condition. Particularly check the type designation on the housing head. Notify your supplier of any damage or deficiency. Please also refer to your supplier for further information on ordering spare parts or accessories.

2.2 Safety precautions

- InFit® 762 and InFit® 763 housings are designed to contain only pH and redox screwcap electrode assemblies and 12 mm DO sensors. Any other kind of use could be dangerous and is not permitted.
- The materials used for the housing are described in section 8. Make sure the materials are suitable for the required application.

- To ensure that the housing is correctly installed and maintained, follow the instructions given in this manual. Incorrect handling of the housing can result in a broken electrode and leakage from the piping.
- Before doing anything to the installed housing, ensure that the process facility is in a safe condition (release pressure, empty, rinse, vent, purge, etc.).
- Use only clean electrodes and housings. Replace damaged seals and housing components.

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- If large stirring and shear forces occur, provide the housing with additional support.
- Before starting up, always check the measuring system. Inspect the housing/electrode assembly and check for leaks from housing and apparatus.
- If ever in doubt, consult your supplier.

3. Description of product

Insertion housings InFit® 762 and InFit® 763 serve as enclosures for screwcap electrodes used for industrial pH and redox measurements. Electrodes with screw caps are easy to change and allow the electrode cables to be used repeatedly. Regardless of the overall length, the housing is fitted with a combination electrode of insertion length a = 120 mm.

The housing **InFit® 762** is intended for use with low-maintenance XEROLYT® and DPA electrodes having either a **solid or gel reference electrolyte**. With a conversion kit the housing can be modified so that electrodes with a liquid electrolyte can also be used.

The housing **InFit® 763** is intended for use with electrodes having a **liquid electrolyte**. XEROLYT® and DPA electrodes with solid or gel-like reference electrolyte can also be used.

All parts of the housing in contact with the process are of stainless steel DIN 1.4435 unless otherwise specified. The top piece is made of polypropylene and nickel-plated brass. Ingress of process medium is prevented by VITON® O-rings and a PTFE gasket; all other O-rings are of nitrile or silicone. N.B. The VITON® O-rings may substituted by other elastomers to special order.

4. Installation and start up procedures

4.1 Installation

When installing the housing, please follow the instructions given below.

4.1.1 Mounting in reactors

The housing is mounted vertically downwards on the reactor by means of a **standard flange** or a **weld-in socket**.
Note: Long housings in vessels with stirrers must be supported against the reaction forces of the stirrer and the process medium.

Socket connection

Use a weld-in socket of **DN 50** and **length 60 mm**.

When fitting the socket, **observe the relevant safety regulations** on welding.

Follow the **welding instructions** supplied with each weld-in socket.
When the weld is complete, check the diameter of the bore with an H7 gauge and ream out if necessary.

Flange connection

Connect the housing to a flange as stated in your order. The flange connection on the housing can be changed simply by replacing flange "60" and gasket "80" (see 8.3 "Spare parts and accessories"). When replacing, use a flange with the following specifications:

Flange standard	DIN (ANSI/BS/JIS)
Standard size	DN 50/80/100 (2"/3"/4")
Nominal pressure	PN 6/10/16

Use only undamaged seals and clean the sealing surfaces before fitting.

4.1.2 Installing and removing the housing

Installing

1. Clean the sealing surfaces.
2. Insert the housing in the flange/weld-in socket provided
3. Tighten the screws/ring nut.

Removing

Before removing the housing, ensure that the process facility is in a safe condition (release pressure, empty, rinse, vent, purge, etc.).

1. Remove the screws from the housing flange or unscrew the ring nut from the weld-in socket.
   Important: With the flanged version, always undo the large flange screws and never detach the housing by means of the screws "70" holding the flange (see exploded drawing 8.3.1) as this may damage an O-ring while removing the housing.
2. Draw out the housing.

4.1.3 Installing and removing the electrode

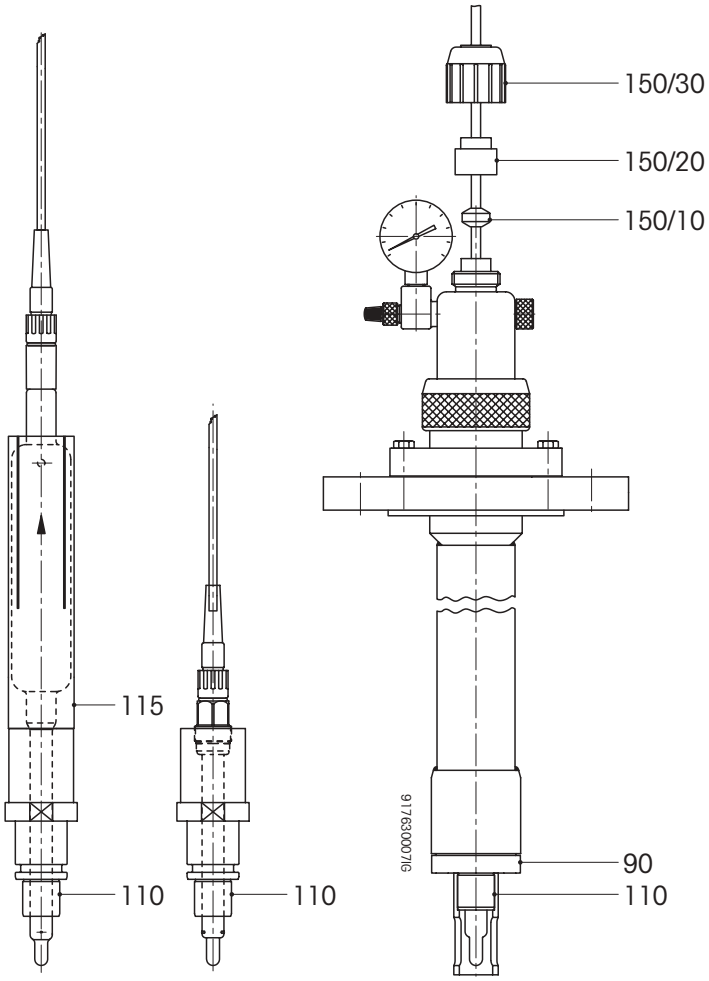
Remove the housing in order to install or remove the electrode.

Removal

1. Applies to **InFit® 763 only**:
   The compensation pressure may be reduced by slightly loosening the valve or by interrupting and venting the pressure supply.
2. Before removing the electrode, loosen the cable gland at the top of the housing so that electrode and cable can be drawn out downwards. This is done as follows:

   InFit® 762:
   Unscrew the cable union "50" (see exploded drawing in chapter 8.3.1).

   InFit® 763:
   Undo the cap nut "150/30" so that the ring seal "150/10" and sleeve "150/20" free the cable (see opposite page).
3. Unscrew the lock nut "90".
4. Pull on the insert "110" until the cable connection comes out of the immersion tube.
5. Detach the electrode from the cable.
6. Draw the electrode out of the electrode holder "115" (InFit® 763) and unscrew it from the insert "110" (InFit® 762).

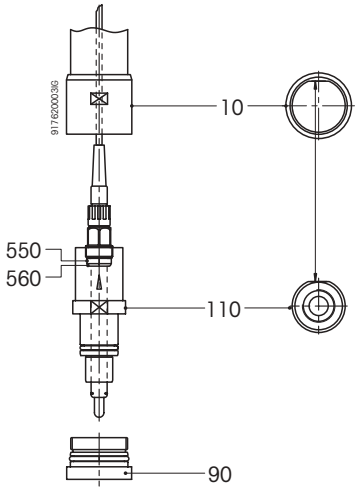


Installing

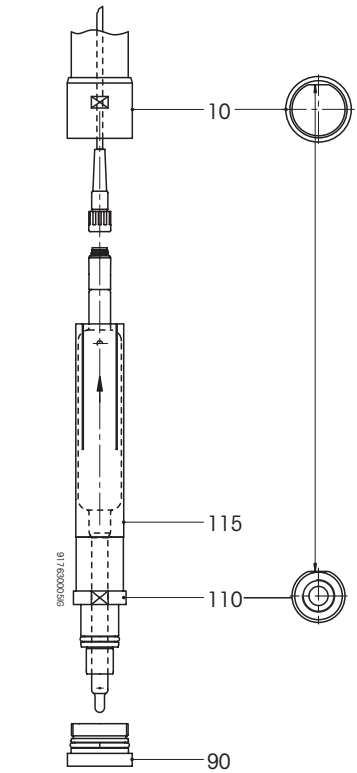
Use only clean electrodes. Make sure that sealing surfaces, seals and O-rings are undamaged and clean.

1. Remove the watering cap from the electrode end and rinse the end with water.
2. Applies to **InFit® 763 only**:
   Remove the elastic band and stopper from the electrolyte filler hole. The elastic band must be taken off completely; the electrode must not be installed with the elastic band attached.
   An InFit® 763 with the electrode inside must always be held vertical so that no electrolyte can escape from the filler hole.

3. **InFit® 762**:
   XEROLYT® electrodes are screwed directly into the insert "110".
   Make sure that the O-ring "560" and slip washer "550" are located directly under the electrode head. Then screw the electrode hand tight to the insert.



InFit® 763:
Electrodes with liquid electrolyte require the electrode holder "115".
Screw the electrode into the insert "110". Then carefully slide the electrode fully into the electrode holder.



4. Connect the electrode to the cable plug.
5. Slide the insert with the electrode fully into the immersion tube "10".
6. Pull the cable through at the housing head.
7. Turn the insert until it is fully in place and will no longer turn. Then secure it with the lock nut "90" till hand tight.
   Note: The lock nut "90" cannot be fastened unless the insert "110" is fully pushed in to the correct position!
8. **InFit® 762**:
   Now tighten the cable gland "50".

   InFit® 763:
   Now tighten the cap nut "150/30".

Details on connecting the cable to the pH/redox transmitter are to be found in the operating instructions for the pH/mV transmitter.

4.1.4 Attaching the cable

InFit® 762:

1. Undo the ring nut "160" and remove the top piece of the housing.
2. Push the free ends of the cable up through the cap "20" and the cable gland "50" (see exploded drawing 8.3.1).
3. Then reassemble the top piece.

InFit® 763:

1. Undo the ring nut "160" and remove the top part of the housing.
2. Push the free ends of the cable up through the top piece (see exploded drawing 8.3.2).
3. Then reassemble the top piece.

Notes:

– Use cable ST-Koax5 for process temperatures below 80 °C.
– Use cable HT-Koax5 for process temperatures above 80 °C.

4.1.5 Checking for correct installation

Each time before starting up, check the measuring system. Inspect the electrode assembly and examine for leaks from housing and apparatus (see also section 7).

Do not begin operation until the measuring system has been checked and any necessary corrective action taken.

4.2 Start up

4.2.1 Calibrating the electrode assembly

Remove the electrode (see 4.1.3 "Installing and removing the electrode").

Details of the calibration procedure are given in the operating instructions for the electrode and the pH/mV transmitter.

After installing the assembly, check it for leaks (see also section 7).

4.2.2 Pressure compensation (InFit® 763 only)

Pressure compensation is necessary only if you use an electrode with liquid electrolyte. You may skip this section if you use a XEROLYT® electrode with solid electrolyte or a pressurized gel electrode.

The pressure in the reference electrode must always be higher (by 0.2 to 2 bar) than that of the medium (pressure in stirrer vessel) to ensure an outward flow of electrolyte.
Remember that the hydrostatic pressure of the medium must be taken into account.
The compensating pressure for the reference electrode is provided by the air pump or some other oil and dust-free pressure source. If the latter is chosen, replace the valve assembly with the pressure connector assembly provided. The pressure can be read from the gauge.

If the air pump is used for this purpose, the pressure must be frequently checked and adjusted.

The compensation pressure may be reduced by slightly loosening the valve assembly or by interrupting and venting the pressure supply.

5. Routine operation

Applies to **InFit® 763 only**:
In the case of electrodes with liquid electrolyte, the store of electrolyte diminishes steadily as it flows out through the diaphragm. The level must therefore be checked regularly.
Top up the electrolyte when the level falls close to the bottom of the reservoir bulb. To do this, remove the housing and electrode (see 4.1.2 "Installing and removing the housing" and 4.1.3 "Installing and removing the electrode").

For further details on routine use of the electrode, consult the electrode operating instructions.

Details on using the pH/mV transmitter are contained in the operating instructions for the transmitter.

6. Maintenance

The electrode and housing must be kept clean.
Replace any damaged seals or components of the housing.

The insertion housing can be sterilized in situ with the electrode installed.
Autoclaving or otherwise heating the complete assembly is not possible.

Details on maintenance of the electrode are contained in the electrode operating instructions.

7. Trouble-shooting

Applies to **InFit® 763 only**:
A defective or poorly installed housing will leak. Testing for leaks is done with the electrode in place. For this, set the pressure in the housing to 6 bar, using the air pump. A leakproof housing loses less than 0.5 bar in 10 hours.

Test the tightness of the flange joints in the same way as the other flange joints on your reactor.
To check the seal between socket and housing, the reactor must be air-pressurized. Any air escaping can be detected with an air-detecting spray.
A leaky connection can be cured by cleaning the sealing surfaces and lubricating the seals with a silicone-free grease. Faulty seals must be replaced.

Caution! Do not do anything to the housing before the pressure in the piping and housing has been released again.

Damaged or faulty parts of the housing must be replaced for safety reasons.

8. Specifications

8.1 Delivery

A standard delivery comprises the following items:

InFit® 763:

- Housing InFit® 763
- Bicycle pump
- Instruction manual
- Electrolyte top-up syringe
- Pressure connector assembly

InFit® 762:

- Housing InFit® 762
- Instruction manual

Conversion kit InFit® 762 to InFit® 763:

- Top piece complete with pressure gauge 0 to 6 bar
- Electrode holder
- Bicycle pump
- Electrolyte top-up syringe
- Pressure connector assembly

8.2 Technical specification

Environmental condition

temperature range	- 30…80 °C

Process conditions

temperature range	[TS] -30…140 °C
Max. pressure	[PS] 6 bar
working pressure depending on typ of sensor	[PS] 0…6 bar

Connections

Flange:

Flange standard	DIN (ANSI/BS/JIS)
Standard size	DN 50/80/100 (2"/3"/4")
Nominal pressure	PN 6/10/16

Weld-in socket:

Diameter	ø50-H7
Thread	R 2"
Length	60 mm

Materials (standard version)

Top piece	Nickel-plated brass, polypropylene
Wetted parts	Stainless steel DIN 1.4404, Surface roughness <1.6µm, VITON® O-rings PTFE gasket plate
Special versions	see 8.3.1/8.3.2
Dimensions	**see Appendix A and B**

Pressure information

ccording to PED-Article 1, Section. 2.2,:«Pressure» is referenced to atmospheric pressure, e.g. an overpressure. Accordingly, a pressure in the vacuum region will be expressed as a negative pressure.

8.3 Spare parts and accessories

To order spare parts and accessories, contact your supplier.

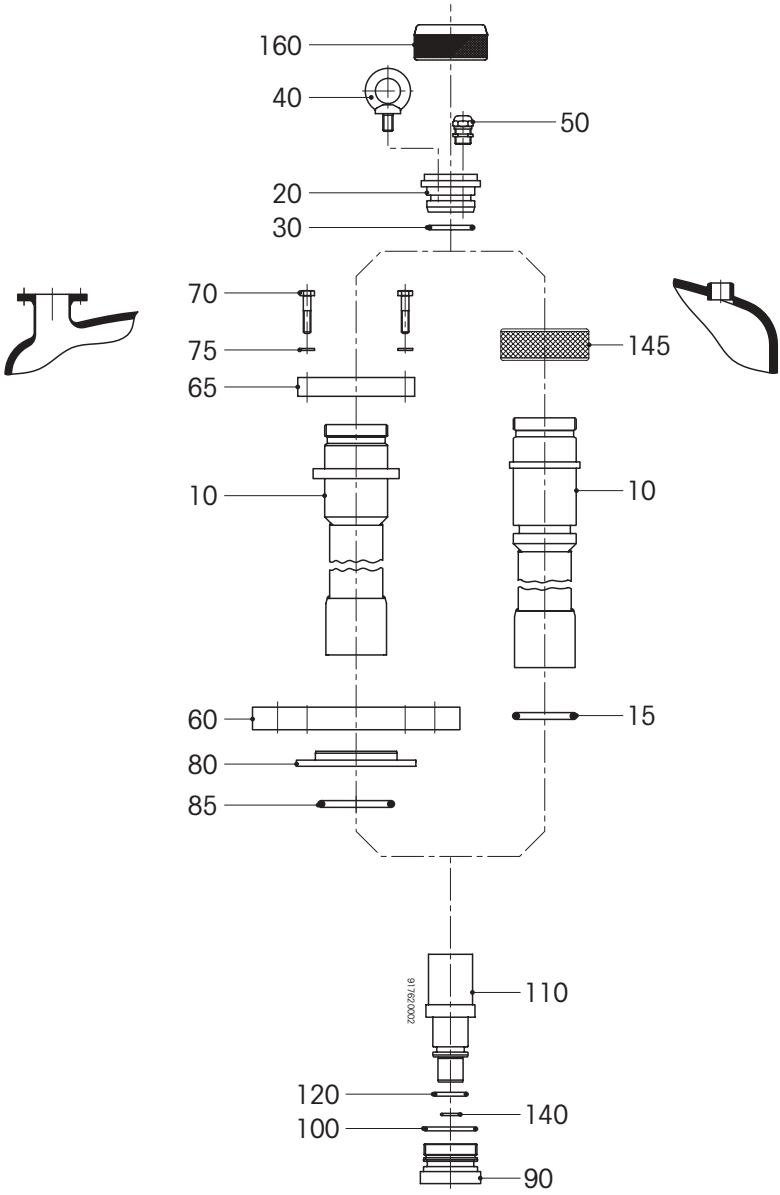
8.3.1 Housing InFit® 762

Shown below is the key to the numbered parts in the exploded drawing.

The parts marked with ***** can be of different lengths, sizes and materials, depending on type. When ordering these parts, state the description in the list and the type designation etched in the top piece. The type designation must also be consulted when ordering O-rings. The letters "KA" indicate that KALREZ® O-rings must be used.

In the case of wetted spare parts, check the engraved or etched material identification.
If in any doubt, ask your supplier.

No.	Description	Material	Order No.
* 10	Immersion tube H= x		
* 15	O-ring 40.64x5.33	VITON®	20 302 1008
* 15	O-ring 40.65x5.33	KALREZ®	20 304 1007
20	Cap	stainless steel 1.4435	00 762 1001
30	O-ring 30.80x3.60	silicone	20 301 1007
40	Screw eye M8	nickel-plated brass	20 401 1000
50	Cable gland PG7/4-7/MS	nickel-plated brass	20 503 1013
* 60	Flange	stainless steel 1.4404	
65	Mounting plate	stainless steel 1.4435	52 400 035
70	Hex screw DIN 931-M6x25	stainless steel 1.4435	20 400 1113
75	Spring washer DIN 127B-M6	stainless steel 1.4435	20 400 1019
* 80	Gasket	PTFE	
* 85	O-ring 50.16x5.34	VITON®	20 302 1152
* 85	O-ring 50.16x5.34	KALREZ®	20 304 1029
* 90	Lock nut	stainless steel 1.4404	52 400 047
* 100	O-ring 36.10x3.53	VITON®	20 302 1153
* 100	O-ring 36.13x3.53	KALREZ®	20 304 1030
110	Insert	stainless steel 1.4404	52 400 044
* 120	O-ring 20.22x3.53	VITON®	20 302 1154
* 120	O-ring 20.22x3.53	KALREZ®	20 304 1031
* 140	O-ring 10.5x2.7	VITON®	20 302 1000
* 140	O-ring 10.78x2.62	KALREZ®	20 304 1000
145	Ring nut R2"	stainless steel 1.4435	00 763 1034
160	Ring nut M50x2	stainless steel 1.4435	00 763 1037



Exploded drawing of housing InFit® 762

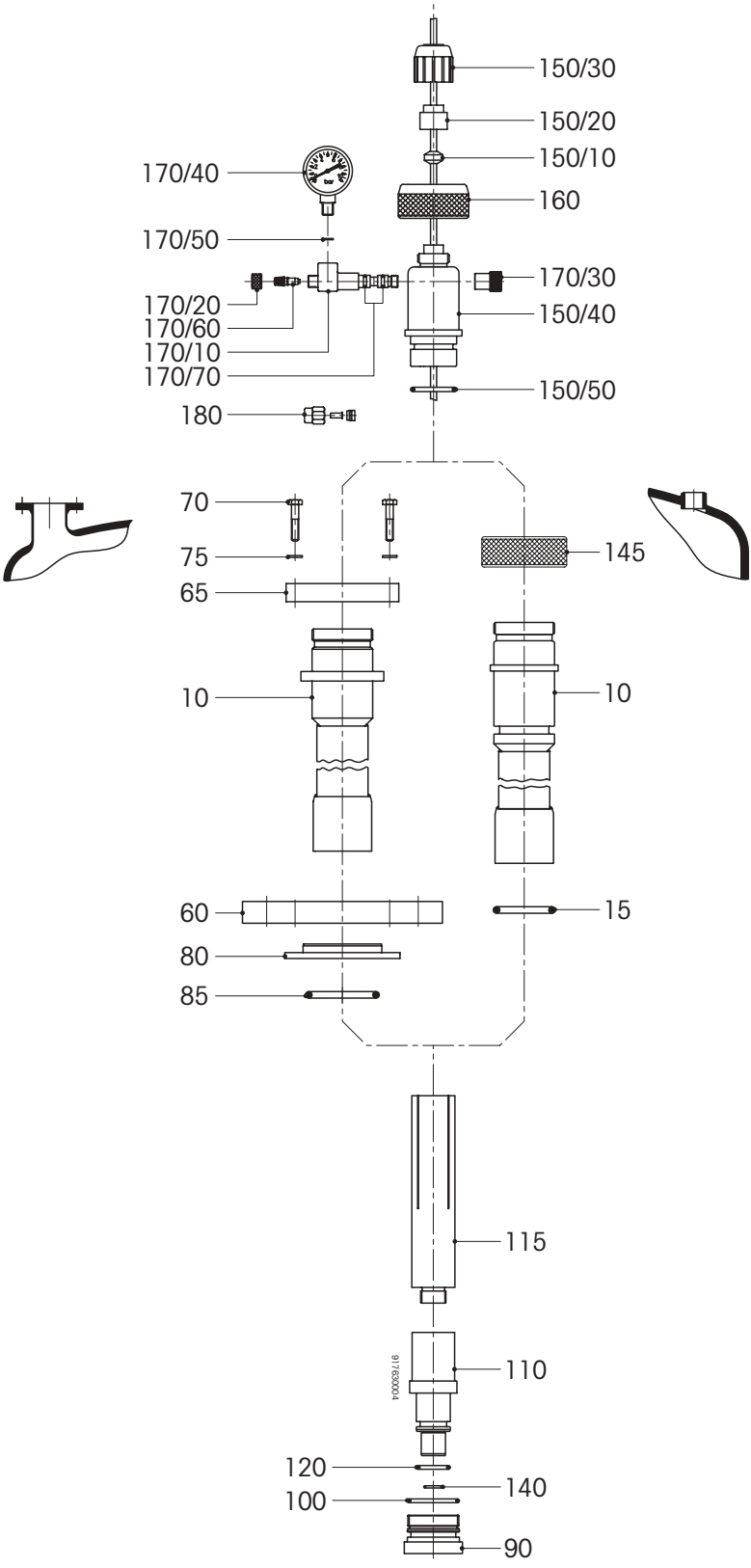
8.3.2 Housing InFit® 763

Shown below is the key to the numbered parts in the exploded drawing.

The parts marked with * can be of different lengths, sizes and materials, depending on type. When ordering these parts, state the description in the list and the type designation etched in the top piece.The type designation must also be consulted when ordering O-rings. The letters "KA" indicate that KALREZ® O-rings must be used.

In the case of wetted spare parts, check the engraved or etched material identification.
If in any doubt, ask your supplier.

No.	Description	Material	Order No.
150	Top piece complete		00 763 2005
150/10	Ring seal	neoprene	00 552 1011
150/20	Sleeve	PP	00 552 1012
150/30	Cap nut	PP	00 552 1015
150/40	Top piece	PP	00 763 1035
150/50	O-ring 30.8x3.6	silicone	20 301 1007
160	Ring nut M50x2	stainless steel 1.4435	00 763 1037
170	Gauge 0 to 6 bar complete		00 764 2045
170/10	Valve body 764	nickel-plated brass	00 764 1062
170/20	Valve nut	nickel-plated brass	00 764 1061
170/30	Nut	nickel-plated brass	00 764 1060
170/40	Gauge 0 to 6 bar		20 100 1001
170/50	Gauge gasket	copper	20 102 1000
170/60	Valve		20 102 1001
170/70	O-ring R5a	nitrile	20 300 1002
180	Pressure connector		20 102 2000
* 10	Immersion tube H= x		
* 15	O-ring 40.64x5.33	VITON®	20 302 1008
* 15	O-ring 40.65x5.33	KALREZ®	20 304 1007
* 60	Flange	stainless steel 1.4404	
65	Mounting plate	stainless steel 1.4435	52 400 035
70	Hex screw DIN 931-M6x25	stainless steel 1.4435	20 400 1113
75	Spring washer DIN127B-M6	stainless steel 1.4435	20 400 1019
* 80	Gasket	PTFE	
* 85	O-ring 50.16x5.34	VITON®	20 302 1152
* 85	O-ring 50.16x5.34	KALREZ®	20 304 1029
* 90	Lock nut	stainless steel 1.4404	52 400 047
* 100	O-ring 36.10x3.53	VITON®	20 302 1153
* 100	O-ring 36.13x3.53	KALREZ®	20 304 1030
110	Insert	stainless steel 1.4404	52 400 044
115	Electrode holder	PVDF	52 400 036
* 120	O-ring 20.22x3.53	VITON®	20 302 1154
* 120	O-ring 20.22x3.53	KALREZ®	20 304 1031
* 140	O-ring 10.5x2.7	VITON®	20 302 1000
* 140	O-ring 10.78x2.62	KALREZ®	20 304 1000
145	Ring nut R2"	stainless steel 1.4435	00 763 1034



Exploded drawing of housing InFit® 763

8.3.3 Converting from InFit® 762 to InFit® 763

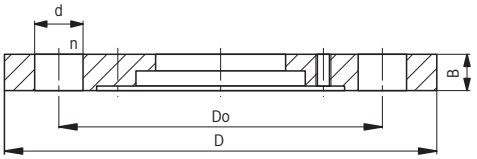
The InFit® 762 housing can be converted for use with electrodes containing liquid electrolyte. For this purpose, order the conversion kit (see 8.3.5 "Accessories"). To convert:

1. Remove the housing and electrode as described in 4.1.2 and 4.1.3.
2. Detach the cable as described in 4.1.4.
3. Take off the top piece of the InFit® 762 housing (20, 30, 40, 50 and 160, see exploded drawing 8.3.1) and then
4. Fit the new top piece (see exploded drawing 8.3.2).

With this conversion you now have an InFit® 763 housing. Follow the instructions regarding operation and maintenance of housing InFit® 763.

8.3.4 Flange table

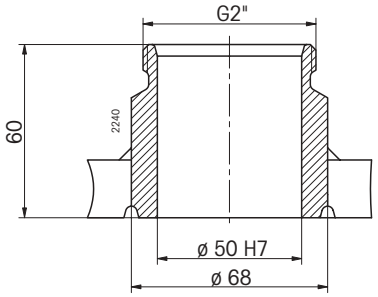
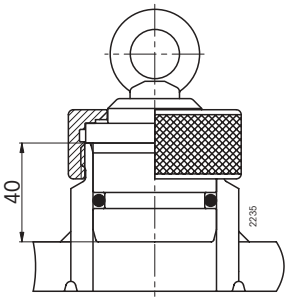
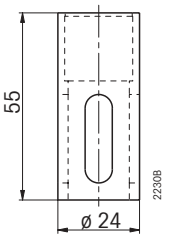
Standard blank flange	Nominal diameter	Nominal pressure	D	Do	B	d	n	Flange article number	Gasket article number
DIN	DN 50	6	140	110	14	14	4	52 400 006	52 400 030
		10	165	125	18	18	4	52 400 007	52 400 030
		16	165	125	18	18	4	52 400 007	52 400 030
	DN 80	6	190	150	16	18	4	52 400 008	52 400 031
		10	200	160	20	18	8	52 400 009	52 400 031
		16	200	160	20	18	8	52 400 009	52 400 031
	DN 100	6	210	170	18	18	4	52 400 010	52 400 032
		10	220	180	20	18	8	52 400 011	52 400 032
		16	220	180	20	18	8	52 400 011	52 400 032
BS	DN 50	6	140	110	16	14	4	52 400 013	52 400 030
		10	165	125	20	18	4	52 400 014	52 400 030
		16	165	125	20	18	4	52 400 014	52 400 030
	DN 80	6	190	150	18	18	4	52 400 015	52 400 031
		10	200	160	20	18	8	52 400 009	52 400 031
		16	200	160	20	18	8	52 400 009	52 400 031
	DN 100	6	210	170	18	18	4	52 400 010	52 400 032
		10	220	180	22	18	8	52 400 016	52 400 032
		16	220	180	22	18	8	52 400 016	52 400 032
ANSI	2"	150	152	120	20	19	4	52 400 017	52 400 030
	3"	150	190	152	24	19	4	52 400 018	52 400 031
	4"	150	240	190	24	19	8	52 400 019	52 400 032
JIS	DN 50	5	130	105	14	15	4	52 400 020	52 400 029
		10	155	120	16	19	4	52 400 021	52 400 030
		16	155	120	16	19	8	52 400 022	52 400 030
	DN 80	5	180	145	14	19	4	52 400 023	52 400 031
		10	185	150	18	19	8	52 400 024	52 400 031
		16	200	160	20	23	8	52 400 025	52 400 031
	DN 100	5	200	165	16	19	8	52 400 026	52 400 032
		10	210	175	18	19	8	52 400 027	52 400 032
		16	225	185	22	23	8	52 400 028	52 400 032

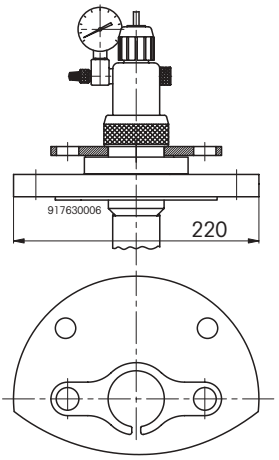


Key:

D	Outside diameter	d	Screw hole diameter
Do	Hole-centre diameter	n	Number of screws
B	Flange thickness		

8.3.5 Accessories

Description	Order No.
Cable AS9/HT-Koax 5 Temperature range -30 to 130 °C 3 m 5 m 10 m	 10 001 0315 10 001 0515 10 001 1015
Cable AS9/ST-Koax 5 Temperature range -30 to 80 °C 3 m 5 m 10 m	 10 001 0302 10 001 0502 10 001 1002
Weld-in socket L = 60 mm 1.4435 stainless steel 1.4571 stainless steel HASTELLOY® -C22 	 00 763 1038 00 763 1144 00 763 1299
Blind plug For closing off the weld-in socket 1.4435 stainless steel 	00 763 2000
Protective cage 1.4404 stainless steel 1.4571 stainless steel HASTELLOY® -C22 	 00 764 1046 00 764 1210 00 764 1328

Description	Order No.
Suspension device Suspension plate 	52 400 050
Conversion kit InFit® 762 to InFit® 763	52 400 067
O-ring set for InFit® 762/763 with flange connection	52 400 115
O-ring set for InFit® 762/763 with socket connection	52 400 114

8.3.6 Electrodes

The InFit® 762 housing is suitable for low-maintenance XEROLYT® electrodes with solid reference electrolyte and electrodes with pressurized gel electrolyte. The electrode insertion length "a" is 120 mm.
The InFit® 763 housing is used for electrodes with liquid electrolyte. The insertion length "a" is 150 mm.

Description	Order No.
XEROLYT® electrodes:	
pH: type HA405-DXK-S8/120	10 405 4287
redox: type Pt4805-DXK-S8/120	10 505 3288
Gel electrodes:	
pH: type HA405-DPA-SC-S8/120	10 405 4476
redox: type Pt4805-DPA-SC-S8/120	10 505 3339
Electrodes with liquid electrolyte:	
pH: type HA465-50-T-S7/150	10 465 4154
redox: type Pt4865-50-S7/150	10 565 3088

For other electrodes and further information on electrodes, please refer to the electrode documentation or ask the supplier of your housing.

8.4 Warranty

The housings are of high technical quality and undergo a policy of continuous design review to incorporate the latest advances. Their reliability is ensured by a thorough final inspection prior to leaving our factory.

The warranty is valid for one year from the date of delivery and covers any defects due to faulty materials or manufacture.

Not covered by the warranty are normal wear and tear and any damage caused by improper use (e.g. chemical incompatibility of the materials, etc.).

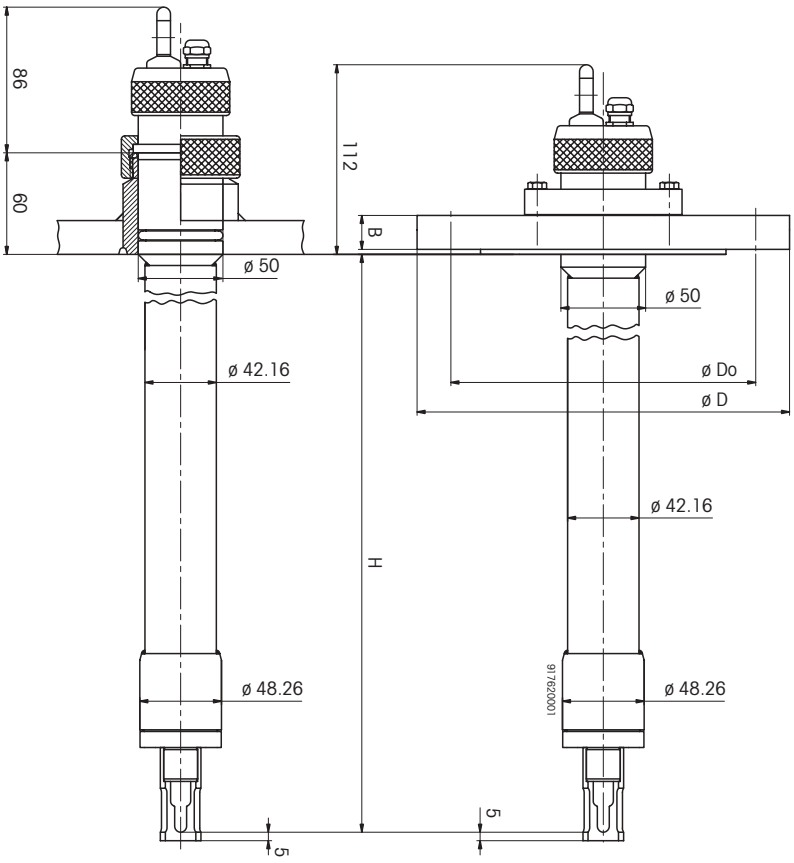
The warranty extends only to replacement or repair of deficient products, at our discretion.

The warranty is void if the customer or others modify in any way the products supplied by us. Defects must be reported to the supplier immediately upon discovery, and in all events within the warranty period.

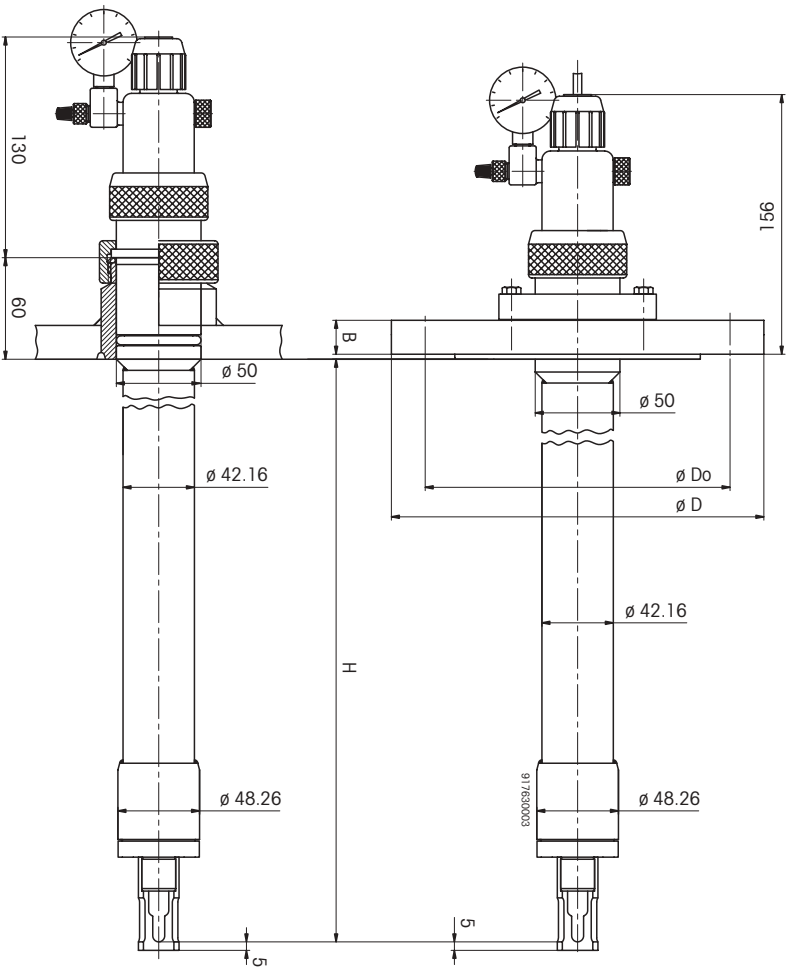
52 400 140

9. Appendix

A Dimension drawing InFit® 762



B Dimension drawing InFit® 763



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