

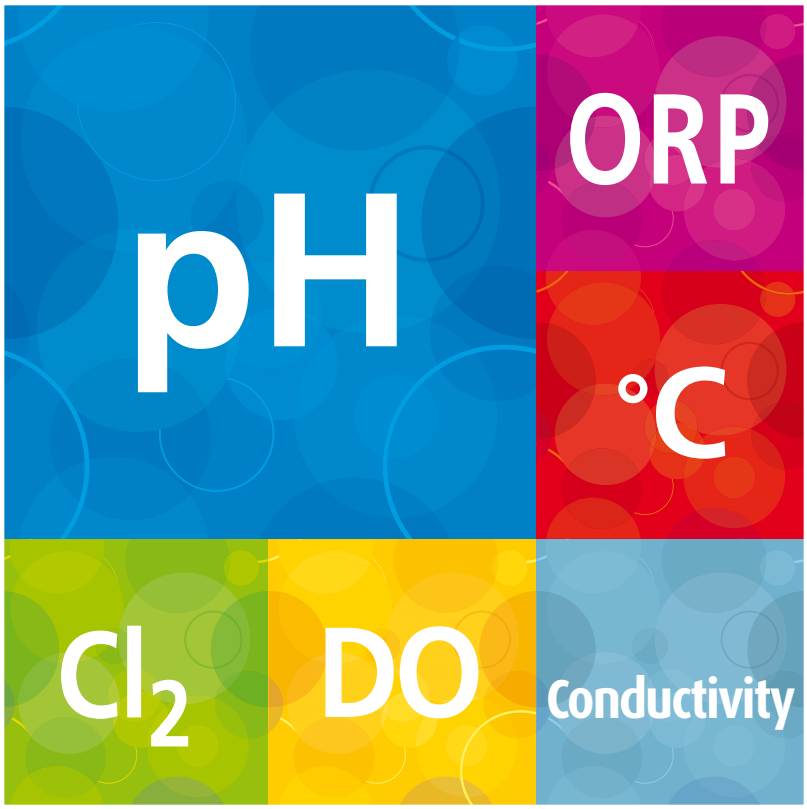


Process Electrochemistry Made Easy

pH, Oxidation Reduction Potential, Conductivity, Dissolved Oxygen and Chlorine

HACH®

Be Right™


pH
ORP
°C
Cl2
DO
Conductivity

Contents

One-channel Instruments for pH, ORP, Conductivity, DO and Free Chlorine 4

pH and ORP Electrodes 6-8
- Main Components 6
- Key Features 7
- Applications 8

pH Electrodes 9-10
- With Temperature Sensor 9
- Basic 10

Platinum and Gold ORP Electrodes 12

Conductivity Cells 14

Dissolved Oxygen Sensor, Amperometric 16
- Clark Cell. Measuring Principle
- DO Amperometric Sensor

Free Chlorine Sensor, Galvanic 17
- Sensor with Membrane. Measuring Principle
- Amperometric Chlorine Sensor

Free Chlorine Sensor, Amperometric 18
- Galvanic Sensor
- Amperometric Sensor

Atc Temperature Probes 19

Mounting Hardware 20-21
- Immersion Fitting 20
- "Flotation" Fitting 20
- Insertion Fitting 21
- Flow-through Fittings 21

Accessories 22
- Cables
- Connectors
- Accessories

Orders 23

Contact 24

One-channel Instruments for pH, ORP, Conductivity, DO and Free Cl_2

Common Features

- Simultaneous display of measured parameter and temperature.
- Operating and alert messages provided on the display.
- Automatic standard recognition and built-in diagnostics for electrode condition to automatically reject or accept during calibration.
- During calibration and programming the instrument remains on hold.
- Only authorized personnel have access to calibration and programming. An access code prevents unauthorized personnel from interrupting measurement.
- The transmitters and controllers enable interactive dialog in Spanish, English, German, French, Italian and Portuguese.



Wall-mounting Versions. Keypad and display protected by a see-through cover with air tight seal. IP55 protection.



Panel Versions, "P". Specific for standardized panel mounting, 96 x 96 mm. IP54 protection.



pH °C or ORP °C pH/mV Control

si627 P, Transmitter (panel version only)

- pH or mV measuring range
- Active pH/mV transmitter (4 wires)
- Analog signal, 4-20 mA

si628 P, Controllers

- pH or mV measuring range
- Analog output, 4-20 mA
- ON /OFF control
- Two relays that can be programmed either as maximum or minimum

si629 P, Controllers

- pH or mV measuring range
- Analog output, 4-20 mA
- Three relays: limit, alarm and sensor cleaning
- ON /OFF control
- Proportional control
- Indirect calibration at any pH value
- Data logger for up to 200 measurements
- Possibility of manually checking the analog output and relay activation
- Selectable temperature sensor, Pt 100 or Pt 1000

Models	si627 P	si628 P	si629 P
Measuring ranges	pH: -2.00 to 16.00 mV: -1500 to 1500 Temp.: -20.0 to 150.0°C	pH: -2.00 to 16.00 mV: -1500 to 1500 Temp.: -20.0 to 150.0°C	pH: -2.00 to 16.00 mV: -1500 to 1500 Temp.: -20.0 to 150.0°C
Automatic calibration	●	●	●
Indirect calibration at any value	–	–	●
Programmable analog output	●	●	●
On/Off control	–	●	●
Proportional control	–	–	●
Limit relay	–	2	1 or 2
Cleaning or alarm relay	–	–	1 or 2
Data storage, Data Logger	–	–	●
Versions	panel	wall and panel	wall and panel







Conductivity Control

All versions have a special measuring circuit allowing the selected cell to cover a wide range of electrical conductivities.

si628 C, Controllers

- Fixed temperature coefficient of 2%/ºC
- Analog output, 4-20 mA
- ON /OFF control
- Two relays, one limit and one alarm

si629 C, Controllers

- Allows conductivity to be expressed as salinity (NaCl)
- Programmable temperature coefficient between 0 and 5%/ºC
- Reference temperature 20 to 25ºC
- Analog output, 4-20 mA
- Three relays: limit, alarm and sensor cleaning
- ON /OFF control
- Indirect calibration at any conductivity value
- Data logger for up to 200 measurements
- Possibility of manually checking the analog output and relay activation

DO Control

si629 D, Controllers

- In-air calibration, 100% saturation
- During calibration, the display indicates the current reading of the electrode. Very useful for electrode diagnosis
- Salinity correction
- Correction of atmospheric pressure
- Analog output, 4-20 mA
- Three relays: limit, alarm and sensor cleaning
- ON/OFF control
- Data logger for up to 200 measurements
- Possibility of manually checking the analog output and relay activation
- Amperometric sensor, with membrane

Free Chlorine Control

(for galvanic sensor)

si628 CL, Controllers

- Sensor calibration at one or two points
- Analog output, 4-20 mA
- Three relays: limit, alarm and flow alarm
- ON /OFF control
- Possibility of manually checking the analog output and relay activation

Free Chlorine Control

(for amperometric sensor)

si629 CL, Controllers

- Sensor calibration at one point
- Analog output, 4-20 mA
- Three relays: limit, alarm and flow alarm
- ON/OFF and proportional control
- Data logger for up to 200 measurements
- Possibility of manually checking the analog output and relay activation

si628 C	si629 C	si629 D	si628 CL	si629 CL
Conductivity: 0.01 to 199900 uS/cm Temp.: -20.0 to 150.0ºC	Conductivity: 0.01 to 199900 uS/cm Temp.: -20.0 to 150.0ºC	DO: 0.0 to 200.0 % 0.00 to 20.00 ppm Temp.: 0.0 to 50.0 ºC	Cl_2: 0.00 to 5.00 ppm Temp.: 0.0 to 60.0 ºC	Cl_2: 0.00 to 20.00 ppm
•	•	•	–	–
–	•	–	•	•
•	•	•	•	•
•	•	•	•	•
–	–	–	–	–
1	1 or 2	1	1	1
1	1 or 2	2	2	2
–	•	•	–	•
wall and panel	wall and panel	wall and panel	wall and panel	wall and panel

HACH®

Be Right™

pH and ORP Electrodes. Main Components

Head

Connector

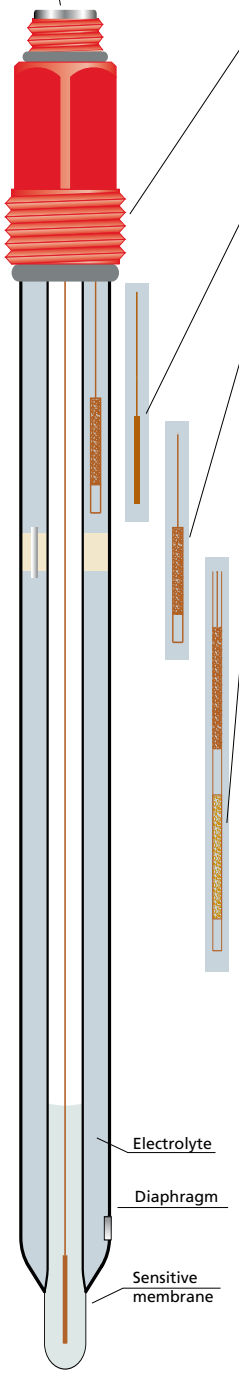
S8 Coaxial - for standard electrodes.

MP-4 Multiple - for electrodes with temperature sensor.

Fixed Cable - no connector.

Screw Cap

PG 13.5 - type, standard to all manufacturers.



Reference Element

This is a "cell" that supplies a stable potential (mV). There are a number of types:

Silver Wire (Ag)

This is the typical reference element for low-cost electrodes.

Encapsulated AgCl Crystals (cartridge)

The silver wire comes into contact with a portion of the AgCl crystals inside a small glass tube.

Ag^+ Ion Barrier

In some electrodes, the tube with the Ag/AgCl is lengthened to house a chemical substance that acts as a barrier to silver ions. This prevents clogging of the diaphragm due to the formation and precipitation of AgCl and Ag_2S.

Sleeved Silver Wire

This consists of silver wire coated with Ag/AgCl and protected by a tube. This protects the reference element from possible changes in the electrolyte.

Electrolyte

This is a highly concentrated saline solution into which the reference element is submerged. It comes in three forms: liquid, gel or solid (polymer), depending on the type of electrode.

Liquid Electrolyte - Used in refillable electrodes. There are various types suitable for different applications. They are all KCl-based.

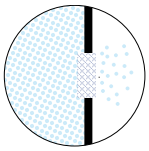
Gel Electrolyte - Used in non-refillable or "low maintenance" electrodes. Most are glycerine gels. Electrodes with large PTFE diaphragms include a polyacrylic gel, which allows for reduced electrolyte diffusion through the diaphragm.

Solid Electrolytes -These are also used in "non-refillable" electrodes. They are made of a conducting polymer.

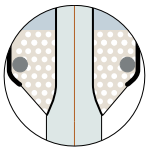
Diaphragm

This is the point of union between the sample and the electrolyte. It is the critical part of the electrode as it has a direct influence on its lifespan. A wide range of diaphragms are available. These vary according to manufacturer, application, quality and price. The Hach electrodes have ceramic, porous PTFE and open diaphragms.

The Ceramic Diaphragm - is a chemically inert, porous ceramic plate. These are the traditional diaphragms. They allow a very small flow of electrolytes towards the sample. This flow is greater in pressurized electrodes.



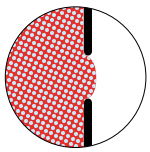
Porous PTFE - consisting of a large ring of porous PTFE through which contact between the electrolyte and the sample is made possible. The conductivity of the sample is barely altered, thanks to the low level of flow provided by the polyacrylic electrolyte.

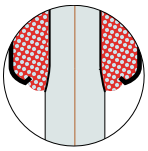


Open - which should in fact be called "diaphragmless". The sample and the electrolyte are in direct contact. There is no electrolyte flow. It is only used in electrodes with solid electrolyte (polymer).

There are two types:

- lateral orifice in the body of the electrode.
- circular, ring-like groove between the main body, the indicator electrode, and the reference electrode. Ensures excellent contact with the sample.





Glass Membrane

The composition of the glass membrane effects characteristics such as the sensitivity, chemical, thermal and mechanical resistance of the electrode or the measuring range, e.g. a pH of 0-12, 0-14. There are membranes with special types of glass, for example, to measure pH in the presence of a certain concentration of HF. There are also special membranes for measuring at extremely low temperatures (-30ºC). A large membrane is a mark of quality. The speed of the electrode response depends directly on the quality of the membrane.

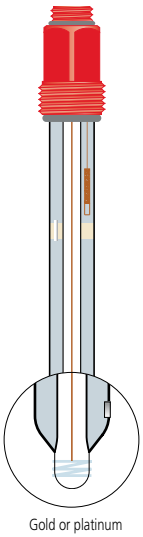
Electrodes for Measuring ORP

(Oxidation-Reduction Potential, ORP)

These are also called "metal" electrodes and are made from platinum or gold. They are used to measure the oxidation or reduction potential of a solution. Their connectors, reference elements, electrolyte and diaphragms come in the same forms as pH, but the glass membrane is replaced by a ring or wire made from a noble metal, usually platinum.

Platinum: recommended for highly oxidizing samples.

Gold: recommended for acid solutions, or those containing Cr or Fe.



Key Features

Code	Measurement	Indicator Metal: Platinum	Indicator Metal: Gold	Gel Electrolyte	Polymer Electrolyte	Protected Reference System	Clog-proof Diaphragm	Hf Resistance	Resistance to High Temperatures ≥ 100°c	Steam Sterilizable	Autoclavable	Integrated ATC	Fixed-cable	Low-cost	Page
53 00	pH			•										•	10
53 03	pH			•		•									10
53 30	pH			•		•	•		•						10
53 33	pH			•		•								•	11
53 34T	pH			•		•	•		•			•			9
53 35	pH				•	•	•								11
53 36T	pH			•		•						•			9
53 37T	pH				•	•	•					•			9
53 38	pH			•									•	•	11
53 41	pH			•		•		•							11
53 64	pH				•	•	•		•	•	•				11
53 50	ORP	•		•		•	•		•						12
53 53	ORP	•		•		•								•	12
53 54	ORP		•	•		•								•	12
53 55	ORP	•			•	•	•								13
53 58	ORP	•		•									•	•	13
53 61	ORP	•		•										•	13
53 62	ORP	•		•		•									13

Definitions

Electrolyte: Liquid, Gel Or Polymer - See page 6.
Protected Reference System - Electrodes with elements designed to prevent reference element contamination and keep the potential as stable as possible.
Clog-proof Diaphragm - This characteristic is due to its shape, having a large diaphragm, the lack of a diaphragm, an open diaphragm, or the type of electrolyte.
HF Resistance - The resistance of the membrane depends on the HF concentration and pH of the sample.
Resistance to High Temperatures - Whether under continuous conditions or occasionally, for example, during sterilization.
Steam Sterilizable - Can withstand steam "sterilization-in-place".
Autoclavable - Can be sterilized in an autoclave.
Electrodes with Integrated ATC - These allow the simultaneous measuring of pH and temperature at the same point. Their main advantage is that they simplify installation. The pH and temperature are transmitted to the instrument with a single sensor, probe and cable.
Low-cost Electrodes - Electrodes manufactured on a large scale or simple electrodes for straightforward applications.
Indicator Metal -
Platinum: recommended for highly oxidizing solutions.
Gold: recommended in acid solutions or those containing Cr or Fe.

Applications

Application	pH	O.R.P.	Comments
Water Treatment			
Potable water	53 00 / 38 / 03 / 36T / 33	53 53 / 58 / 61 / 62	
Boiler water	53 00 / 38 / 03 / 36T / 33	53 53 / 58 / 61 / 62	
Cooling water	53 30 / 34T / 03 / 36T	53 50 / 62	Low conductivity samples. Electrodes are required where the diaphragm has a large contact area.
Gas scrubbing towers	53 33 / 41	53 53	These samples can contain HF so it may be necessary to use HF-resistant electrodes.
Agriculture	53 00 / 38	53 61 / 58	
Swimming pools	53 00 / 38	53 61 / 58	Precision electrodes at very competitive prices are usually required.
Fish-farming	53 00 / 03 / 36T / 38	53 61 / 53 / 58	
Wastewater Treatment			
Industrial water	53 30 / 34T / 35 / 37T	53 50 / 55	These are very dirty samples, so an electrode with a clog-proof diaphragm will be required.
Municipal wastewater (biological WWTP)	53 35 / 37T	53 55	
Galvanizing industry	53 03 / 36T	53 62	
Heavy-metal precipitation	53 03 / 34T / 35 / 37T		
Decontamination	53 33	53 54	In very acidic media containing chromium, gold electrodes are recommended for ORP measurement.
Oil in water	53 35		An electrode with an open diaphragm guarantees correct measurement in this type of medium.
Tannery water	53 35 / 37T / 64		A highly resistant electrode is recommended.
Food and Beverage			
Water for beverages	53 33		
Milk products	53 30 / 34T / 64		Periodic maintenance of these electrodes should be carried out using a protein-cleaning solution.
Wines	53 30 / 34T	53 50	This electrode avoids the problems associated with diaphragm clogging caused by the sample.
Purification of beet sugar	53 64		These applications require electrodes that are highly resistant both to the medium and to the CIP and sterilization processes.
Production of edible fats	53 64		
CIP processes	53 64		The electrodes must be resistant to highly alkaline media and high temperatures.
Soft drinks	53 03 / 30 / 33		
Pharmaceutical Industry			
Fermenting	53 64		High-precision electrodes must be used that are also resistant to steam sterilization and CIP processes.
Biotechnology	53 64		
Chemical Industry			
Starch production	53 64		Electrodes resistant to high temperatures and appropriate for use with viscous samples.
Dyes	53 64		An electrode is required with a diaphragm and reference system that are difficult to contaminate.
Paper bleaching	53 64		
Petrochemical industry	53 64		
Products containing HF	53 41		Chemical resistance of glass membrane depends on the HF concentration and the sample pH.

53 36T Three Diaphragms for Ease of Measuring in Low-conductivity Media

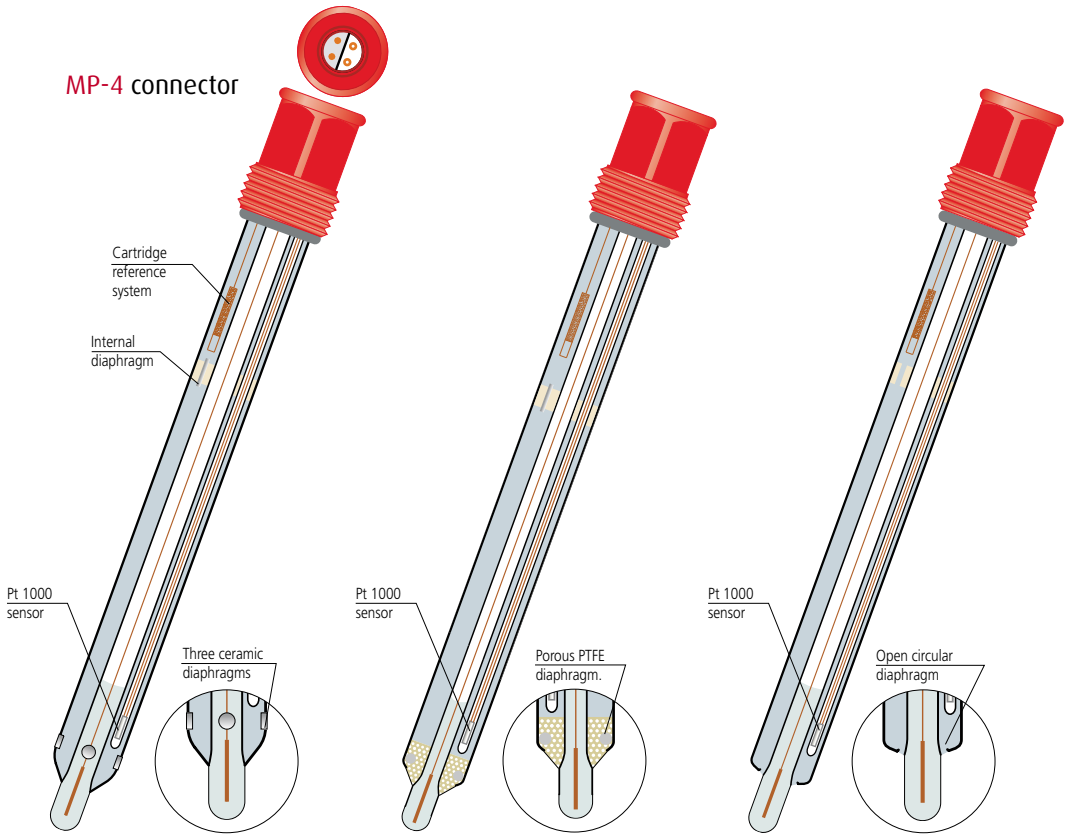
This has an internal diaphragm to protect the reference element from contamination.
Applications - Potable water, gas scrubbing towers and deodorizers, WWTP discharge.
Limitations - Viscous or "dirty" samples that can quickly clog up diaphragms.

53 34T Large, Porous PTFE Diaphragm to Facilitate Contact Between Electrolyte and Sample

This has an internal diaphragm that protects the reference element from contamination.
Applications - Wastewater, osmosis processes, demineralized water, dirty and viscous samples etc.

53 37T For Wastewater and Difficult Media

This electrode is recommended when the lifespan of the others is much lower than expected.
Applications - Sanitary discharge, sludge and wastewater.
Limitations - Rapid polymer deterioration in solutions of pH <2, very clean, distilled and demineralized waters.
Not recommended for installation in pipes.



Specifications

Code	53 36T	53 34T	53 37T
pH range	0-14	0-14	2-14
Operating temperature (°C)	0-80	0-100	0-80
Max. working pressure (bar)	6	5	2
Reference element	encapsulated Ag/AgCl crystals	encapsulated Ag/AgCl crystals	encapsulated Ag/AgCl crystals
Diaphragm	3 ceramic	porous PTFE ring	open circular
Electrolyte	gel	gel	polymer
Temperature sensor	Pt 1000	Pt 1000	Pt 1000
Body material	glass	glass	glass

Basic pH Electrodes

53 00 Low-cost. Very Good Performance at a Very Competitive Price

Applications - Swimming pools, potable water. Aqueous samples in general.
Limitations - Low conductivities. Products with colloids or suspended solids.

53 03 Three Diaphragms for Ease of Measuring in Low-conductivity Media

This has an internal diaphragm to protect the reference element from contamination.

Applications - Potable water, osmosis processes, gas scrubbing towers and deodorizers and WWTP discharge.
Limitations - Viscous or "dirty" samples that can quickly clog up ceramic diaphragms.

53 30 Large, Porous PTFE Diaphragm to Facilitate Contact Between Electrolyte and Sample

This has an internal diaphragm to protect the reference element from contamination. Recommended when the lifespan of the others is much lower than expected.

Applications - Wastewater, demineralized water, dirty samples, etc.

53 33 For Clean Water. This Has an Internal Diaphragm That Protects the Reference Element from Contamination

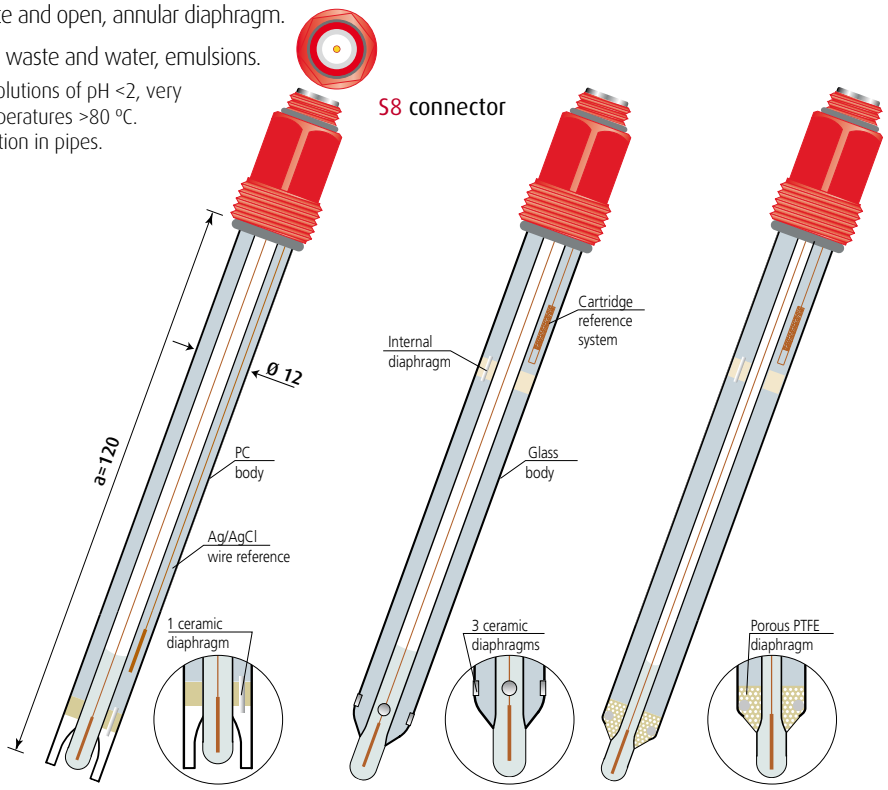
Applications - Potable water, gas scrubbing towers, deodorizers, WWTP discharge.
Limitations - Samples with very low conductivity. Viscous or "dirty" samples that can quickly clog up diaphragms.

53 35 For Wastewater

Compared to conventional electrodes, these have a long lifespan in difficult media. Very competitive price.

Differs from the others for its solid electrolyte and open, annular diaphragm.

Applications - Sanitary discharge, sludge, waste and water, emulsions.
Limitations - Rapid polymer deterioration in solutions of pH <2, very clean, distilled and demineralized waters. Temperatures >80 ºC. Pressure >2 bar. Not recommended for installation in pipes.



Specifications

Code	53 00	53 03	53 30
pH range	0-14	0-14	0-14
Operating temperature (ºC)	0-80	0-80	0-100
Max. working pressure (bar)	6	6	5
Reference element	Ag wire AgCl-coated	Ag/AgCl crystals (encapsulated)	Ag/AgCl crystals (encapsulated)
Diaphragm	ceramic	3 ceramic	porous PTFE ring
Electrolyte	gel	gel	gel
Body material	PC exterior/glass interior	glass	glass

53 38 Low-cost. Fixed Cable, Good Performance

Applications - Swimming pools, potable water. Aqueous samples in general.

Limitations - Low conductivities. Products with colloids or suspended solids.

53 41 HF-resistant. The Chemical Resistance of the Membrane Depends on the pH and Concentrations of HF

See table.

pH@20ºC	F-limit (ppm)
2	300
3	1000
4	6000
≥5	unlimited

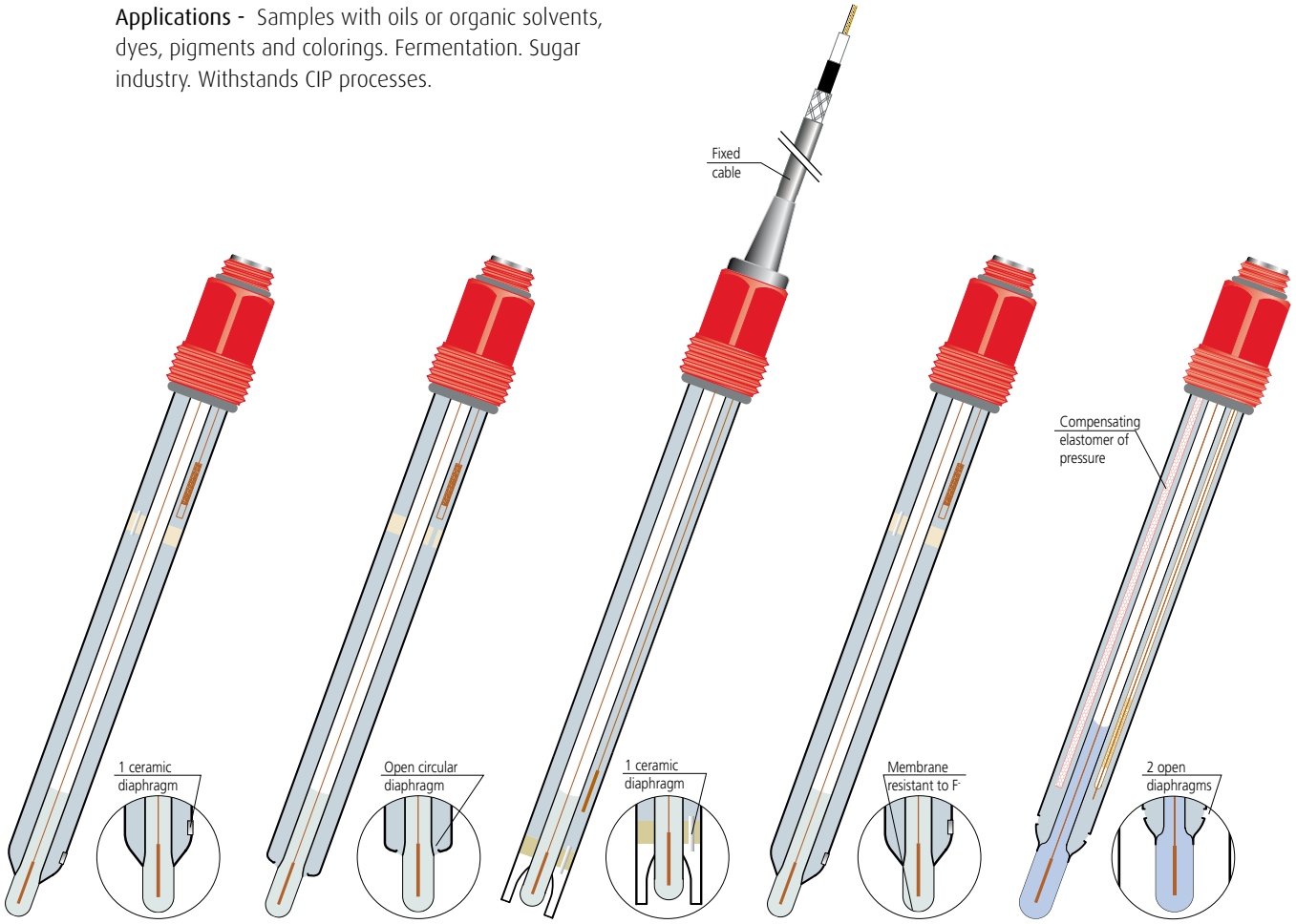
Applications - Water with fluoride.

Limitations - Samples with hydrofluoric concentrations higher than those indicated in the table.

53 64 "Very Difficult Media". High-performance Electrode. Sterilizable

As an electrolyte, it uses a special, high-performance polymer allowing it to work in the toughest of conditions. It is sterilizable both with steam and in an autoclave.

Applications - Samples with oils or organic solvents, dyes, pigments and colorings. Fermentation. Sugar industry. Withstands CIP processes.



53 33	53 35	53 38	53 41	53 64
0-14	2-14	0-14	0-14	0-14
0-80	0-80	0-80	0-80	0-130
6	2	2	6	6
Ag/AgCl crystals (encapsulated)	Ag/AgCl crystals (encapsulated)	Ag wire AgCl-coated	Ag/AgCl crystals (encapsulated)	Ag/AgCl crystals (encapsulated)
ceramic	open circular	ceramic	ceramic	open, 2 lateral
gel	polymer	gel	gel	polymer
glass	glass	PC exterior/glass interior	glass	glass

Platinum and Gold ORP Electrodes

53 50 Platinum. With a Large, Porous PTFE Diaphragm to Facilitate Contact Between Electrolyte and Sample

This has an internal diaphragm that protects the reference element from contamination.

Applications - Wastewater, demineralized water, dirty and viscous samples, etc.

53 53 Platinum. For Clean Water. These Have an Internal Diaphragm to Protect the Reference Element from Contamination

Applications - Swimming pools, potable water, gas scrubbing towers and deodorizers.

Limitations - Samples with very low conductivity. Viscous or "dirty" samples that can quickly clog up diaphragms.

53 54 Gold. Same as 53 53, but with Pt Instead of Au

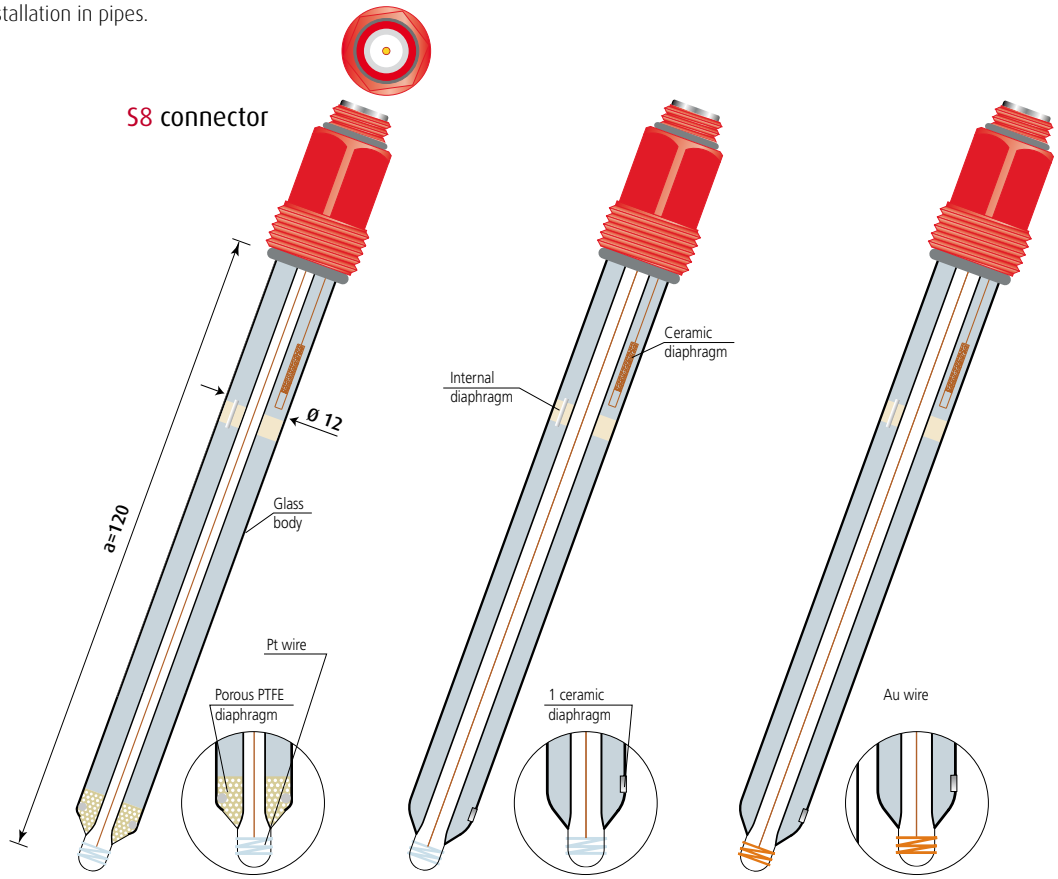
Applications - Acidic samples with chromium or iron.

Limitations - Samples with very low conductivity. Viscous or "dirty" samples that can quickly clog up diaphragms.

53 55 Platinum. For Wastewater. In Difficult Media, These Electrodes Have a Long Lifespan in Comparison to Conventional Electrodes

Applications - Sanitary discharge, sludge and wastewater.

Limitations - Rapid polymer deterioration in solutions of pH <2, very clean, distilled and demineralized waters. Not recommended for installation in pipes.



Specifications

Code	53 50	53 53	53 54
Measuring range (mV)	± 2000	± 2000	± 2000
Operating temperature (°C)	0-100	0-80	0-80
Max. working pressure (bar)	5	6	6
Indicator metal	platinum	platinum	gold
Reference element	encapsulated Ag/AgCl crystals	encapsulated Ag/AgCl crystals	encapsulated Ag/AgCl crystals
Diaphragm	porous PTFE ring	ceramic	ceramic
Electrolyte	gel	gel	gel
Body material	glass	glass	glass

53 58 Low-cost. Platinum. Fixed-cable. Very Good Performance at a Good Price

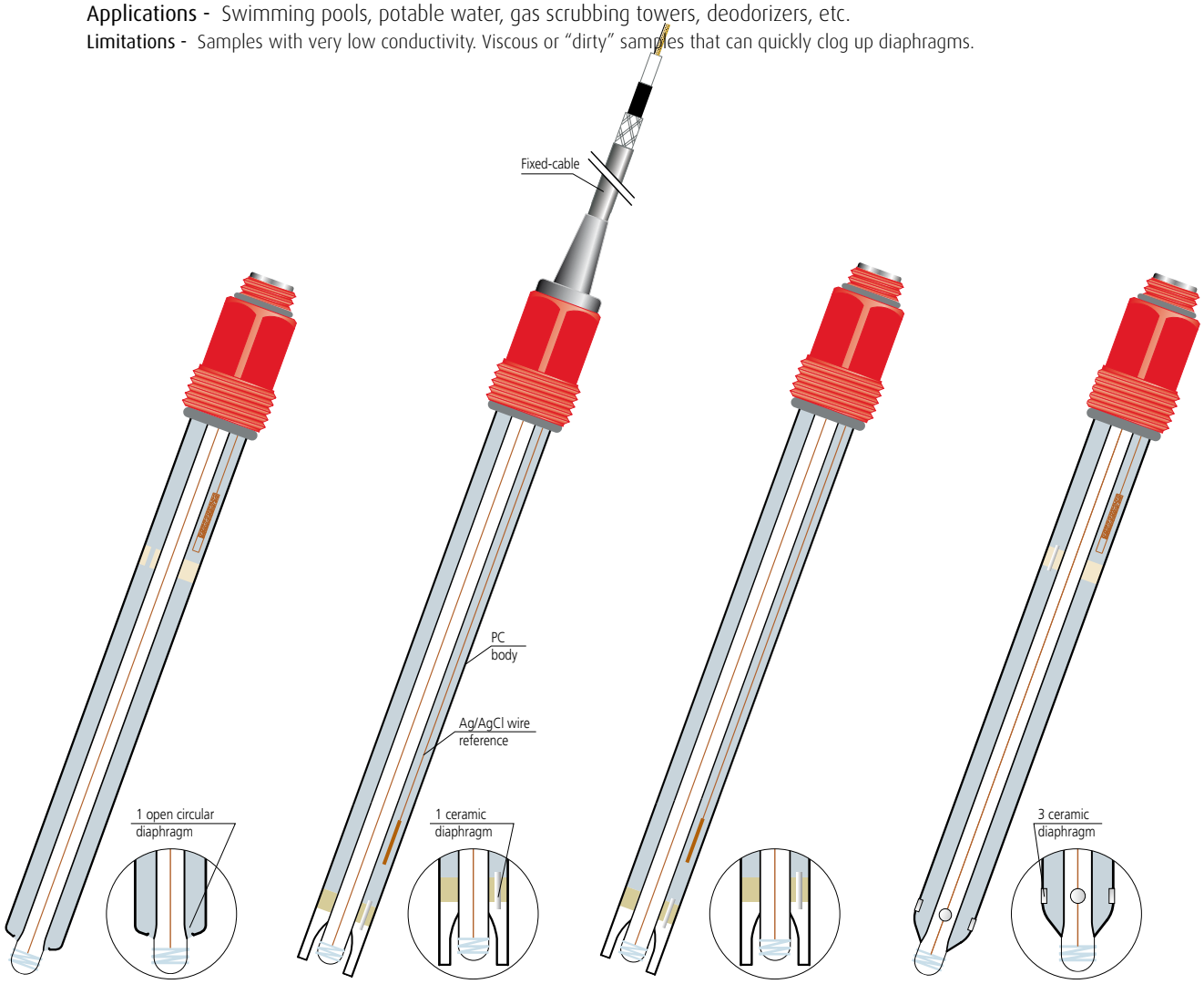
Applications - Swimming pools, potable water. Aqueous samples in general.
Limitations - Low conductivities. Products with colloids or suspended solids.

53 61 Low-cost. Platinum. S8 Connector.

Applications - Swimming pools, potable water. Aqueous samples in general.
Limitations - Low conductivities. Products with colloids or suspended solids.

53 62 Platinum. With Three Diaphragms. It Allows Ease of Measuring in Low-conductivity Media

This has an internal diaphragm to protect the reference element from contamination.
Applications - Swimming pools, potable water, gas scrubbing towers, deodorizers, etc.
Limitations - Samples with very low conductivity. Viscous or "dirty" samples that can quickly clog up diaphragms.



53 55	53 58	53 61	53 62
± 2000	± 2000	± 2000	± 2000
0-80	0-80	0-80	0-80
2	2	2	6
platinum	platinum	platinum	platinum
encapsulated Ag/AgCl crystals	AgCl-coated Ag wire	Ag/AgCl-coated wire	encapsulated Ag/AgCl crystals
open circular	ceramic	ceramic	3 ceramic
polymer	gel	gel	gel
glass	PC exterior/glass interior	PC	glass

Conductivity Cells. General

Main Components

Head

MP-5 - Multiple connector with gold contacts and IP67 air tight seal.

PG 13.5 or 1/2" screw cap depending on model.

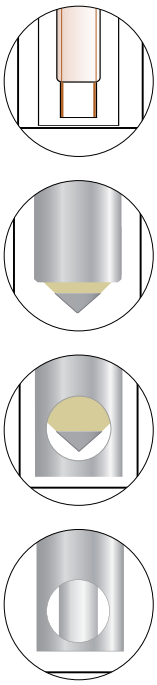


Body Material

Industrial cells normally use materials built to withstand the working conditions. The main cells presented in this catalog have a titanium body. For certain applications, some cells are made of glass.

Measurement Electrodes

Number - The cells in this catalog are of two electrodes. Advances in software and electronics mean that we can now measure relatively high conductivities using this type of cell.



Shape - Traditionally, a cell consisted of two metal plates of equal size, separated by a set distance. This shape has now changed to adapt both to the type of sample and to the expected range of measurement.

Materials - This catalog includes cells with platinum electrodes, the traditional type, and titanium electrodes. The latter have no special electrode surface treatment, making them extremely easy to clean, even with abrasive materials.

Temperature Sensor

Cells with a built-in temperature sensor can simultaneously measure conductivity and temperature, and hence automatically correct the effect of the temperature on the conductivity of the sample.

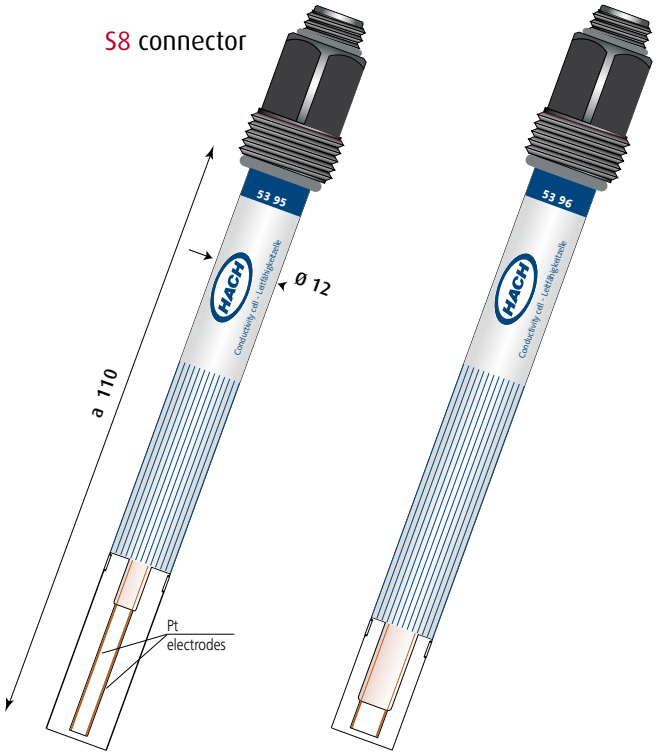
Cell Constant

This was formerly the parameter characterizing the cell. The constant was directly related to the range of measurement. Currently, we talk about the measuring range of the unit consisting of the cell and conductivity meter.

Measuring Range

Cells with Platinum Electrodes and a Glass Body - The electrodes are coated electrolytically with "platinum black" to avoid polarization problems and to extend the measuring range of the cell. They come in different (constant) geometries to cover different ranges of measurement. They are traditional cells that can be used with any type of instrument.

Titanium-electrode Cells - Due to their geometry, these cells are extremely robust and non-corrodible. Titanium also has a high mechanical and chemical resistance. The range of measurement and linearity of response of these cells is only guaranteed when used with the conductivity meters in this catalog. They all come with a built-in temperature sensor.



Specifications

Code	53 95	53 96
Measuring range (µS/cm)	0.1-50.000	1-200.000
Operating temperature	0-80 °C	
Temperature sensor	—	
Screw cap	PG 13,5	
Materials	Glass/Platinum	
Connector	S8	

53 95 Platinum. Glass Body. For Low Conductivities. C ≈ 0.1 cm-1

53 96 Platinum. Glass Body. For Medium Conductivities. C ≈ 1 cm-1

53 88 Titanium. For Reservoirs. Designed to Prevent the Accumulation of Bubbles. C ≈ 0.6 cm-1

℃ To avoid air bubbles on the surface of the electrodes. Easy to clean either manually or automatically.
Must be installed inside a housing.
Applications - Municipal, waste and industrial waters, irrigation water, potable water, etc.

53 98 Titanium. For Flow-through Chambers. Very Similar to 53 88. C ≈ 0.3 cm-1

℃ The central electrode is surrounded by the second electrode.

53 99 Platinum. Glass Body. For High Conductivities. C ≈ 10 cm-1

℃ It must be installed in a pipe so as to guarantee a flow inside the cell.

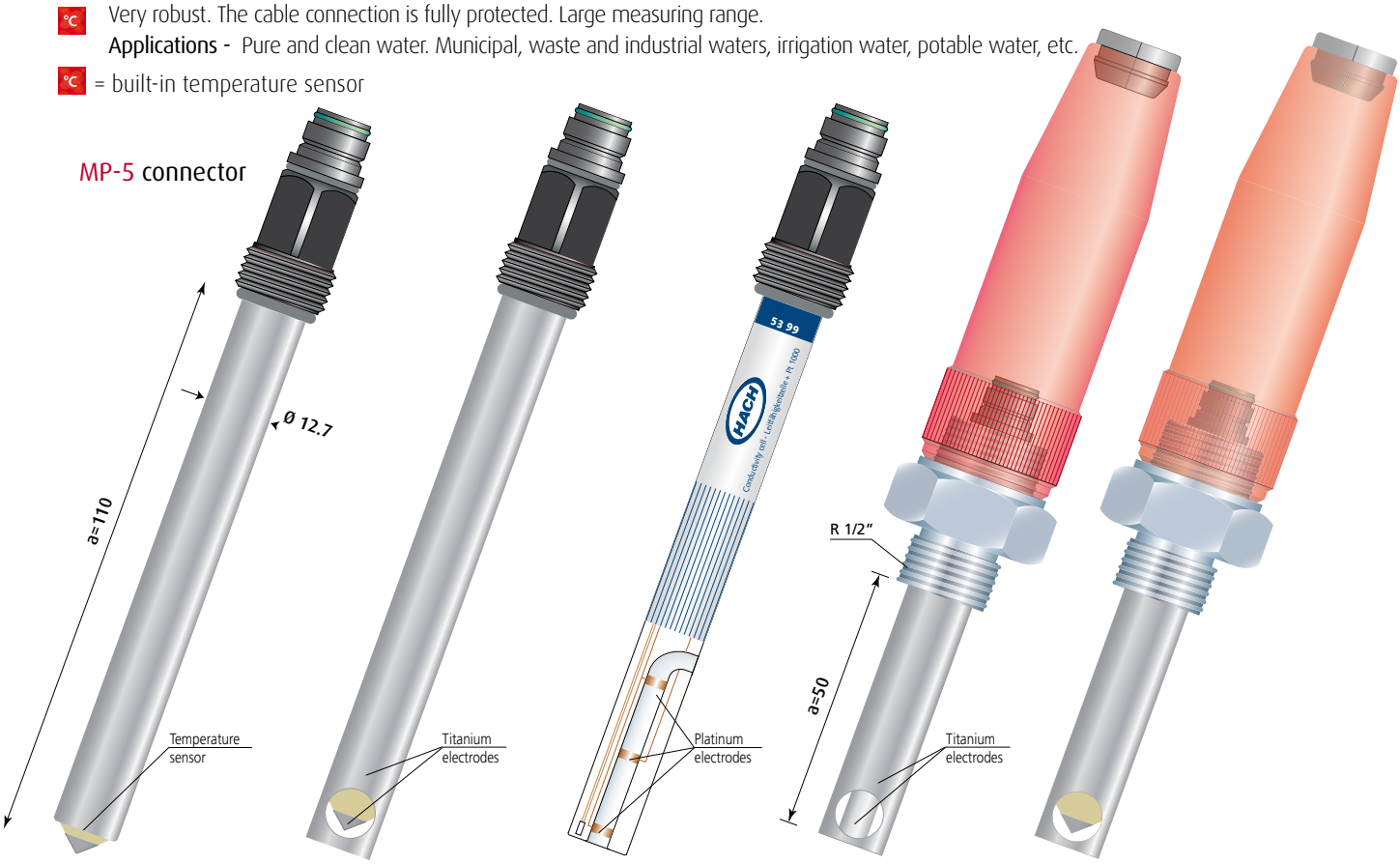
53 90 Titanium. For Measuring Low Conductivities. Pipe Installation - C ≈ 0.1 cm-1

℃ Very robust. The cable connection is fully protected.
Applications - Water with conductivities of less than 10 µS/cm.

53 92 Titanium. For Measuring Medium Conductivities. Pipe Installation - C ≈ 0.3 cm-1

℃ Very robust. The cable connection is fully protected. Large measuring range.
Applications - Pure and clean water. Municipal, waste and industrial waters, irrigation water, potable water, etc.

℃ = built-in temperature sensor



53 88	53 98	53 99	53 90	53 92
10-80.000	0.5-80.000	100...500.000	0.1-10.000	0.5-80.000
0-80 ˚C		0-80 ˚C	0-100 ˚C	
Pt 1000		Pt 1000	Pt 1000	
PG 13,5		PG 13,5	R 1/2"	
Titanium		Glass and platinum	Titanium	
MP-5		MP-5	MP-5	

Dissolved Oxygen Sensor, Amperometric

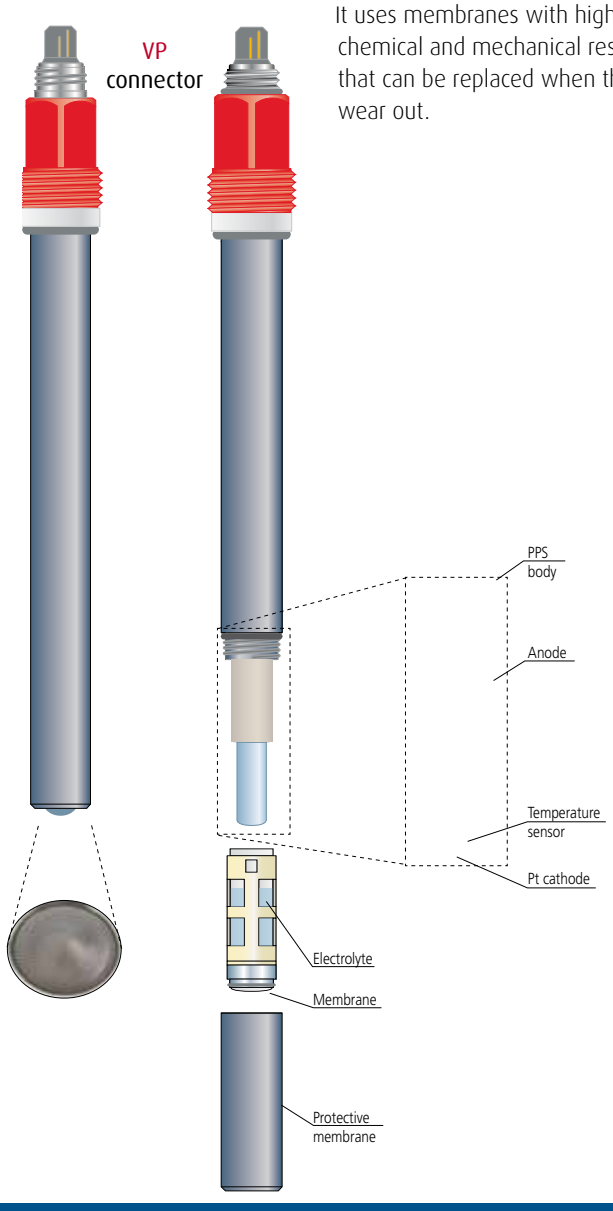
Clark Cell. Measuring Principle

The invention of the membrane electrode for DO reading by Dr. Clark (patented in 1959) was a giant step forward because it did away with the slow, laborious methods used up until then for DO reading. The system consists of a cell with two electrodes, an oxygen-permeable membrane and an electrolyte. The electrodes are a silver anode and a cathode of a noble metal, generally platinum. An electrolyte containing KCl must join the anode and the cathode. The oxygen passes through a permeable membrane into the electrode, where the reactions on which the measurement is based take place.

60 50 DO Sensor, a Quality Electrode

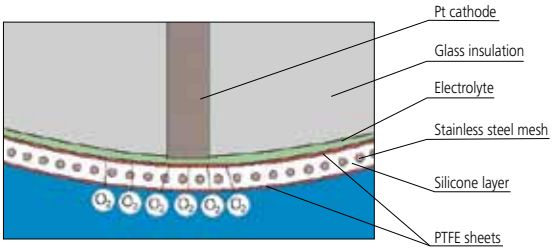
This has a plastic body and a VP connector with an IP68 seal that protects the electrode-cable connection even under the harshest industrial conditions, with the advantage that maintaining and replacing electrodes is much cheaper and easier than with a fixed cable.

It uses membranes with high chemical and mechanical resistance that can be replaced when they wear out.



The membrane consists of:

- A stainless steel mesh that acts as a firm base.
- A silicone layer that permeates and lightly coats the steel mesh on both sides.
- Two PTFE sheets, one on each side of the silicone, for increased strength, making it difficult for microorganisms and dirt to adhere to the surface.



Mounting: in standard housings. In WWTP, the use of housings with a cleaning duct is recommended. See page 20.

Cables: connects to VP connector with multiple cables. See page 22.

Spare Parts:



60 48 Membrane

98 10 Electrolyte.

Specifications

Code	60 50
Measuring range	0.3% to saturation 0.03 mg/l (ppm) to saturation
Operating temperature	0-50°C
Maximum working pressure	2 bar
Body material	PPS (polyphenylene sulfide)
Membrane materials	PTFE/silicone/PTFE reinforced with steel mesh
Temperature sensor	NTC
Recommended installation	In 63 housing
Screw cap	PG 13.5
Connector, protection	VP, IP68

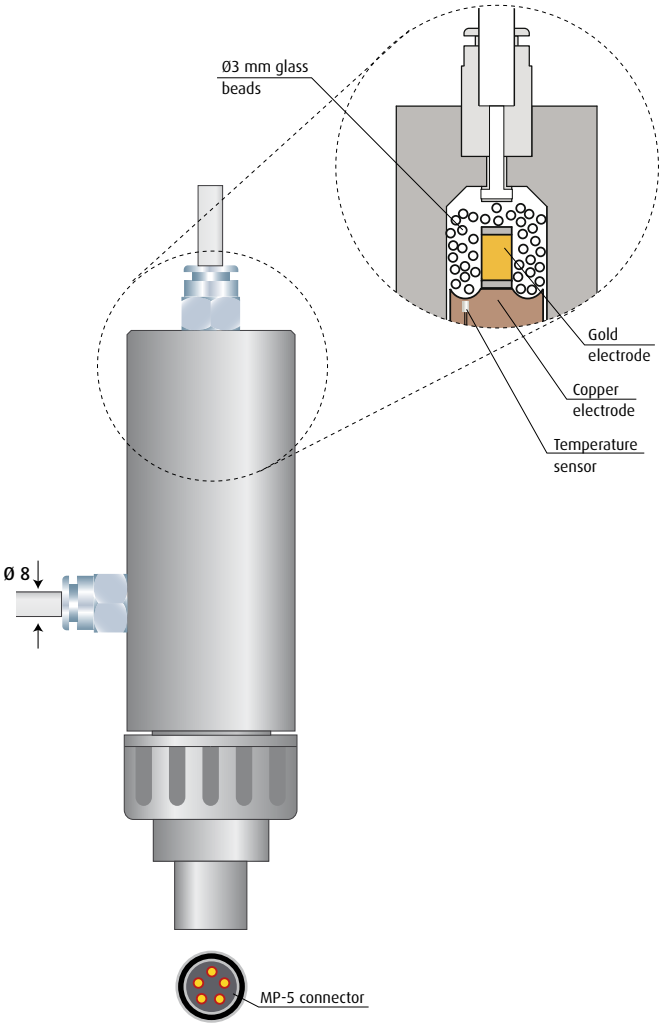
Free Chlorine Sensor, Galvanic

Galvanic Cell. Measuring Principle

The cell consists of two metal electrodes, a cathode and an anode in contact with the sample. The chlorine reacts in the cathode to generate a current proportional to its concentration. The direct contact between the sample and the electrodes inactivates the latter. Constant mechanical cleaning of the surface of the electrodes is necessary. This is done with the glass balls inside the measuring chamber, which are agitated continuously by the flow of water.

53 59 Galvanic Cell, Simple and Inexpensive System for Measuring Free Chlorine

Avoids the problems associated with the lack of reproducibility and linearity of ORP electrodes when used to measure chlorine. It also features a Pt 1000 temperature sensor to compensate for variations caused by changes in the temperature of the sample.



Advantages:

- Designed to prevent the traditional formation of bubbles that occurs inside conventional galvanic electrodes.
- It is not blocked by the presence of small particles.

Limitations:

- High dependence in relation to changes in pH, conductivity, temperature and flow of the liquid to be measured.
- Very little selectivity, any oxidizing agent in the water can change the reading.

Mounting: This sensor must be installed in a bypass system. Supplied with joints for 8-mm pipes.

Cables: Connected using multiple cables with MP-5 connector (IP67). See page 22.

Spare Parts:

- Copper/gold electrode for cell unit, code 53 60.
- Glass beads (balls) Ø 3 mm (bag of 100 units), code 93 40.

Specifications

Code	53 59
Measuring range	0.00-5.00 mg/l (ppm)
Operating temperature	5-60ºC
Maximum working pressure	5 bar
Chamber material	PVC
Electrode materials	copper and gold
Temperature sensor	Pt 1000
Connector, protection	MP-5, IP67

Free Chlorine Sensor, Amperometric

Sensor with Membrane. Measuring Principle

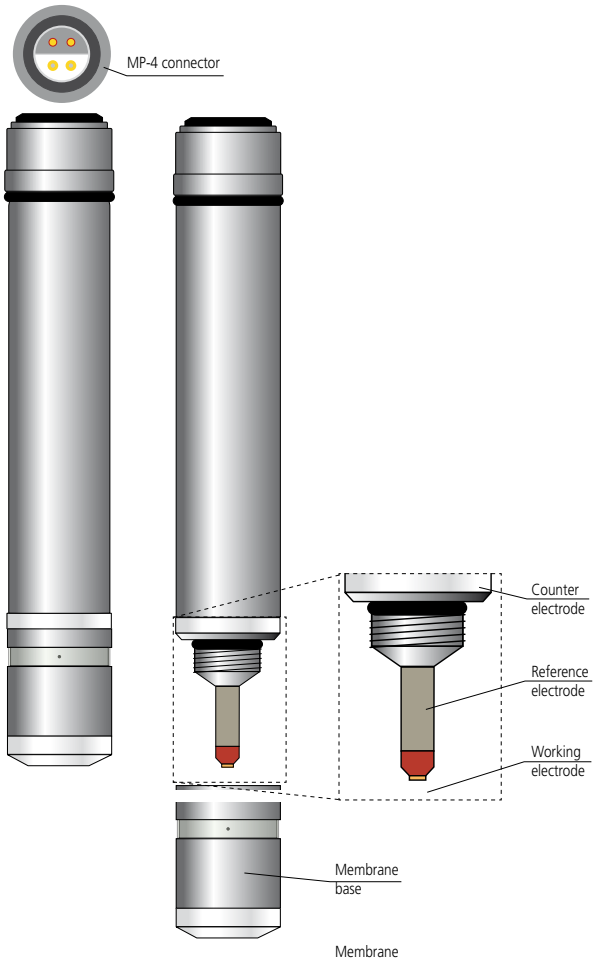
A cell with two electrodes, one anode and one cathode, immersed in an electrolyte and separated from the sample by a permeable membrane. The analyte passes through the membrane and reacts at the cathode producing a change in signal. The membrane separates the measuring system from the sample to avoid degradation of the electrodes.
There are two types of sensor:

- Two electrodes - With a measuring electrode and counter electrode.
- Three electrodes - Formed by a measuring electrode, a counter electrode and a reference electrode. In this case, selectivity is enhanced because the potential is more stable.

There are also different types of membranes and electrolytes, which give the electrodes specific characteristics.

60 70 Amperometric Electrode, Stable and Accurate Chlorine Measuring

Sensor with membrane and a three-electrode potentiostatic circuit. This has a built-in temperature sensor to emit a separate temperature signal.



Advantages:

- Low dependence on pH changes.
- No electrode contamination.
- High linearity of reading.
- Extremely stable reading.
- The electrolyte defines a series of measuring conditions inside the electrode, so dependence on changes in the sample composition is reduced.
- The signal has a low dependence on flow changes in the sample.

Limitations:

- Not suitable for work in the presence of surfactants.
- Pressure fluctuations and pressures above 0.5 bar.

Mounting: This sensor must be installed in the flow-through chamber.

Cables: Connected using multiple cables with MP-4 connector (IP67). See page 22.

Spare Parts:



60 71 Membrane



60 72 Electrolyte.

Specifications

Code	60 70
Measuring range	0.00-20.00 mg/l (ppm)
Operating temperature	1-45ºC
Maximum working pressure	0.5 bar
Operating pH	4-12
Materials	stainless steel, PVC, silicone and polycarbonate
Temperature sensor	NTC
Connector, protection	MP-4, IP67

ATC Temperature Probes

By connecting one of these probes to our pH meters, you can simultaneously measure pH and temperature, and display both values on the screen. This feature allows you to:

- Compensate the effect of temperature on the electrode.
- Use the pH meter as a precision thermometer.

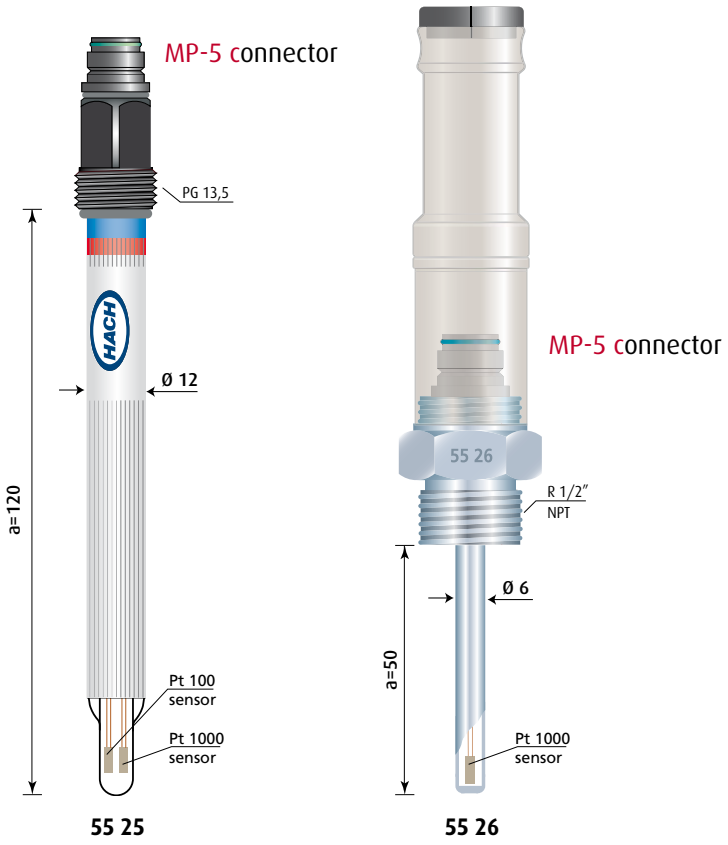
55 25 Double Probe

This is a double temperature probe with two TDR sensors, one Pt 100 and the other Pt 1000 inside (compatible with both types of instruments). It is held in place by a PG 13.5 screw cap for installation in probes. It is made from Pyrex glass.
Operating temperature: -20 to 135ºC. Maximum pressure: 6 bar.

55 26 For Pipes

This temperature probe has a Pt 1000* sensor, which is installed directly on a pipe with a 1/2" NPT thread.
It is very robust because of its stainless-steel sheath.
Operating temperature: -20 to 135ºC. Maximum pressure: 6 bar.

*Upon request, Pt 100.



Specifications

Code	55 25	55 26
Measuring range	-20-135ºC	-20-135ºC
Maximum working pressure	6 bar	6 bar
Materials	Glass (Pyrex)	Stainless steel
Temperature sensor	Pt 100 + Pt 1000	Pt 1000
Screw cap	PG 13,5	R 1/2"

Electrode Housings

In 61 Immersion Housing. Made from PVC or PVDF in Two Different Lengths

Installation
- By gravity in a clamp or through the perforated lid of a tank.
- In a modified DN 50 with 43 mm interior Ø.

In 63 Immersion Housing, with Automatic Sensor Cleaning Option

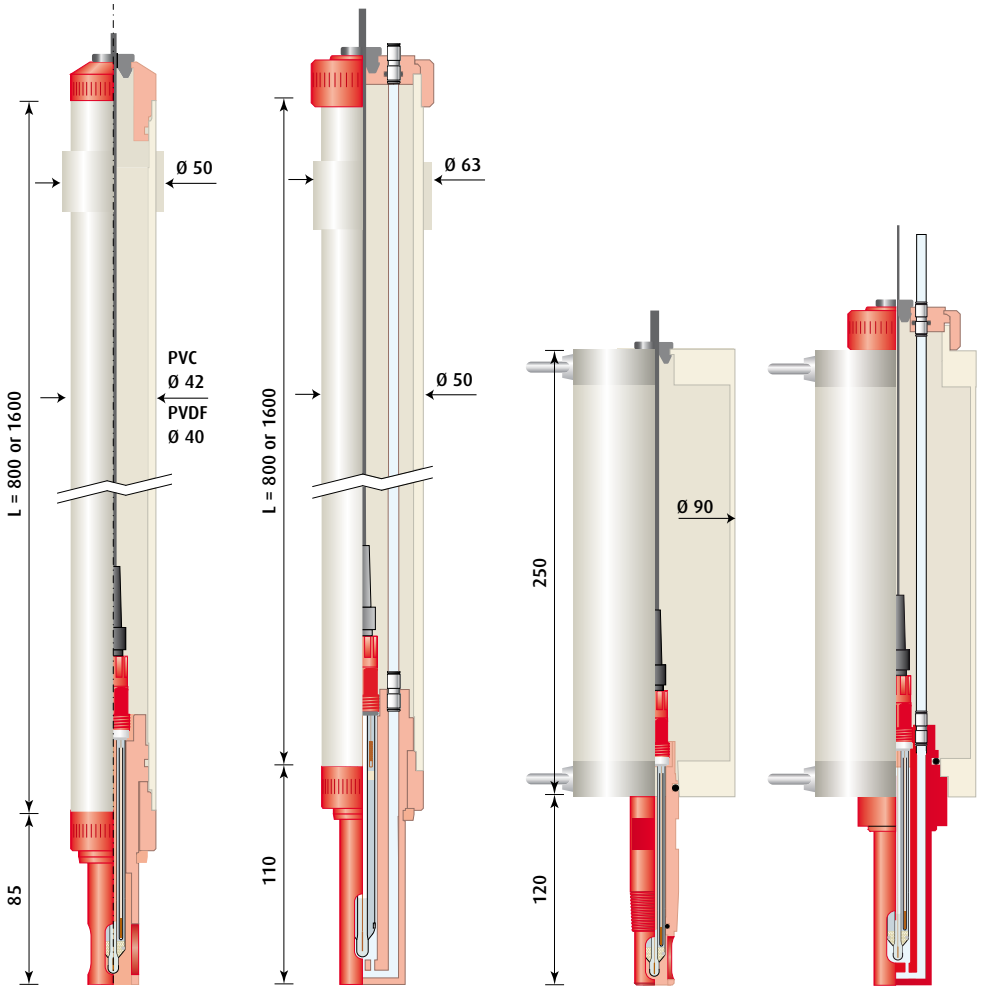
Installation
- By gravity in a clamp or through the perforated lid of a tank.
- In a DN 63.

FL 60 Flotation Housing. Used When the Level of the Liquid to be Measured Varies Greatly

Installation - It requires a steel guide-rail (Ø 20 mm) in the wall of the basin, tank or reactor.

FL 69 Flotation Fitting with Automatic Sensor Cleaning Option

Installation - It requires a steel guide-rail (Ø 20 mm) in the wall of the basin, tank or reactor.



Specifications

Model	In 61		In 63		FL 60	FL 69
Code	61 01	61 02	63 01	63 02	60 00	69 01
Material	PVC	PVDF	PVC	PVDF	PVC	PVC
Sheath length (mm)	800 (optional 1600)		800 (optional 1600)		250	250
Operating temperature (°C)	0-60	0-110	0-60	0-110	0-60	0-60
Working pressure (bar)	atmospheric		atmospheric		atmospheric	atmospheric
Cleaning pressure (bar)	—		1,5 max		—	1,5 max
O-rings	nitrile	viton	nitrile	viton	nitrile	nitrile
Installable sensors	with PG 13.5 thread		with PG 13.5 thread		with PG 13.5 thread	with PG 13.5 thread
Number of sensors	1		1		1	1
Installation	by gravity on a clamp or using a 3-piece adapter				in 20 mm Ø guide-rail	in 20 mm Ø guide-rail

In 76 Insertion Housing. Adapter for PG 13.5 Electrode Thread to 3/4" NPT

Offers good sensor protection. Very economical.
Installation - Directly in pipes with 3/4" NPT screw caps.

In 77 Insertion Housing. Easy Calibration and Maintenance

Simply unscrew the knurled bolt on the housing to extract the unit without handling the cable connector at all.
Available in PVC and PVDF.
Installation - With DN 25 weld-in socket (see page 22).

In 78 Stainless Steel. All of the Advantages of the In 77 with Enhanced Sensor Protection

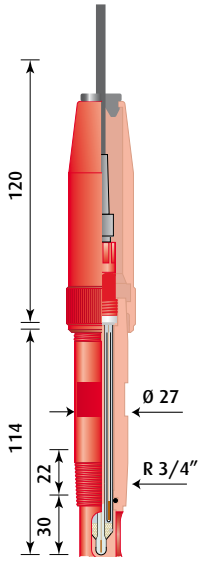
Installation - With DN 25 weld-in socket (see page 22).

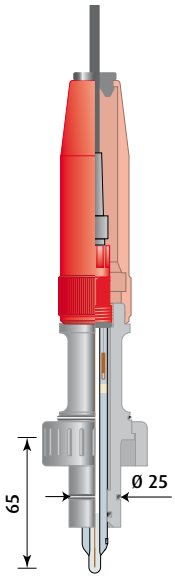
76 00 Protector/PG 13.5 Thread-3/4" NPT Adapter

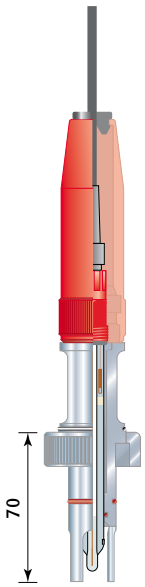
Similar to the In 76 but without connector protection.

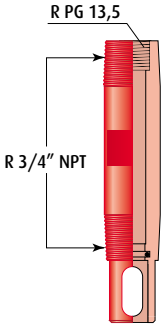
CR 60 Flow-through Chambers for Bypass Installation - Three Versions Depending on Sensor

The glass is easily removed for maintenance and calibration of sensors.
Installation - Panel or wall, with two screws. 6/8 mm tube joints.

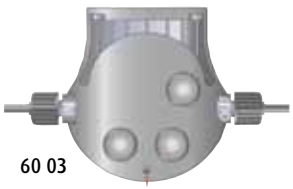


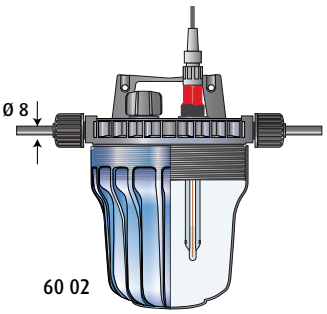










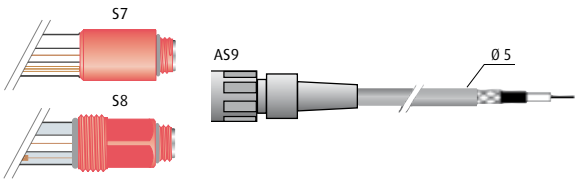


In 76	In 77		In 78	76 00	CR 60	
76 01	77 01	77 02	78 01	76 00	60 02	60 03
PVC	PVC	PVDF	Stainless steel	PVC	PP and Noryl	
—	—		—	—	—	
0-60	0-60	0-110	0-130	0-60	0-45	
depending on temperature	depending on temperature		depending on temperature	depending on temperature	6	
—	—		—	—	—	
viton	viton		viton	viton	nitrile	
PG 13.5 thread	PG 13.5 thread		PG 13.5 thread	PG 13.5 thread	2 PG 13.5	3 PG 13.5
1	1		1	1	1, 2 or 3	
3/4" NPT Th.	DN 25 weld-in socket		DN 25 weld-in socket	3/4" NPT Th.	Bypass, 6/8 mm tube	

Accessories

Cables

...for pH or ORP electrodes (or 53 95/96 cells)



The AS9 connector has an IP65 seal.
The cable can withstand temperatures of -30 to 90°C.

...for pH electrodes with temperature sensor



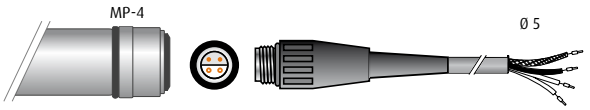
This consists of one coaxial cable and two conductors.
The MP-4 connector has an IP67 seal.
The multiple cable can withstand temperatures of -30 to 80°C.

...for Conductivity cells, ATC or Cl_2 galvanic sensor



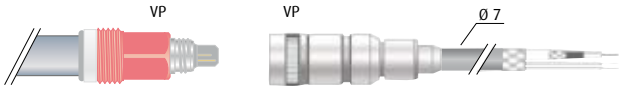
This consists of an eight-conductor shielded cable.
The MP-5 connector has an IP67 seal.
The cable can withstand temperatures of -20 to 90°C

...for Cl_2 amperometric sensor (with membrane)



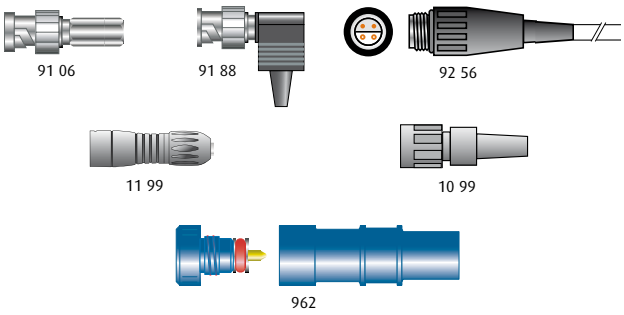
The MP-4 connector has an IP67 seal.
The multiple cable can withstand temperatures of -30 to 80°C.

...for amperometric DO electrodes



The VP connector has an IP68 seal.
The cable can withstand temperatures of -30 to 80 °C.

Connectors

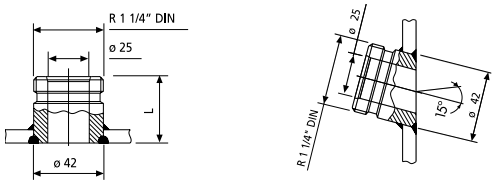


Additional Parts

DN 25 weld-in sockets, straight

For installation of the In 77 and In 78 insertion housings.

DN 25 weld-in sockets, inclined



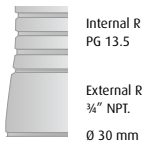
61 08, DN 50 3-piece connector



In PVC. For the installation of In 61 immersion housings.
Three-piece connector with modified internal diameter.

Note: DN 63 and DN 75 are standard connectors that can be found in any specialized shop.

61 25, adapter for installing sensors with PG 13.5 thread



Three-piece DN 20 connector.
PVC material.

68 99 13.5 PG cap



For flow-through chambers.
PVC material.

76 10, protector for sensor connector with 3/4" thread NPT



PVC material.

61 90, cable clamp, for Ø 5 cable



Bag of 2 units. (For pH/ORP cable).

61 91, cable clamp, for Ø 7 cable



Bag of 2 units. (For DO/conductivity cable).

Instruments	
LXV2702.97.0002	si627 P, pH panel-mount transmitter, pH or mV, 230 VAC.
LXV2703.97.0002	si627 P, pH panel-mount transmitter, pH or mV, 24 VAC.
LXV2705.97.0002	si627 P, pH panel-mount transmitter, pH or mV, 115 VAC.
LXV2800.97.0002	si628 P, pH wall-mount transmitter, pH or mV, 230 VAC.
LXV2801.97.0002	si628 P, pH wall-mount transmitter, pH or mV, 24 VAC.
LXV2802.97.0002	si628 P, pH panel-mount transmitter, pH or mV, 230 VAC.
LXV2803.97.0002	si628 P, pH panel-mount transmitter, pH or mV, 24 VAC.
LXV2804.97.0002	si628 P, pH wall-mount transmitter, pH or mV, 115 VAC.
LXV2805.97.0002	si628 P, pH panel-mount transmitter, pH or mV, 115 VAC.
LXV2810.97.0002	si628 CL, CL wall-mount transmitter for galv. cell, 230 VAC.
LXV2811.97.0002	si628 CL, CL wall-mount transmitter for galv. cell, 24 VAC.
LXV2812.97.0002	si628 CL, CL panel-mount transmitter for galv. cell, 230 VAC.
LXV2813.97.0002	si628 CL, CL panel-mount transmitter for galv. cell, 24 VAC.
LXV2900.97.0002	si629 P, pH wall-mount transmitter, pH or mV, 230 VAC.
LXV2901.97.0002	si629 P, pH wall-mount transmitter, pH or mV, 24 VAC.
LXV2902.97.0002	si629 P, pH panel-mount transmitter, pH or mV, 230 VAC.
LXV2903.97.0002	si629 P, pH panel-mount transmitter, pH or mV, 24 VAC.
LXV2904.97.0002	si629 P, pH wall-mount transmitter, pH or mV, 115 VAC.
LXV2905.97.0002	si629 P, pH panel-mount transmitter, pH or mV, 115 VAC.
LXV2910.97.0002	si629 CL, CL wall-mount transmitter for amp. sensor, 230 VAC.
LXV2911.97.0002	si629 CL, CL wall-mount transmitter for amp. sensor, 24 VAC.
LXV2912.97.0002	si629 CL, CL panel-mount transmitter for amp. sensor, 230 VAC
LXV2913.97.0002	si629 CL, CL panel-mount transmitter for amp. sensor, 24 VAC.
LXV3800.97.0002	si628 C, conductivity wall-mount transmitter, 230 VAC.
LXV3801.97.0002	si628 C, conductivity wall-mount transmitter, 24 VAC.
LXV3802.97.0002	si628 C, conductivity panel-mount transmitter, 230 VAC.
LXV3803.97.0002	si628 C, conductivity panel-mount transmitter, 24 VAC.
LXV3804.97.0002	si628 C, conductivity wall-mount transmitter, 115 VAC.
LXV3805.97.0002	si628 C, conductivity panel-mount transmitter, 115 VAC.
LXV3900.97.0002	si629 C, conductivity wall-mount transmitter, 230 VAC.
LXV3901.97.0002	si629 C, conductivity wall-mount transmitter, 24 VAC.
LXV3902.97.0002	si629 C, conductivity panel-mount transmitter, 230 VAC.
LXV3903.97.0002	si629 C, conductivity panel-mount transmitter, 24 VAC.
LXV3904.97.0002	si629 C, conductivity wall-mount transmitter, 115 VAC.
LXV3905.97.0002	si629 C, conductivity panel-mount transmitter, 115 VAC.
LXV4900.97.0002	si629 D, oxygen meter, wall-mounting transmitter, 230 VAC.
LXV4901.97.0002	si629 D, oxygen meter, wall-mounting transmitter, 24 VAC.
LXV4902.97.0002	si629 D, oxygen meter, panel-mounting transmitter, 230 VAC.
LXV4903.97.0002	si629 D, oxygen meter, panel-mounting transmitter, 24 VAC.
Sensors	
LZU5300.97.0002	pH electrode 5300, plastic, gel electrolyte, 0-80 °C, 6 bar.
LZU5303.97.0002	pH electrode 5303, gel electrolyte, 3 diaphr., 0-80 °C, 6bar
LZU5330.97.0002	pH electrode 5330, gel, PTFE diaphr., 0-100 °C, 5bar.
LZU5333.97.0002	pH electrode 53 33, gel electrolyte, 0-80 °C, 6 bar
LZU5334T.97.002	pH electrode 5334T w/ Pt1000, 0-100 °C, 5 bar, MP-4 connector
LZU5335.97.0002	pH electrode 5335, solid electrolyte, 0-80 °C, 2 bar
LZU5336T.97.002	pH electrode 5336T with Pt1000, 3 diaphr., 80 °C, 6 bar, MP-4
LZU5337T.97.002	pH electrode 5337T with Pt1000, 80 °C, 2 bar, MP-4 connector
LZU5338.97.0002	pH electrode 5338, fix cable, plastic, 0-80°C, 6 bar
LZU5341.97.0002	pH electrode 5341, gel electrolyte, HF resistant, 80°C, 6bar
LZU5350.97.0002	ORP electrode 5350, gel, PTFE diaphragm, 100 °C, 5bar
LZU5353.97.0002	ORP electrode 53 53, gel electrolyte, 80 °C, 6 bar
LZU5354.97.0002	ORP gold electrode 5354, gel electrolyte, 80 °C, 6 bar
LZU5355.97.0002	ORP platinum electrode 5355, solid electrolyte, 80°C, 2bar
LZU5358.97.0002	ORP electrode 5358, fix cable, plastic, 80 °C, 6 bar
LZU5359.99	Galvanic free chlorine cell with temp sensor, MP-5 connector
LZU5360.99	Copper and gold electrode kit for chlorine galvanic cell.
LZU5361.97.0002	ORP electrode 5361, gel, ceramic diaphragm, 80 °C, 6 bar
LZU5362.97.0002	ORP electrode 5362, gel, 3 diaphragms, 80 °C, 6 bar
LZU5364.97.0002	pH electrode 5364, diff. media, 130°C, 6bar, sterilizable
LZU5388.97.0002	Cond cell 5388 with Pt1000, C=0.6, 80°C, MP-5, PG 13,5
LZU5390.97.0002	Cond cell 5390 with Pt1000, C=0.1, 100°C, MP-5, 1/2"
LZU5392.97.0002	Cond cell 5392 with Pt1000, C=0.3, 100°C, MP-5, 1/2"
LZU5395.97.0002	Cond cell 5395, C=0.1, 80°C, S8 connector, PG 13.5
LZU5396.97.0002	Cond cell 5396, C=1, 80°C, S8 connector, PG 13.5
LZU5398.97.0002	Cond cell 5398 with Pt1000, C=0.3, 80°C, MP-5, PG 13,5
LZU5399.97.0002	Cond cell 5399 with Pt1000, C=10, 80°C, MP-5, PG 13,5
LZU5525.99	Double-Temp-Sensor, Pt100/Pt1000, 6bar, 130 °C, MP-5, PG13.5
LZU5526.99	Temperature sensor Pt1000, SS, 6 bar, 150°C, MP-5, 1/2"
LZU6048.99	Spare membrane for amperometric DO sensor 6050
LZU6050.99	Amperometric DO sensor 6050, a=120, VP connector, PG 13.5
LZU6070.99	Amperometric free chlorine sensor, MP-4 connector
LZU6071.99	Spare membrane for amperometric membrane sensor 60 70.
LZU6072.99	Electrolytic gel for amperometric membrane sensor 6070
LZU9340.99	Glass pearls, Ø 3 mm, 100 units bag.
LZU9810.99	Electrolyte for DO electrode 60 50, 30 ml flask.
Electrode Holder Housings	
LZU6000.99	Flotation housing FI 60, in PVC, 0...60 °C.
LZU6001.99	Flow chamber CR 60, for 2 sensors (Ø 12 mm) without thread
LZU6002.99	Flow-through chamber CR 60 for 2 sensors with PG 13.5 thread
LZU6003.99	Flow chamber CR 60 for 3 electrodes with PG 13.5 thread
LZU6005.99	Flow chamber CR 60 for 1 CL sensor and 2 sensors PG 13.5
LZU6006.99	Flow chamber CR 60 with flow monitor for 2 sensors PG 13.5
LZU6101.99	Immersion housing In 61, PVC, 0...60 °C, L = 800 mm.
LZU6102.99	Immersion housing In 61, PVDF, 0...110 °C, L = 800 mm.
LZU6131.99	Immersion housing In 61, PVC, 0...60 °C, L = 1600 mm.
LZU6301.99	Immersion fitting In 63, PVC, L = 800 mm, autom. cleaning
LZU6302.99	Immersion fitting In 63, PVDF, L = 800 mm, autom. cleaning
LZU6331.99	Immersion housing In 63, PVC, L = 1600 mm, autom. cleaning
LZU6901.99	Flotation fitting FI 69 PVC, for automatic sensor cleaning
LZU7600.99	Sensor connector protection, PVC, 3/4" NPT thread.
LZU7601.99	Insertion fitting In76, PVC, 3/4" thread (incl. 7600 + 7610)
LZU7701.99	Insertion fitting In 77, PVC, H=70 mm, DN 25 thread
LZU7702.99	Insertion fitting In 77, PVDF, H=70 mm, DN 25 thread
LZU7801.99	Insertion fitting In 78, SS, H=70 mm, DN 25 thread
Cables and Connectors	
LZU1003.99	Coaxial cable with AS9 connector, 3 m.
LZU1005.99	Coaxial cable with AS9 connector, 5 m.
LZU1010.99	Coaxial cable with AS9 connector, 10 m.
LZU1015.99	Coaxial cable with AS9 connector, 15 m.
LZU1020.99	Coaxial cable with AS9 connector, 20 m.
LZU1025.99	Coaxial cable with AS9 connector, 25 m.
LZU1099.99	AS9 connector, for coaxial cable ø 5.
LZU1103.99	Multiple cable with VP connector, 3 m.
LZU1105.99	Multiple cable with VP connector, 5 m.
LZU1110.99	Multiple cable with VP connector, 10 m.
LZU1115.99	Multiple cable with VP connector, 15 m.
LZU1130.99	Multiple cable with MP-4 con., 3 m, for amp. CL sensor
LZU1131.99	Multiple cable with MP-4 con., 5 m, for amp. CL sensor
LZU1132.99	Multiple cable with MP-4 con., 10 m, for amp. CL sensor
LZU1133.99	Multiple cable with MP-4 con., 15 m, for amp. CL sensor
LZU1199.99	MP-5 connector without cable
LZU9044.99	Multiple cable with MP-5 connector, 3 m.
LZU9045.99	Multiple cable with MP-5 connector, 5 m.
LZU9046.99	Multiple cable with MP-5 connector, 10 m.
LZU9047.99	Multiple cable with MP-5 connector, 15 m.
LZU9106.99	BNC connector, straight, for coaxial cable Ø 5
LZU9188.99	BNC Connector, L-shaped, for coaxial cable
LZU9251.99	Multiple cable with MP-5 connector, 20 m
LZU9256.99	MP-4 connector, for coaxial cable + 2 wires for temp sensor
LZU9300.99	Multiple cable with MP-4 connector, 3 m.
LZU9301.99	Multiple cable with MP-4 connector, 5 m.
LZU9302.99	Multiple cable with MP-4 connector, 10 m.
LZU9303.99	Multiple cable with MP-4 connector, 15 m.
LZU962.99	962 connector, for extending coaxial cable ø 5.
Additional Parts	
LZU6108.99	Three-piece adapter DN50, PVC, for fittings In 67 and In 61
LZU6109.99	Weld-in-socket, PVC, straight for fitting In 77 and In 78
LZU6110.99	Weld-in-socket PVC, inclined 15° for fitting In 77 and In 78
LZU6112.99	Weld-in-socket, PVDF, straight for fitting In 77 and In 78
LZU6113.99	Weld-in-socket PVDF, inclined 15° for fitting In77 and In78
LZU6114.99	Weld-in-socket, PP, straight for fitting In 77 and In 78
LZU6115.99	Weld-in-socket, PP, inclined 15° for fitting In 77 and In 78
LZU6121.99	Weld-in-socket, SS, straight for fitting In 77 and In 78
LZU6122.99	Weld-in-socket, SS, inclined 15° for fitting In 77 and In 78
LZU6125.99	Adapter for sensors with PG 13.5 and 3-piece adapter DN 20
LZU6126.99	Screw cap sealing for 3-piece adapter DN 20.
LZU6190.99	Bag with 2 cable glands for coaxial cable ø 5
LZU6191.99	Bag with 2 cable glands for coaxial cable ø 7
LZU6899.99	PG13.5 screw sealing PVC, for immersion or flow fitting
LZU7501.97.0002	Case with SI 75, pH/mV simulator, for AS7 and AS9 connectors
LZU7610.99	Sensor connector protection, PVC, 3/4" NPT thread.
LZU9055.99	AS7 cable / 1M / BNC. For instruments with BNC connector.
LZU9120.99	Wall mount assy for transmitters PH 28 / 29, CM 38 / 39, etc
LZU9450.99	Cable AS7 with open strips, 1m for connection of SI 75









At Hach, it's about learning from our customers and providing the right answers. It's more than ensuring the quality of water—it's about ensuring the quality of life. When it comes to the things that touch our lives...

Keep it pure.

Make it simple.

Be right.

For current price information, technical support, and ordering assistance, contact the Hach office or distributor serving your area.

In the United States, contact:

HACH COMPANY World Headquarters
P.O. Box 389
Loveland, Colorado 80539-0389
U.S.A.
Telephone: 800-227-4224
Fax: 970-669-2932
E-mail: orders@hach.com
www.hach.com

U.S. exporters and customers in Canada, Latin America, sub-Saharan Africa, Asia, and Australia/New Zealand, contact:

HACH COMPANY World Headquarters
P.O. Box 389
Loveland, Colorado 80539-0389
U.S.A.
Telephone: 970-669-3050
Fax: 970-461-3939
E-mail: intl@hach.com
www.hach.com

In Europe, the Middle East, and Mediterranean Africa, contact:

HACH LANGE GmbH
Willstätterstraße 11
D-40549 Düsseldorf
GERMANY
Tel: +49 (0) 211 5288-0
Fax: +49 (0) 211 5288-143
E-mail: info@hach-lange.de
www.hach-lange.com

Lit. No. 2710 E
F10 Printed in U.S.A.
©Hach Company, 2010. All rights reserved.
In the interest of improving and updating its equipment, Hach Company reserves the right to alter specifications to equipment at any time.

HACH®
Be Right™