Instruction Manual

Model PR10
Manual Retractable Fitting

YOKOGAWA

IM 12B06K03-01E-EN-P
1st edition

Contents

1. PREFACE **3**
1.1 Introduction 3
1.2 Unpacking and Checking 3
1.3 Warranty and Service 3
1.4 Serial number 4
2. GENERAL SPECIFICATIONS **5**
2.1 Wetted materials 5
2.2 Non-wetted materials 5
2.3 Pressure / temperature ratings 5
2.4 Specifications of sensor used 5
2.5 Shipping details (configuration dependant) 6
2.6 Process connections 6
2.7 Flange Ratings 6
2.8 Insertion length 6
2.9 Regulatory standards 6
3. INSTALLATION **7**
3.1 General information 7
3.1.1 Installation site 7
3.1.2 Safety precautions 7
3.1.3 Installation method 7
3.1.4 Assembly of accessories 7
3.2 Sensor Installation 8
3.2.1 Mounting a 12mm sensor in pH12 8
3.2.2 Mounting a 12mm PG13.5 sensor in pH13 8
3.2.3 Mounting the SC4A 9
3.2.4 Mounting the ISC40 9
3.2.5 Mounting the FU20 9
4. MAINTENANCE **11**
4.1 General 11
4.2 Probe insertion 11
4.3 Taking out the sensor 11
4.4 Replacing the sensor 11
4.5 Replacing the sealings 11
4.6 Drain ports connection 11
4.7 Adjusting the insertion depth 11
5. DIMENSIONS **12**
6. EXPLODED VIEW **22**
7. MODEL CODES **24**
8. SPARE PARTS **25**
9. INSTALLATION MATRIX **26**
10. CHEMICAL COMPATIBILITY CHART **28**

1. PREFACE

1.1 Introduction

The retractable fitting with ball valve allows a safe insertion and retraction of a sensor while the process is under pressure. It can be mounted in a variety of positions. The insertion depth can be selected on-site. An insertion stop is provided to set the position of the sensor in the process. The mechanism for releasing the probe is designed to operate only when the ball valve is closed, thus ensuring an effective safety precaution and avoiding production loss. The sensor can be replaced or calibrated easily.

Features

- One model for pH, conductivity and inductive conductivity sensors
- Integrated protection cage
- Build-in scraper to avoid contamination of the fitting
- Usable for a wide range of sensors
- A safe “through the valve” insertion and retraction design
- Simplified installation by optional ball valves with flanged or tapered connections
- Optional flush port for keeping moist, cleaning and calibration
- Available in Stainless Steel and with-Titanium shaft cage and adapters for more harsh applications

1.2 Unpacking and Checking

When you receive the PR10 retractable fitting it is packed in a cardboard box. Open the box and check that the model code on the fitting is the same as the one on the packing list. Refer to paragraph 7 for the model code. Also, check that it is supplied with the options you ordered. The options can be delivered in separate boxes. If you have any problems or questions, contact your nearest Yokogawa service center or sales organization for support. The PR10 retractable fitting has an identification plate on the protection ring with the full model code and a serial number.

1.3 Warranty and Service

Yokogawa products and parts are guaranteed free from defects in workmanship and material under normal use and service for a period of (typically) 12 months from the date of shipment from the manufacturer. Individual sales organizations can deviate from the typical warranty period, and the conditions of sale relating to the original purchase order should be consulted. Damage caused by wear and tear, inadequate maintenance, corrosion, or by the effects of chemical processes are excluded from this warranty coverage. In the event of warranty claim, the defective goods should be sent (freight paid) to the Service Department of the relevant sales Organization for repair or replacement (at Yokogawa’s discretion).

The following information must be included in the letter accompanying the returned goods:

- Model Code and Serial Number.
- Original Purchase Order and Date.
- Length of time in service and description of the process.
- Description of the fault and circumstances of the failure.
- Process/environmental conditions that may be related to the failure of the sensor
- Statement as to whether warranty or non-warranty service is requested.
- Complete shipping and billing instructions for return of material, plus the name and phone number of a contact person that can be reached for further information.
- Clean Statement

Returned goods that have been in contact with process fluids must be decontaminated and disinfected prior to shipment. Goods should carry a certificate to this effect, for the health and safety of our employees. Material Safety Data sheets must be included for all components of the process to which the sensor(options) have been exposed.

1.4 Serial number

The Serial number is defined by nine (9) alphanumeric characters:

X_1X_2	Production location
X_3X_4	Year/Month code
$X_5X_6X_7X_8X_9$	Tracking number
Example:	N3P600028

Table 1: Production Year code

Year	Year code	Year	Year code
2014	P	2026	3
2015	R	2027	4
2016	S	2028	5
2017	T	2029	6
2018	U	2030	7
2019	V	2031	8
2020	W	2032	9
2021	X	2033	A
2022	Y	2034	B
2023	Z	2035	C
2024	1	2036	D
2025	2	2037	E

Table 2: Production Month code

Month	Month code
January	1
February	2
March	3
April	4
May	5
June	6
July	7
August	8
September	9
October	A
November	B
December	C

2. GENERAL SPECIFICATIONS

2.1 Wetted materials

Sensor	: For sensor check Instruction Manual
Tube and sensor holder	: Stainless steel AISI 316L / Titanium
O-ring seals	: Viton 70° shore

2.2 Non-wetted materials

Sensor	: For sensor check Instruction Manual
Body	: Stainless steel AISI 316, 304
	: Polypropylene glass filled

2.3 Pressure / temperature ratings

Static conditions	: see Fig. 1.
Operating conditions	: during extraction and insertion max. 500kPa (72.5 PSI, max. 100°C (212°F)

2.4 Specifications of sensor used

Please check sensor specifications

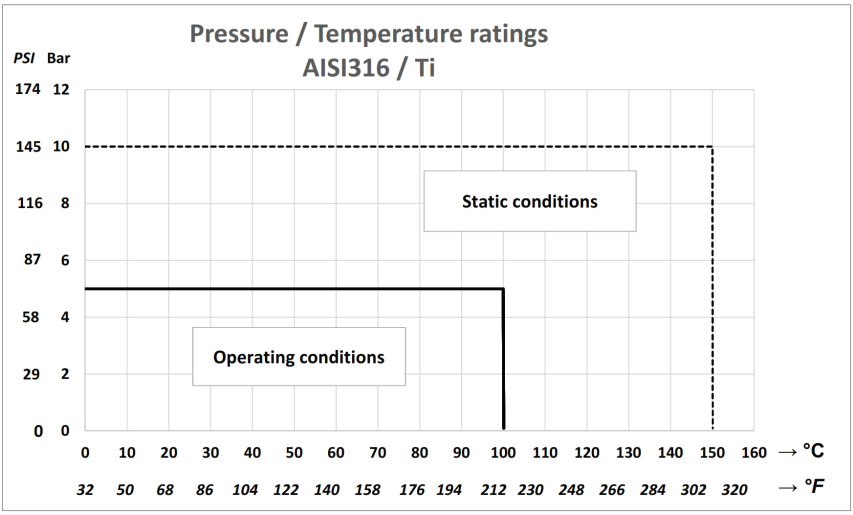

Fig 1: Pressure / temperature rating

2.5 Shipping details (configuration dependant)

Fitting
Package size (LxWxH) : 760 x 369 x 106 mm (29.9 x 14.5 x 4.1 inch)
Package weight (max) : Approx 2.5 kg excl. ball valve (5.5 lbs)

Flange Adapter
Package size (LxWxH) : 245 x 180 x 210 mm (9.6 x 7.0 x 8.2 inch)
Package weight (max) : Approx 2.5 kg excl. ball valve (5.5 lbs)

Ball Valve
Package size (LxWxH) : 384 x 234 x 168 mm (15.1 x 9.2 x 6.6 inch)
Package weight (max) : Approx 7.4 kg (16.5 lbs)

2.6 Process connections

Screw-in adapter : see section 5 table 4 and table 5
Flange adapter : see section 5 table 4 and table 5
Weld-in adapter : see section 5 table 4 and table 5

2.7 Flange Ratings

DIN flange : DN32 PN10
ANSI flange : 1¼“ 150 lbs
DIN flange : DN50 PN10
ANSI flange : 2“ 150 lbs

2.8 Insertion length

Refer to mechanical drawing in Section 5.

2.9 Regulatory standards

Table 3: Regulatory compliance

Item	Description, Approval, Certification
CE	CE (768/2008/EC), By applying: EN-ISO 9001: 2015
	PED, Directive 2014/68/EU, by applying: Article 4.3; Sound Engineering Practice Warning: Damaging the screw thread of the sensor might influence the maximum process pressure.
	CE-mark has been affixed on the product in 2009 for the first time

3. INSTALLATION

3.1 General information

3.1.1 Installation site

The PR10 fitting is intended to be used for in-line measurement. When it is delivered with an optional ball valve or when it is used in combination with a locally purchased ball valve, the process does not need to be interrupted for maintenance of the sensor. Mounting location can be in a large diameter pipeline or a vessel.

3.1.2 Safety precautions

The PR10 fitting is designed for maximum safety in operation. For optimum safety, a flanged ball valve is recommended. Yokogawa does not accept any claims or penalties on possible damages or accidents that occur in operation of the PR10 fitting. The installation of the probe is to be implemented under the local safety regulations for pressurized vessels or pipelines for retraction or insertion. The instructions given in this manual must be followed exactly.

3.1.3 Installation method

It is important to have the point of measurement in a location that is truly representing the process composition. Check whether the specifications of the sensor fulfill the maximum occurring process conditions. The fitting has several optional connection possibilities. Check that you received the correct size and type. Install the fitting in a convenient location for maintenance and calibration. For maintenance or calibration the probe will need a space of about 2m for total retraction (depending on probe length and optional adapters and/or ball valves). Installation in a bend of a pipeline is a good measurement position. When inserting the PR10 retractable fitting in a perpendicular position to the process flow, the flow velocity will put a mechanical force on the probe. Take care that this force is not too large. It is recommended to have the PR10 retractable fitting positioned at a 90° angle into the process stream.

Note: Do not insert fitting into process without sensor mounted.
Start assembly of sensor into the probe and follow procedure in par 3.2.
Make sure to apply grease to thread of all parts.

3.1.4 Assembly of accessories

Optional accessories are (often) delivered in separate boxes. When an optional ball valve is ordered, it should be mounted to the measuring position first. When the ball valve is in place, the process line is secure.

Note: Before screwing in parts grease the thread

3.2 Sensor Installation

3.2.1 Mounting a 12mm sensor in pH12

1. Take the cable out of the box and cut off the cable tie.
2. Tape the separate wires of the cable together.
3. Take the fitting out of the box and remove the sensor holder and Y-cap adapter.
4. Slide the Y-cap adapter over the cable.
5. Release the pigtail (cable gland) completely. Do not undo the part in the metal adapter!
6. Lead the sensor cable through the tube of the fitting, from the side where the sensor holder has been removed.
7. Take the sensor out of the box.
8. Slide the O-ring (12x1) over the connector.
9. Connect the sensor to the cable.
10. Prior to mounting the sensor make sure to wet the O-ring in the sensor holder
11. Slide the sensor holder over the sensor.
12. Screw the Y-cap adapter onto the sensor holder.
13. Hold the sensor still and turn the metal tube onto the sensor holder. Don't rotate the sensor, but rotate the tube of the fitting, because the cable can be disconnected from the sensor, when rotating it.
14. Lead the loose part of the pigtail onto the cable and screw it onto the fixed part.
15. Remove the tape.

3.2.2 Mounting a 12mm PG13.5 sensor in pH13

1. Take the cable out of the box and cut off the cable tie.
2. Tape the separate wires of the cable-together.
3. Take the fitting out of the box and remove the sensor holder.
4. Release the pigtail (cable gland) completely. Do not undo the part in the metal adapter!
5. Lead the sensor cable through the tube of the fitting, from the side where the sensor holder has been removed.
6. Take the sensor out of the box.
7. Prior to mounting the sensor make sure to wet the O-ring in the sensor holder
8. Screw the sensor in the sensor holder.
9. Connect the sensor to the cable.
10. Hold the sensor still and turn the metal tube onto the sensor holder. Don't rotate the sensor, but rotate the tube of the fitting, because the cable can be disconnected from the sensor, when rotating it.
11. Lead the loose part of the pigtail onto the cable and screw it onto the fixed part.
12. Remove the tape.

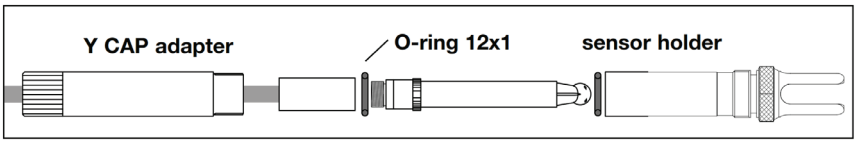

Fig 2: Mounting 12mm pH sensor with pH12

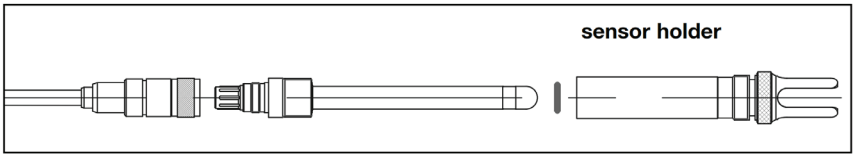

Fig 3: Mounting PG13.5 pH sensor with pH13

3.2.3 Mounting the SC4A

1. Take the sensor out of the box and cut off the cable tie.
2. Bind the separate wires of the cable together with a piece of tape.
3. Take the fitting out of the box and remove the option(s), if necessary.
4. Release the pigtail (cable gland) completely. Do not undo the part in the metal adapter!
5. Lead the sensor cable through the tube of the fitting, from the side where the knurled knob has been removed.
6. Hold the sensor still and turn the metal tube onto the sensor. Don't rotate the cell, but rotate the tube of the fitting, because the cable can be disconnected from the cell, when rotating it.
7. Lead the loose part of the pigtail onto the cable and screw it onto the fixed part.
8. Remove the tape.

3.2.4 Mounting the ISC40

1. Take the sensor out of the box and remove the cable tie carefully.
2. Bind the separate wires of the cable together with a piece of tape.
3. Take the fitting out of the box and remove the option(s), if necessary.
4. Release the pigtail (cable gland) completely. Do not undo the part in the metal tube!
5. Lead the sensor cable through the tube of the fitting, from the side where the knurled knob has been removed.
6. Hold the sensor still and turn the metal tube onto the sensor. Don't rotate the cell, but rotate the tube of the fitting, because the cable can be disconnected from the cell, when rotating it.
7. Lead the loose part of the pigtail onto the cable and screw it onto the fixed part.
8. Remove the tape.

3.2.5 Mounting the FU20

1. Take the sensor out of the box and apply Teflon tape to the appropriate threaded end. If the sensor is equipped with a fixed cable remove the cable tie carefully.
2. Bind the separate wires of the cable together with a piece of tape.
3. Take the fitting out of the box and remove the option(s), if necessary.
4. Release the pigtail (cable gland) completely. Do not undo the part in the metal adapter!
5. Lead the sensor cable through the tube of the fitting, from the side where the knurled knob has been removed. In case sensor has VP connection, attach the sensor and cable as usual.
6. Hold the sensor still and turn the metal tube onto the sensor. Don't rotate the cell, but rotate the tube of the fitting, because the cable can be disconnected from the cell, when rotating it.
7. Lead the loose part of the pigtail onto the cable and screw it onto the fixed part.
8. Remove the tape.

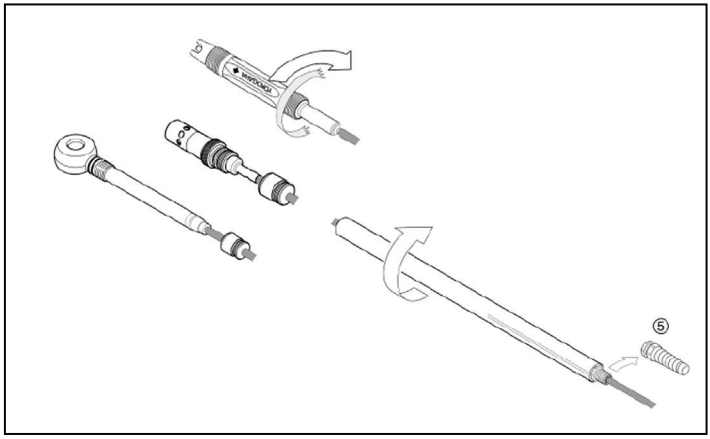

Fig 4: Mounting the sensors

Remarks

- Turning the T-bar key can only be done when the valve is closed.
- Pushing the probe into the process needs a force to overcome the pressure of the system and the friction of the dampening rings in the fitting.
- The locking mechanism can be tightened until the probe is firmly fixed in the measuring position.
- The insertion stop can be fixed in the actual insertion position. Refer to paragraph 4.7 for adjusting the insertion depth.

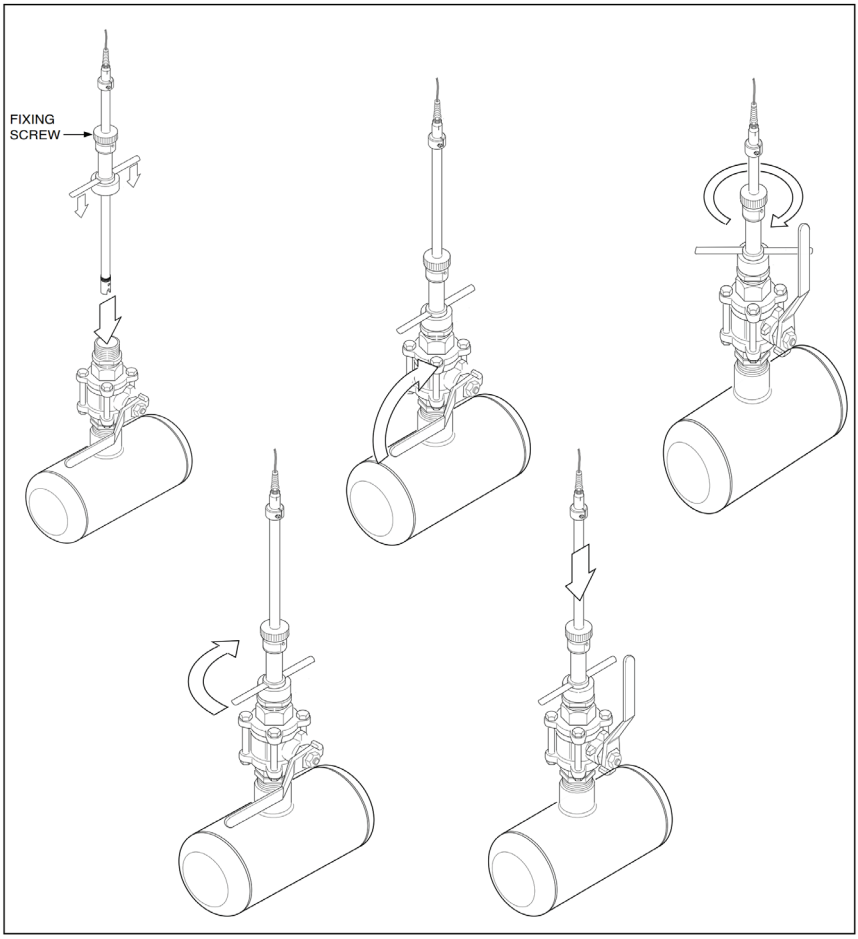

Fig 5: Probe insertion

4. MAINTENANCE

CAUTION

Retract/ insert at P < 5 Bar. Do not stand behind immersion tube while retracting / inserting

4.1 General

Before the sensor can be serviced, the probe with the sensor inside should be physically separated from the process. The PR10 retractable fitting can be retracted from its measuring position in the maintenance position by following the five step procedure mentioned in paragraph 4.2 in reverse order.

Note: Before screwing in parts grease the thread

4.2 Probe insertion

1. Position the probe for insertion.
2. Turn the T-bar key clockwise.
3. Open the ball valve.
4. Push the probe into the process.
5. Fix the probe by turning the fixing screw clockwise.

4.3 Taking out the sensor

Retract the probe from the process according to the following procedure:

- Release the fixing screw.
- Pull out the probe.
- Close the ball valve (*).
- Turn the T-bar counter clockwise
- Take out the probe.
- If the option provides a drain port, the process pressure can be relieved before removing the sensor.
- Stand clear when releasing the fixing screw! Due to the process pressure the probe can be pressed out.
- The T-bar key can only be operated when the ball valve is closed. Make sure it is closed completely.
- The friction of the O-rings will slow down the probe when it is retracted.

4.4 Replacing the sensor

Refer to paragraph 3.2

4.5 Replacing the sealings

For prevention of leakage due to aging of the seals, the O-ring seals may need replacement. Hereto, follow the procedure below.

Procedure:
Remove the probe from the process.
Follow the procedure described in paragraph 4.3
Dismount the sensor. Follow the procedure described in paragraph 3.2 in reverse order:

- Disassemble the housing of the insertion tube.
- Replace the o-rings with the proper tools (like K1525AF).

4.6 Drain ports connection

The PR10 retractable fitting can be equipped with optional drain (or flush) ports on the flanged adapter. The drain ports are tapered 1/8” NPT female for small diameter connectors (see figure 6).

4.7 Adjusting the insertion depth

The insertion depth of the sensor can be adjusted to your preference. The insertion stop can be set for the desired insertion depth, using the key supplied with the fitting (see figure 5).

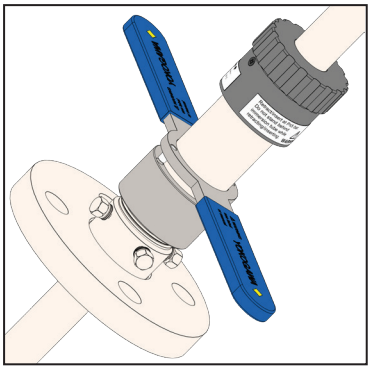

Fig 6: Drain / flush port connection

5. DIMENSIONS

5.1 Dimensional drawing PR10...-D32 with mounted pH sensor

Units mm [Inch]

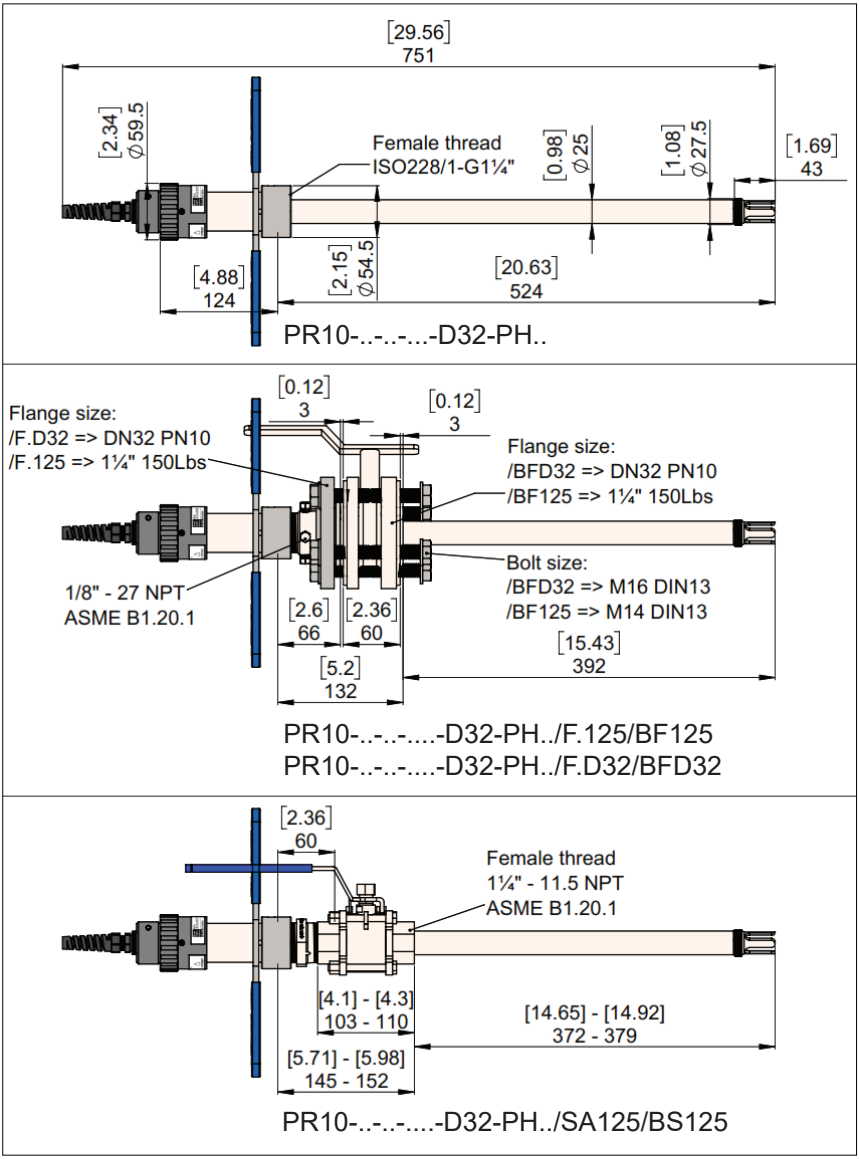

Fig 7: Dimensional drawing PR10...-D32 with mounted pH sensor

5.2 Dimensional drawing PR10...-D32 with mounted SC4A sensor

Units mm [Inch]

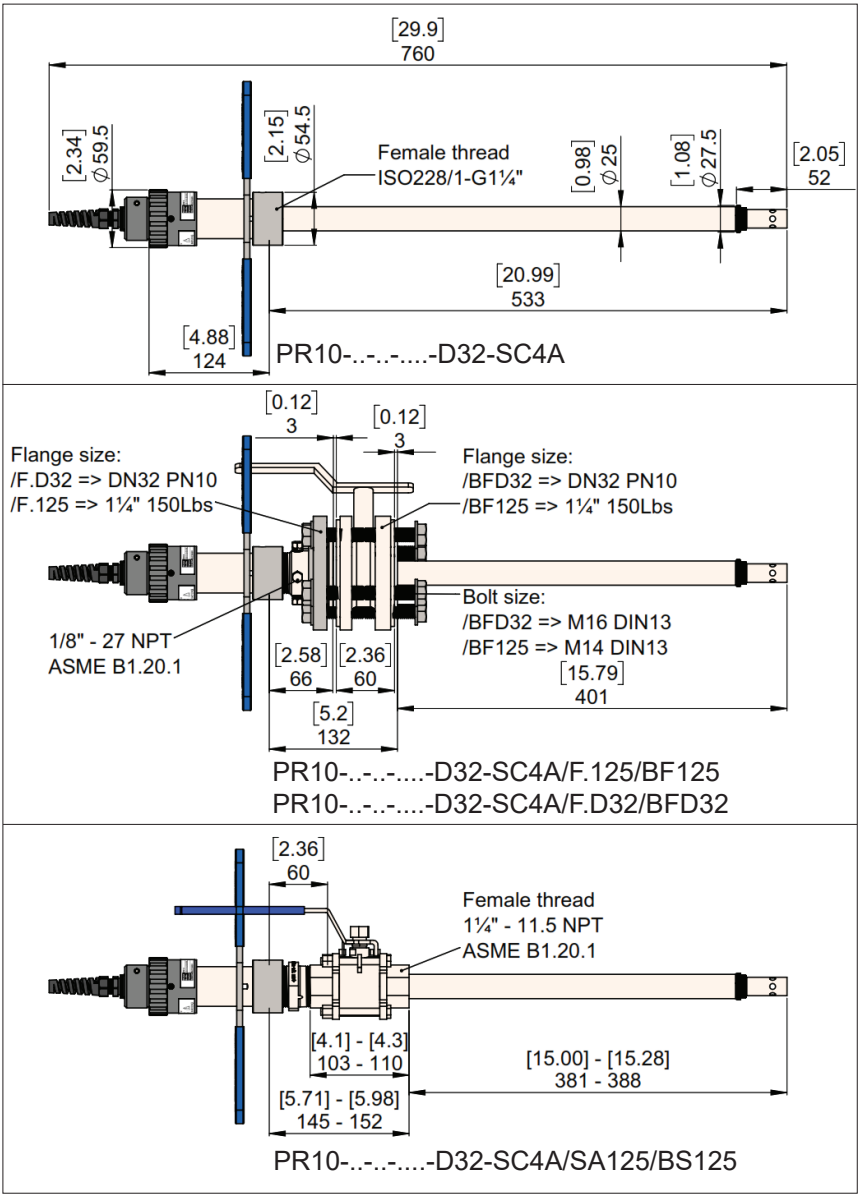

Fig 8: Dimensional drawing PR10...-D32 with mounted SC4A sensor

5.3 Dimensional drawing PR10...-D32 with mounted FU20 sensor

Units mm [Inch]

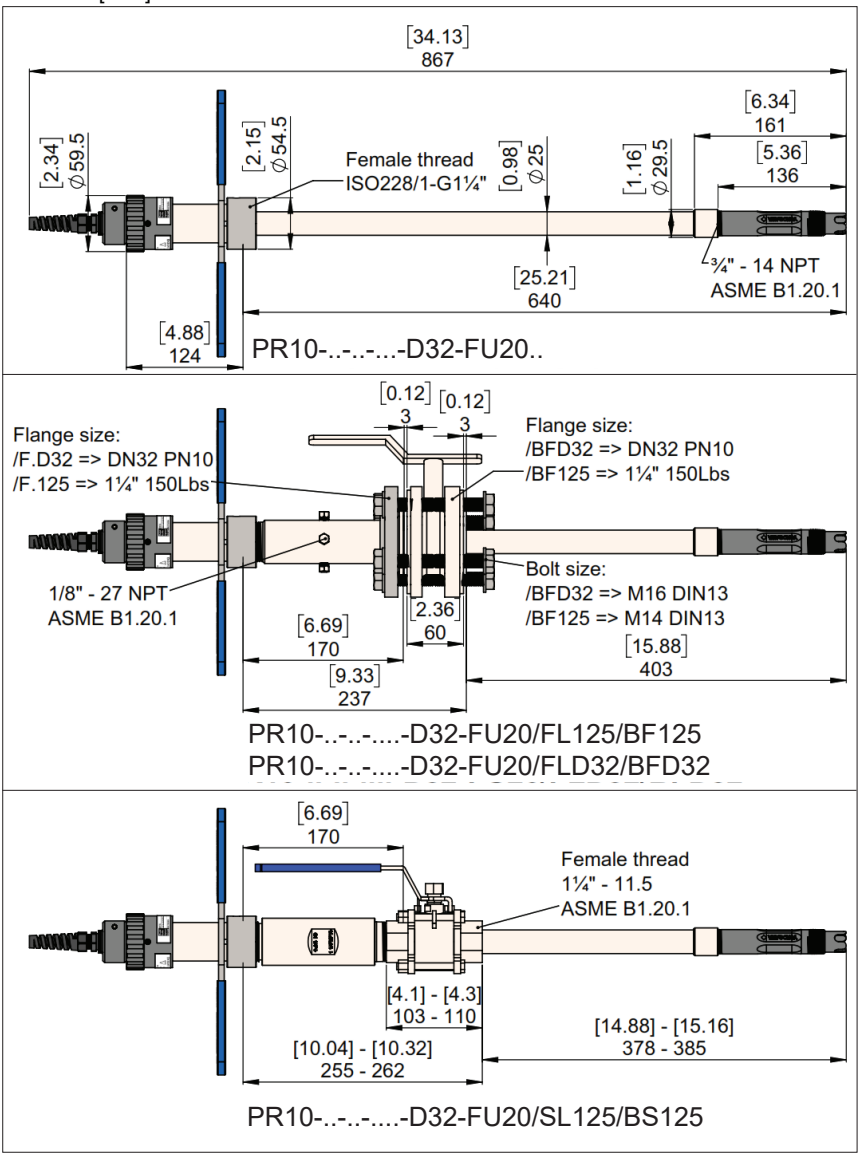

Fig 9: Dimensional drawing PR10...-D32 with mounted FU20 sensor

5.4 Dimensional drawing PR10...-D50 with mounted pH sensor

Units mm [Inch]

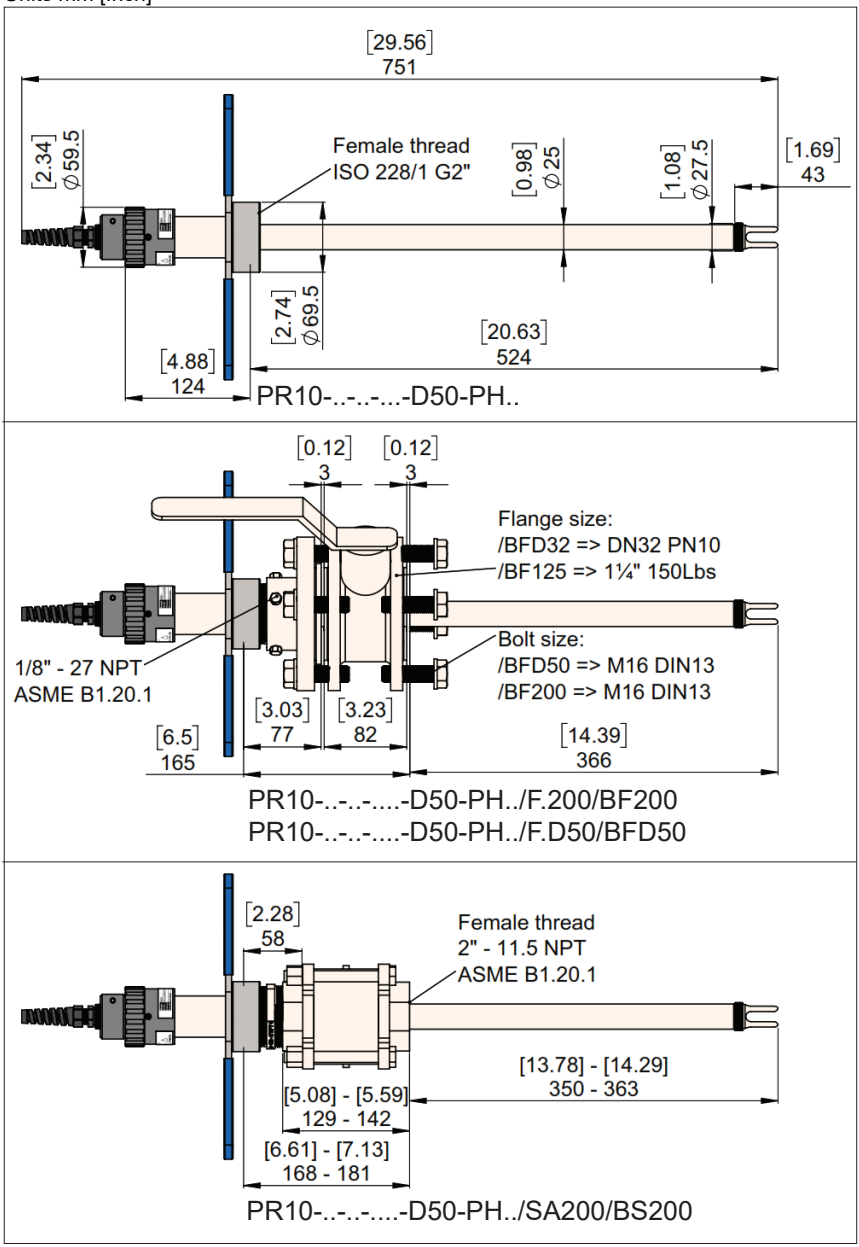

Fig 10: Dimensional drawing PR10...-D50 with mounted pH sensor

5.5 Dimensional drawing PR10...-D50 with mounted SC4A sensor

Units mm [Inch]

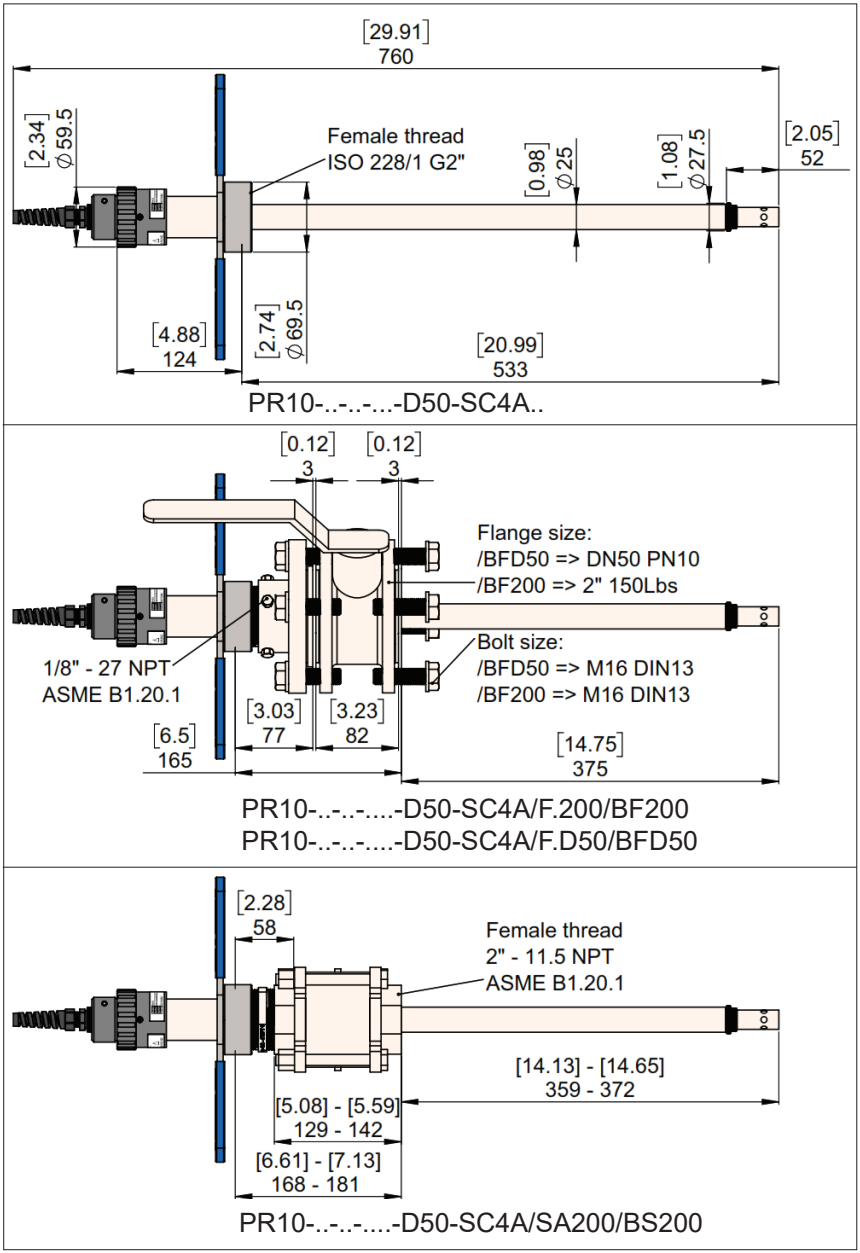

Fig 11: Dimensional drawing PR10...-D50 with mounted SC4A sensor

5.6 Dimensional drawing PR10...-D50 with mounted FU20 sensor
Units mm [Inch]

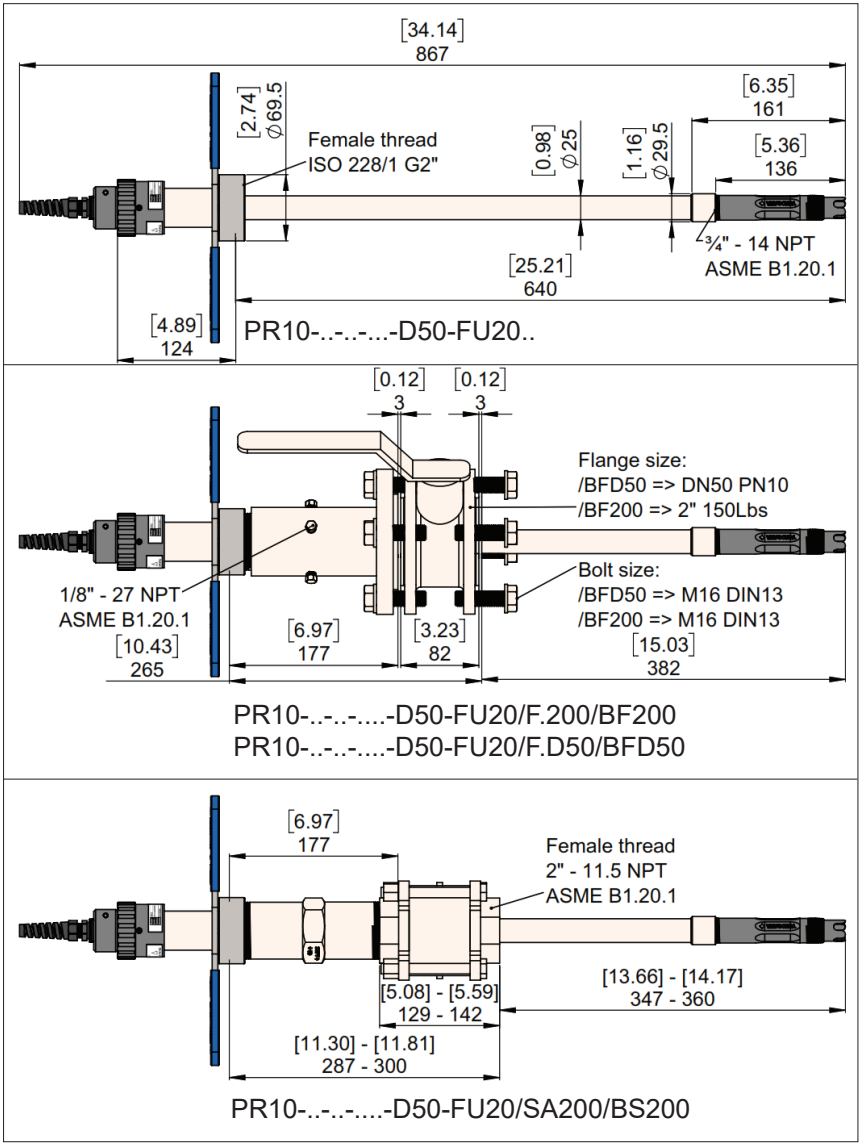

Fig 12: Dimensional drawing PR10...-D50 with mounted FU20 sensor

5.7 Dimensional drawing PR10...-D50 with mounted ISC40 sensor

Units mm [Inch]

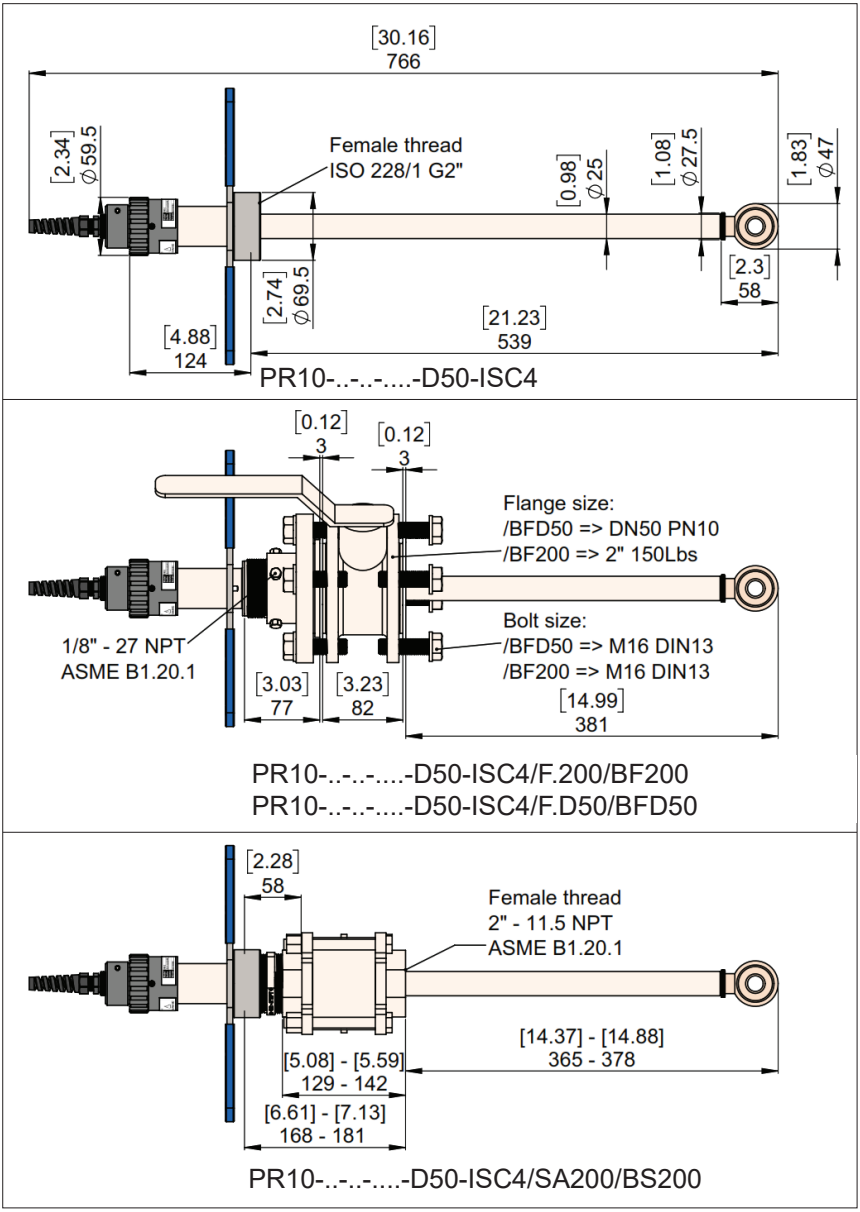

Fig 13: Dimensional drawing PR10...-D50 with mounted ISC40 sensor

5.8 Dimensional drawing of options

Units mm [Inch]

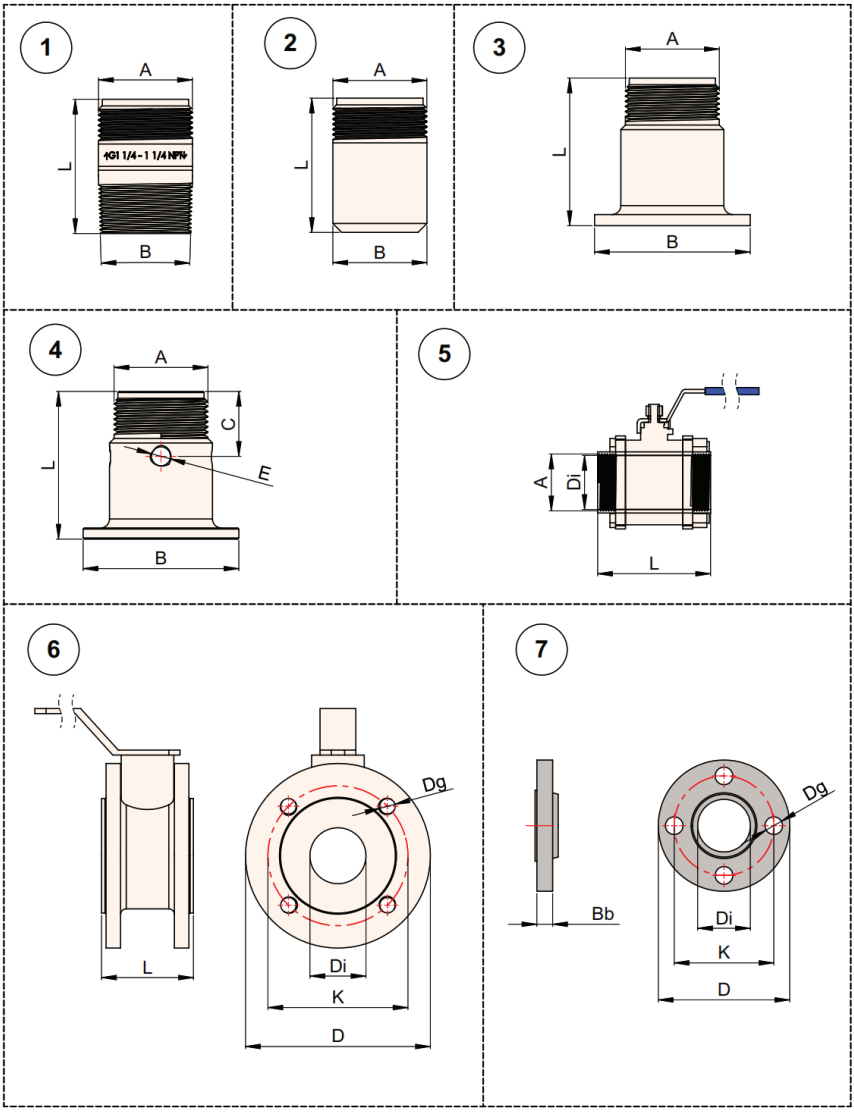

Fig 14: Dimensional drawing PR10 options - refer to tabels 4 and 5 on next page

Table 4: Dimensions of options - units in mm [inch]

			Dimension									
Option	**Description**	**Fig.**	**A**	**B**	**L**	**C**	**Bb**	**D**	**E**	**Di**	**Dg**	**K**
/SA125	ISO 228/1 G1¼ to 1¼" M-NPT	1	ISO 228/1 - G1¼	1¼" NPT	60 [2.4"]							
/SL125	Long ISO 228/1 G1¼ to 1¼" M-NPT	1	ISO 228/1 - G1¼	1¼" NPT	170 [6.7"]							
/FA125	Flange adapter drain 1¼" 150 Lbs	4 , 7	ISO 228/1 - G1¼	69.5 [2.7"]	66 [2.6"]	29 [1.1"]	15.7 [0.6"]	117.3 [4.6"]	1/8" NPT	47 [1.9"]	15.7 [0.6"]	88.9 [3.5"]
/FL125	Long flange adapter drain 1¼" 150 Lbs	4 , 7	ISO 228/1 - G1¼	69.5 [2.7"]	170 [6.7"]	86 (3.4")	15.7 [0.6"]	117.3 [4.6"]	1/8" NPT	47 [1.9"]	15.7 [0.6"]	88.9 [3.5"]
/FN125	Flange adapter no drain 1¼" 150 Lbs	3 , 7	ISO 228/1 - G1¼	69.5 [2.7"]	66 [2.6"]	29 [1.1"]	15.7 [0.6"]	117.3 [4.6"]		47 [1.9"]	15.7 [0.6"]	88.9 [3.5"]
/FAD32	Flange adapter drain DN32	4 , 7	ISO 228/1 - G1¼	69.5 [2.7"]	66 [2.6"]	29 [1.1"]	16 [0.6"]	140 [5.5"]	1/8" NPT	47 [1.9"]	18 [0.7"]	100 [3.9"]
/FLD32	Long flange adapter drain DN32	4 , 7	ISO 228/1 - G1¼	69.5 [2.7"]	170 [6.7"]	86 (3.4")	16 [0.6"]	140 [5.5"]	1/8" NPT	47 [1.9"]	18 [0.7"]	100 [3.9"]
/FND32	Flange adapter no drain DN32	3 , 7	ISO 228/1 - G1¼	69.5 [2.7"]	66 [2.6"]	29 [1.1"]	16 [0.6"]	140 [5.5"]		47 [1.9"]	18 [0.7"]	100 [3.9"]
/WA125	Straight weld-in adapter ISO 228/1 G1¼	2	ISO 228/1 - G1¼	42 [1.7"]	45 [1.8"]							
/BFD32	Ball-valve flanged DN32 PN10	6			60 [2.4"]			140 [5.5"]		32 [1.3"]	M16	100 [3.9"]
/BF125	Ball-valve flanged 1¼" 150 Lbs	6			60 [2.4"]			118 [4.6"]		32 [1.3"]	M14	89 [3.5"]
/BS125	Ball-valve screw-in 1¼" F-NPT	5	1¼" NPT		103 - 110 [4.1" - 4.3"]					32 [1.3"]		

Table 5: Dimensions of options - units in mm [inch]

Option	Description	Fig.	Dimension									
			A	B	L	C	Bb	D	E	Di	Dg	K
/SA200	ISO 228/1 G2 to 2" M-NPT	1	ISO 228/1 - G2	2" NPT	58 [2.3"]							
/SL200	Long ISO 228/1 G2 to 2" M-NPT	1	ISO 228/1 - G2	2" NPT	177 [7"]							
/FA200	Flange adapter drain 2" 150 Lbs	4 , 7	ISO 228/1 - G2	101 [4"]	77 [3"]	32 [1.3"]	20 [0.8"]	165 [6.5"]	1/8" NPT	73 [2.9"]	19 [0.7"]	120.7 [4.75"]
/FL200	Long flange adapter drain 2" 150 Lbs	4 , 7	ISO 228/1 - G2	101 [4"]	177 [7"]	86 [3.4"]	20 [0.8"]	165 [6.5"]	1/8" NPT	73 [2.9"]	19 [0.7"]	120.7 [4.75"]
/FN200	Flange adapter no drain	3 , 7	ISO 228/1 - G2	101	70	32	20	165		73	19	120.7
	2" 150 Lbs			[4"]	[2.8"]	[1.3"]	[0.8"]	[6.5"]		[2.9"]	[0.7"]	[4.75"]
/FAD50	Flange adapter drain DN50	4 , 7	ISO 228/1 - G2	101 [4"]	77 [3"]	32 [1.3"]	20 [0.8"]	165 [6.5"]	1/8" NPT	73 [2.9"]	19 [0.7"]	125 [4.9"]
/FLD50	Long flange adapter drain DN50	4 , 7	ISO 228/1 - G2	101 [4"]	177 [7.0"]	86 [3.4"]	20 [0.8"]	165 [6.5"]	1/8" NPT	73 [2.9"]	19 [0.7"]	125 [4.9"]
/FND50	Flange adapter no drain DN50	3 , 7	ISO 228/1 - G2	101 [4"]	70 [2.8"]	32 [1.3"]	20 [0.8"]	165 [6.5"]		73 [2.9"]	19 [0.7"]	125 [4.9"]
/BF200	Ball-valve flanged 2" 150 Lbs	6			82 [3.2"]			150 [5.9"]		50 [2"]	M16	121 [4.8"]
/BFD50	Ball-valve flanged DN50 PN10	6			82 [3.2"]			165 [6.5"]		50 [2"]	M16	125 [4.9"]
/BS200	Ball-valve screw-in 2" F-NPT	5	2" NPT		142 [5.6"]					50 [2"]		

6. EXPLODED VIEW

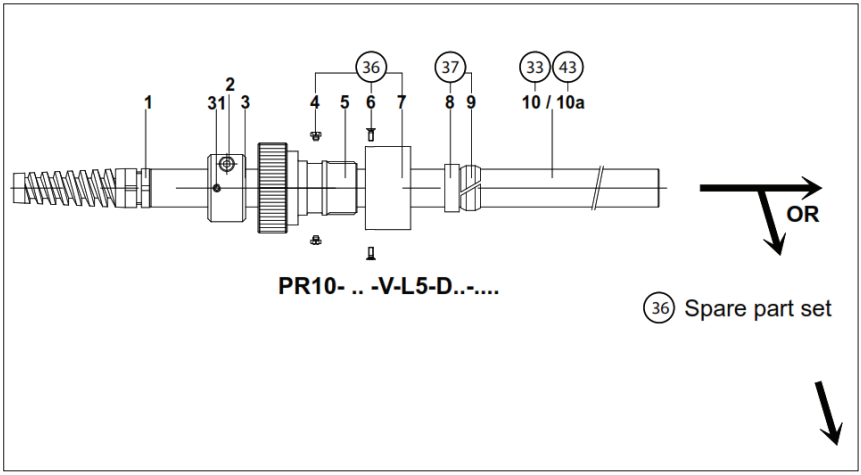

Fig 15: Exploded view

Note: For spare parts see table 6 and table 7 of this chapter and chapter 7 table 8

Table 6: Parts and corresponding numbers from exploded view

PR10-S-V-L5-D32-PH12		
PR10-S-V-L5-D32-PH13		
PR10-S-V-L5-D32-SC4A		
PR10-S-V-L5-D50-ISC4		
PR10-S-V-L5-D50-SC4A		
K1525AG	Adapter Y-cap	30
K1525AB	Sensor holder PG13.5 SS	31
K1525AP	Adapter SC4A - ISC40SS	32
K1525AA	Outer tube SS	33
K1525BA	O-ring set PR10-S-V-L5-D32	34
K1525BB	O-ring set PR10-S-V-L5-D50	35
K1525BC	Key set	36
K1525BD	Squeezing set;	37

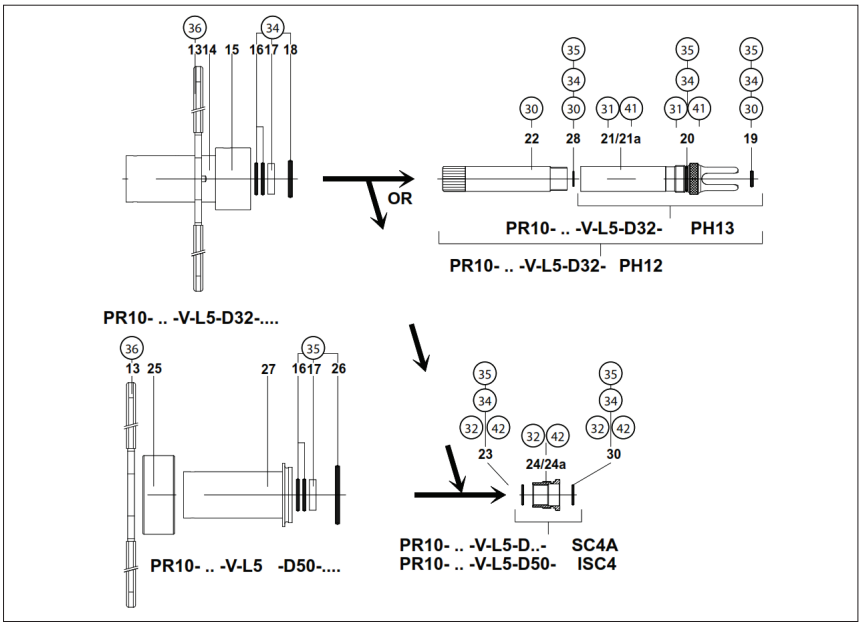

Fig 16: Exploded view

Note: For spare parts see table 6 and table 7 of this chapter and chapter 7 table 8

Table 7: Parts and corresponding numbers from exploded view

PR10-T-V-L5-D32-PH12		
PR10-T-V-L5-D32-PH13		
PR10-T-V-L5-D32-SC4A		
PR10-T-V-L5-D50-ISC4		
PR10-T-V-L5-D50-SC4A		
K1525AG	Adapter Y-cap	30
K1525CB	Sensor holder PG13.5 Titanium	41
K1525CP	Adapter SC4A - ISC40 Titanium	42
K1525CA	Outer tube Titanium	43

7. MODEL CODES

Table 8: PR10 Model codes

Model	Suffix			Options		Description	
PR10						Retractable fitting general purpose	
Material fitting	-S					Stainless steel	
	-T					Titanium (tube and sensor holder only)	
Material O-rings	-V					Viton	
Tube length	-L5					Tube length 0.5 meter	
Connection		-D32				DN32 / 1¼"	
		-D50				DN50 / 2"	
Measuring sensor			-PH12			For 12mm pH sensors Y-cap	
			-PH13			For 12mm pH sensors PG13.5 cap	
			-SC4A			For SC4A	
			-ISC4			For ISC40 → Only for -D50	
			-NNNN			No parameter specification	
			-FU20			For FU20 / FU20F / PH21 → Only for -S	
Adapter screw-in				/SA125		ISO 228/1 G1¼ to 1¼" M-NPT	
Only available in Stainless Steel				/SL125		Long ISO 228/1 G1¼ to 1¼" M-NPT	
				/SA200		ISO 228/1 G2 to 2" M-NPT	
				/SL200		Long ISO 228/1 G2 to 2" M-NPT	
Flange adapter				/FA125		Flange adapter drain 1¼" 150 Lbs	
Only available in Stainless Steel				/FN125		Flange adapter no drain 1¼" 150 Lbs	
/**125 and /**D32 → Only for -D32				/FL125		Long flange adapter drain 1¼" 150 Lbs	
/**200 and /**D50 → Only for -D50				/FA200		Flange adapter drain 2" 150 Lbs	
				/FN200		Flange adapter no drain 2" 150 Lbs	
				/FL200		Long flange adapter drain 2" 150 Lbs	
				/FAD32		Flange adapter drain DN32	
				/FND32		Flange adapter no drain DN32	
				/FLD32		Long flange adapter drain DN32	
				/FAD50		Flange adapter drain DN50	
				/FND50		Flange adapter no drain DN50	
				/FLD50		Long flange adapter drain DN50	
Adapter weld-in Only available in Stainless Steel				/WA125		Straight weld-in adapter ISO 228/1 G1¼	
Ball-valves					/BF125	Ball-valve flanged 1¼" 150 Lbs	With Ball-valves: flange adapters or screw-in adapters are necessary.
Only available in Stainless Steel					/BF200	Ball-valve flanged 2" 150 Lbs	
					/BFD32	Ball-valve flanged DN32 PN10	
					/BFD50	Ball-valve flanged DN50 PN10	
					/BS125	Ball-valve screw-in 1¼" F-NPT	
					/BS200	Ball-valve screw-in 2" F-NPT	
Certificates					/M	Material certificate 3.1 according to NEN-EN 10204 (on wetted parts).	

8. SPARE PARTS

Table 9: Spare parts

Part no.	Description	Exploded view part location
	Cables and glands	
K1520LS	Cable retractable fitting 10M PT100	
K1520LP	Cable retractable fitting 5M PT100	
K1520LQ	Cable retractable fitting 5M PT1000	
K1520LT	Cable retractable fitting 10M PT1000	
K1525BZ	Cable gland (5 pcs)	1
	Sensor holders	
K1525AB	Sensor holder PG13.5 SS	31
K1525CB	Sensor holder PG13.5 Titanium	41
K1525AP	Adapter SC4A-ISC40 SS	
K1525CP	Adapter SC4A-ISC40 Titanium	42
K1525AG	Adapter Y-cap	30
K1541EM	Adapter 2” NPT - G2 SS	
	Outer tubes	
K1525AA	Outer tube SS	33
K1525CA	Outer tube titanium	43
K1525BX	OUTER TUBE SS FU20	
	Tools	
K1525AF	O-ring pick up tool	
K1525BC	Key set	36
K1525BD	Squeezing set	37
	Bolts and washers	
K1525BE	Set M16 bolt & washer (8 pcs)	
K1525BF	Set M14 bolt & washer (8 pcs)	
	Screw-in adapters	
K1525YA	PR10/SA125	
K1525YT	PR10/SL125	
K1541EM	PR10/SA200	
K1525YV	PR10/SL200	
	Flange adapters	
K1525YB	PR10/FA125	
K1525YU	PR10/FL125	
K1525YC	PR10/FN125	
K1525YD	PR10/FA200	
K1525YW	PR10/FL200	
K1525YR	PR10/FAD50	
K1525YY	PR10/FLD50	
K1525YE	PR10/FN200	
K1525YS	PR10/FND50	
K1525YF	PR10/FAD32	
K1525YX	PR10/FLD32	
K1525YG	PR10/FND32	
	Weld-in adapter	
K1525YH	PR10/WA125	
	Ball-valve adapters	
K1525YK	PR10/BF125	
K1525YL	PR10/BF200	
K1525YM	PR10/BFD32	
K1525YN	PR10/BFD50	
K1525YP	PR10/BS125	
K1525YQ	PR10/BS200	
	Gaskets	
K1525BH	Gaskets ball valves - D32 (2x)	
K1525BJ	Gaskets ball valves - D50 + 2” (2x)	
K1525BK	Gaskets ball valves - 1¼” (2x)	
	O-ring sets	
K1525BA	O-ring set PR10-S-V-L5-D32	34
K1525BB	O-ring set PR10-S-V-L5-D50	35
K1525KA	O-RING SET KALREZ & FKM PR10 D32-PH1x	34
K1525KB	O-RING SET KALREZ & FKM PR10 D32-SC4A	34
K1525KC	O-RING SET KALREZ&FKM PR10 D32-FU20/NNNN	34
K1525KD	O-RING SET KALREZ & FKM PR10 D50-PH1x	35
K1525KE	O-RING SET KALREZ&FKM PR10 D50-SC4A/ISC4	35
K1525KF	O-RING SET KALREZ&FKM PR10 D50-FU20/NNNN	35

9. INSTALLATION MATRIX

Table 10: PR10 installation matrix

	PR10-S-V-L5-D32-FU20	PR10-S-V-L5-D32-NNNN	PR10-S-V-L5-D32-PH12	PR10-S-V-L5-D32-PH13	PR10-S-V-L5-D32-SC4A	PR10-S-V-L5-D50-FU20	PR10-S-V-L5-D50-ISC4	PR10-S-V-L5-D50-NNNN	PR10-S-V-L5-D50-PH12	PR10-S-V-L5-D50-PH13	PR10-S-V-L5-D50-SC4A	PR10-T-V-L5-D32-NNNN	PR10-T-V-L5-D32-PH12	PR10-T-V-L5-D32-PH13	PR10-T-V-L5-D32-SC4A	PR10-T-V-L5-D50-ISC4	PR10-T-V-L5-D50-NNNN	PR10-T-V-L5-D50-PH12	PR10-T-V-L5-D50-PH13	PR10-T-V-L5-D50-SC4A
/SA125		X	X	X	X															
/SL125	X	O	O	O	O															
/SA200							X	X	X	X	X									
/SL200						X	O	O	O	O	O									
/FA125		X	X	X	X															
/FN125		X	X	X	X															
/FL125	X	O	O	O	O															
/FA200							X	X	X	X	X									
/FN200							X	X	X	X	X									
/FL200						X	O	O	O	O	O									
/FAD32		X	X	X	X															
/FND32		X	X	X	X															
/FLD32	X	O	O	O	O															
/FAD50							X	X	X	X	X									
/FND50							X	X	X	X	X									
/FLD50						X	O	O	O	O	O									
/WA125		X	X	X	X															
/BF125	X	X	X	X	X															
/BF200						X	X	X	X	X										
/BFD32	X	X	X	X	X															
/BFD50						X	X	X	X	X										
/BS125	X	X	X	X	X															
/BS200						X	X	X	X	X										
/M	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

O = technical possible but not recommendable due to decrease insertion depth and large process volume.

Table 11: Combining configurations

PR10	-S	-T	-V	L5	D32	D50	-PH12	-PH13	-SC4A	-ISC4	-NNNN	-FU20
-S			X	X	X	X	X	X	X	X	X	X
-T			X	X	X	X	X	X	X	X	X	
-V	X	X		X	X	X						
L5	X	X			X	X						
D32	X	X	X	X			X	X	X		X	X
D50	X	X	X	X			X	X	X	X	X	X
-PH12	X	X	X	X	X	X						
-PH13	X	X	X	X	X	X						
-SC4A	X	X	X	X	X	X						
-ISC4	X	X	X	X		X						
-NNNN	X	X	X	X	X	X						
-FU20	X		X	X	X	X						

When choosing a Ball valve it is mandatory to choose a flange adapter or screw-in adapter Below is an overview of all the possible selection..

Table 12: Combining adapter configuration

		Ball valve						
		/BF125	/BF200	/BFD32	/BFD50	/BS125	/BS200	/M
Screw-in adapter	/SA125					X		X
	/SL125					X		X
	/SA200						X	X
	/SL200						X	X
Flange adapter	/FA125	X						X
	/FN125	X						X
	/FL125	X						X
	/FA200		X					X
	/FN200		X					X
	/FL200		X					X
	/FAD32			X				X
	/FND32			X				X
	/FLD32			X				X
	/FAD50				X			X
	/FND50				X			X
	/FLD50				X			X
Weld-in adapter	/WA125					X		X
	/M	X	X	X	X	X	X	

10. CHEMICAL COMPATIBILITY CHART

Table 13: Material compatibility table

		Conc.%	Temp. °C	Material: Viton 20	Viton 60	Viton 100	FFKM 20	FFKM 60	FFKM 100	Ti 20	Ti 60	Ti 100	SS 316(I) 20	SS 316(I) 60	SS 316(I) 100
Inorganic acid	Sulfiric acid	10		o	o	o	o	o	o	-	-	-	x	x	x
		50		o	o	o	o	o	o	-	-	-	x	x	x
		95		o	o	o	o	o	o	-	-	-	x	x	x
		fuming		o	o	o	o	o	o	-	-	-	-	-	-
	Hydrochloric acid	10		o	o	o	o	o	o	-	-	-	-	-	-
		sat.		o	o	o	o	o	o	-	-	-	-	-	-
	Nitric acid	25		o	o	x	o	o	o	o	o	o	x	x	x
		50		-	-	-	o	o	o	o	o	o	x	x	x
		95		-	-	-	o	o	o	o	o	o	o	o	o
		fuming		-	-	-	o	o	o				o	o	o
	Phosphoric acid	25		o	o	o	o	o	o	x	x	-	-	-	-
		50		o	o	o	o	o	o	x	-	-	x	x	x
		95		x	x	-	o	o	o	x	-	-	o	o	o
	Hydrofluoric acid	40		o	o	o	o	o	o	-	-	-	-	-	-
		75		o	o	x	o	o	o	-	-	-	-	-	-
Organic acid	Acetic acid	10		-	-	-	o	o	o	o	o	o	o	o	x
		glacial		-	-	-	o	o	o	o	o	o	o	o	x
	Formic acid	80		-	-	-	o	o	x	x	x	-	x	x	x
	Citric acid	50		o	o	o	o	o	o	x	x	x	o	o	o
Alkali	Calcium hydroxide	sat.		o	o	o	o	o	o	o	o	o	o	o	o
	Potassium hydroxide	50		o	o	o	o	o	o	o	x	-	o	o	o
	Sodium hydroxide	40		x	x	x	o	o	o	x	x	-	o	o	o
	Ammonia in water	30		x	x	x	o	o	o	x	x	-	o	o	o
Acid salt	Ammonium chloride	sat.		o	o	o	o	o	o	o	o	o	x	x	x
	Zinc chloride	50		o	o	o	o	o	o	o	o	o	x	x	x
	Iron(III) chloride	50		o	o	o							-	-	-
	Sodium sulfite	sat.		-	-	-	o	o	o	o	o	o	o	o	o
Basic salt	Sodium carbonate	sat.		o	o	o	o	o	o	o	o	o	o	o	o
	Potassium chloride	sat.		o	o	o	o	o	o	o	o	x	x	x	x
	Sodium sulfate	sat.		o	o	o	o	o	o	o	o	o	o	o	o
	Calcium chloride	sat.		o	o	o	o	o	o	o	o	o	x	x	x
Neutral salt	Sodium chloride	sat.		o	o	o	o	o	o	o	o	o	x	x	x
	Sodium nitrate	50		o	o	o	o	o	o	o	o	o	x	x	x
	Aluminium chloride	sat.		o	o	o	o	o	o	o	o	x	-	-	-
	Hydrogen peroxide	30		o	o	o	o	o	o	o	o	o	o	o	o
Oxidizing agent	Sodium Hypochloride	50		o	o	x	o	o	o	x	-	-	x	x	x
	Potassium dichromate	sat.		o	o	o	o	o	o	o	o	o	o	o	o
	Chlorinated lime												x	x	x
	Ethanol	80		x	-	-	o	o	o	o	o	o	o	o	o
Organic solvent	Cyclohexane			o	o	o	o	o	o	o	o	o	o	o	o
	Toluene			-	-	-	o	o	o	o	o	o	o	o	o
	Trichloroethane			x	x	x	o	o	o	o	o	o	o	o	x
	Water			o	o	o	o	o	o	o	o	o	o	o	o

Note : Information in this list is based on our general experience and literature data and given in good faith.
However Yokogawa is unable to accept responsobility for claims related to this information.

o = can be used x = shortens useful life - = cannot be used Blank = no data currently available

YOKOGAWA ELECTRIC CORPORATION
World Headquarters
9-32, Nakacho 2-chome, Musashino-shi
Tokyo 180-8750
Japan
www.yokogawa.com

YOKOGAWA CORPORATION OF AMERICA
2 Dart Road
Newnan GA 30265
USA
www.yokogawa.com/us

YOKOGAWA EUROPE BV
Euroweg 2
3825 HD AMERSFOORT
The Netherlands
www.yokogawa.com/eu

YOKOGAWA ELECTRIC ASIA Pte. LTD.
5 Bedok South Road
Singapore 469270
Singapore
www.yokogawa.com/sg

YOKOGAWA CHINA CO. LTD.
Room 1801, Tower B, THE PLACE
No.100 Zunyi Road
Changing District, Shanghai, China
www.yokogawa.com/cn

YOKOGAWA MIDDLE EAST B.S.C.(c)
P.O. Box 10070, Manama
Building 577, Road 2516, Busaiteen 225
Muharraq, Bahrain
www.yokogawa.com/bh

Yokogawa has an extensive sales and distribution network.
Please refer to the European website (www.yokogawa.com/eu) to contact your nearest representative.

IM 12B06K03-01E-EN-P
Subject to change without notice
Printed in The Netherlands, 01-2207