

# User's Manual

Model ISC40FF, ISC40FS, ISC40FD  
Sensor fitting





# Contents

<b>1. PREFACE</b> .....	<b>4</b>
1.1 Introduction.....	4
1.2 Unpacking and Checking .....	4
1.3 Warranty and Service .....	4
1.4 Serial number.....	5
<b>2. ISC40FF FLOW FITTING</b> .....	<b>6</b>
2.1 General Specifications.....	6
2.1.1 Materials.....	6
2.1.2 Operating range .....	6
2.1.3 Shipping details (Without options).....	6
2.1.4 Process connections.....	6
2.2 INSTALLATION OF ISC40 SENSOR IN ISC40FF .....	7
2.3 DIMENSIONS .....	8
2.4 MODEL CODE ISC40FF FITTING .....	10
2.5 SPARE PARTS ISC40FF FITTING.....	11
<b>3. ISC40FS FLOW FITTING SUBASSEMBLY</b> .....	<b>12</b>
3.1 General Specifications.....	12
3.1.1 Materials.....	12
3.1.2 Operating range .....	12
3.1.3 Shipping details .....	12
3.1.4 Process connections.....	12
3.2 INSTALLATION OF ISC40 SENSOR IN ISC40FS .....	13
3.3 DIMENSIONS .....	14
3.4 MODEL CODE ISC40FS FLOW FITTING SUBASSEMBLY.....	15
3.5 SPARE PARTS ISC40FS FLOW FITTING SUBASSEMBLY .....	16
<b>4. ISC40FD IMMERSION FITTING</b> .....	<b>17</b>
4.1 General Specifications.....	17
4.1.1 Materials.....	17
4.1.2 Operating range .....	17
4.1.3 Shipping details .....	17
4.1.4 Process connections.....	17
4.2 INSTALLATION OF ISC40 SENSOR IN ISC40FD .....	18
4.3 DIMENSIONS ISC40FD.....	19
4.4 MODEL CODE ISC40FD .....	21
4.5 SPARE PARTS ISC40FD .....	22
<b>5. CHEMICAL COMPATIBILITY</b> .....	<b>23</b>

# 1. PREFACE

## 1.1 Introduction

The ISC40 sensor fitting program for inductive conductivity measurement is designed to meet the most common installation requirements in terms of material compatibility, process connections and flow dynamics. The various installation possibilities are described and illustrated in this manual.

The following categories of installation can be recognised:

1. Direct mounting of sensors in tank wall or customer supplied flanges
2. Cost effective installation of sensors using process adapters
3. Maintenance friendly installation of sensors using in-line subassemblies
4. Installation in flow chambers for measurements in sample streams or bypass loops
5. Installation in immersion fittings for measurement in open tanks or channels

Within the wide range of process adapters, subassemblies, flow fittings and immersion fittings it is easy to find the appropriate installation that fits the application (a wide choice of materials), the plant installation practice (a wide choice of process connections) and the maintenance procedures.

## 1.2 Unpacking and Checking

Upon delivery, unpack the product carefully and inspect it to ensure it was not damaged during shipment. If damage is found, retain the original packing materials and then immediately notify the carrier and the relevant Yokogawa sales office. Make sure the Model Code and Serial Number on the fitting are the same as on the packing list. Also, check any option(s) that were ordered are included and correct.

## 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 fitting (option)
- 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 fitting (options) have been exposed.

## 1.4 Serial number

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

X<sub>1</sub>X<sub>2</sub>                      Production location  
 X<sub>3</sub>X<sub>4</sub>                      Year/Month code  
 X<sub>5</sub>X<sub>6</sub> X<sub>7</sub>X<sub>8</sub> X<sub>9</sub>        Tracking number

Example:                      N3P400123

**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. ISC40FF FLOW FITTING

### 2.1 General Specifications

#### 2.1.1 Materials

Wetted parts fitting	
Model ISC40FF-S	: AISI 316 SS; Viton
Model ISC40FF-P <sup>(1)</sup>	: Polypropylene; Viton
Model ISC40FF-F <sup>(1)</sup>	: PVDF (Kynar); Viton
Non-wetted parts fitting	: AISI 304 SS or AISI 316 SS

#### 2.1.2 Operating range

##### Temperature

Model ISC40FF-S	: Max. 150°C (302°F)
Model ISC40FF-P <sup>(1)</sup>	: Max. 100°C (212°F)
Model ISC40FF-F <sup>(1)</sup>	: Max. 130°C (266°F)

##### Pressure

Model ISC40FF-S	: Max. 10 bar (150 PSI) at operating temperature
Model ISC40FF-P <sup>(1)</sup>	: Max. 6 bar (90 PSI) at 20°C (68°F) Max. 1 bar (15 PSI) at 100°C (212°F)
Model ISC40FF-F <sup>(1)</sup>	: Max. 10 bar (150 PSI) at 20°C (68°F) Max. 1 bar (15 PSI) at 130°C (266°F)

#### 2.1.3 Shipping details (Without options)

Package size (LxWxH)	: 250 x 150 x 140 mm (9.84 x 5.90 x 5.51 inch)
Package weight (max)	: 1.5 kg (3.3 lbs)

#### 2.1.4 Process connections

1/2" NPT in flow fitting, connected with optional flange adapters to the actual installation.

**Note <sup>(1)</sup>:** If required the ISC40 sensor type -GG and -TG can be supplied with a Viton gasket K1500AM (ordered as spare part). This gasket may be used with the older series of ISC40FF fittings. It should be discarded when the sensor is mounted in combination with the ISC40FF type -PA and -FA.

## 2.2 INSTALLATION OF ISC40 SENSOR IN ISC40FF

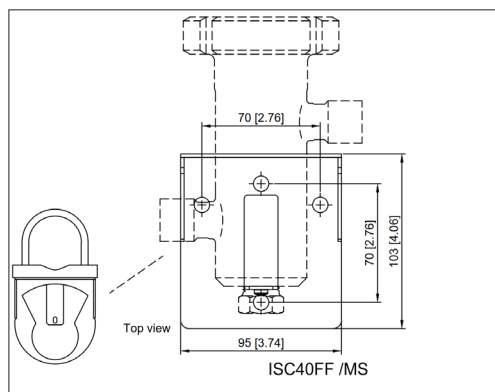
Installation of the flow fittings involves two steps:

- Installation of the sensor

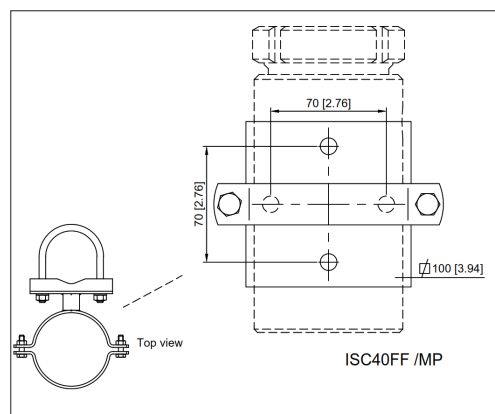
The sensor has to be mounted in the flow fitting. It is important that the position of the sensor in the fitting allows easy flow through the hole of the sensor donut (refer to Section 3 of ISC40 manual). Generally good flow is assured if the flats of the sensor are oriented perpendicular to the outlet piping. It is also important that the sample piping is oriented in such a way that the direction of the flow is upwards to assure complete filling of the flow chamber

- Installation of the fitting on wall, railing or stanchion

For this purpose, the flow fitting has an optional pipe/wall mounting kit /MS or /MP (see Figure 1 and Figure 2 for details). This kit consists of a clamp ring with bolts and nuts which clamps around the flow chamber. Therefore, the flow chamber can be turned in the mounting assembly allowing more flexibility in installation. The mounting plate can be mounted on a wall or panel with 2-4 anchor bolts with a diameter of 10 mm (3/8") max. For those installations where pipe mounting is requested (2" nominal pipe), either horizontal or vertical, a saddle and U-bolt have to be used.



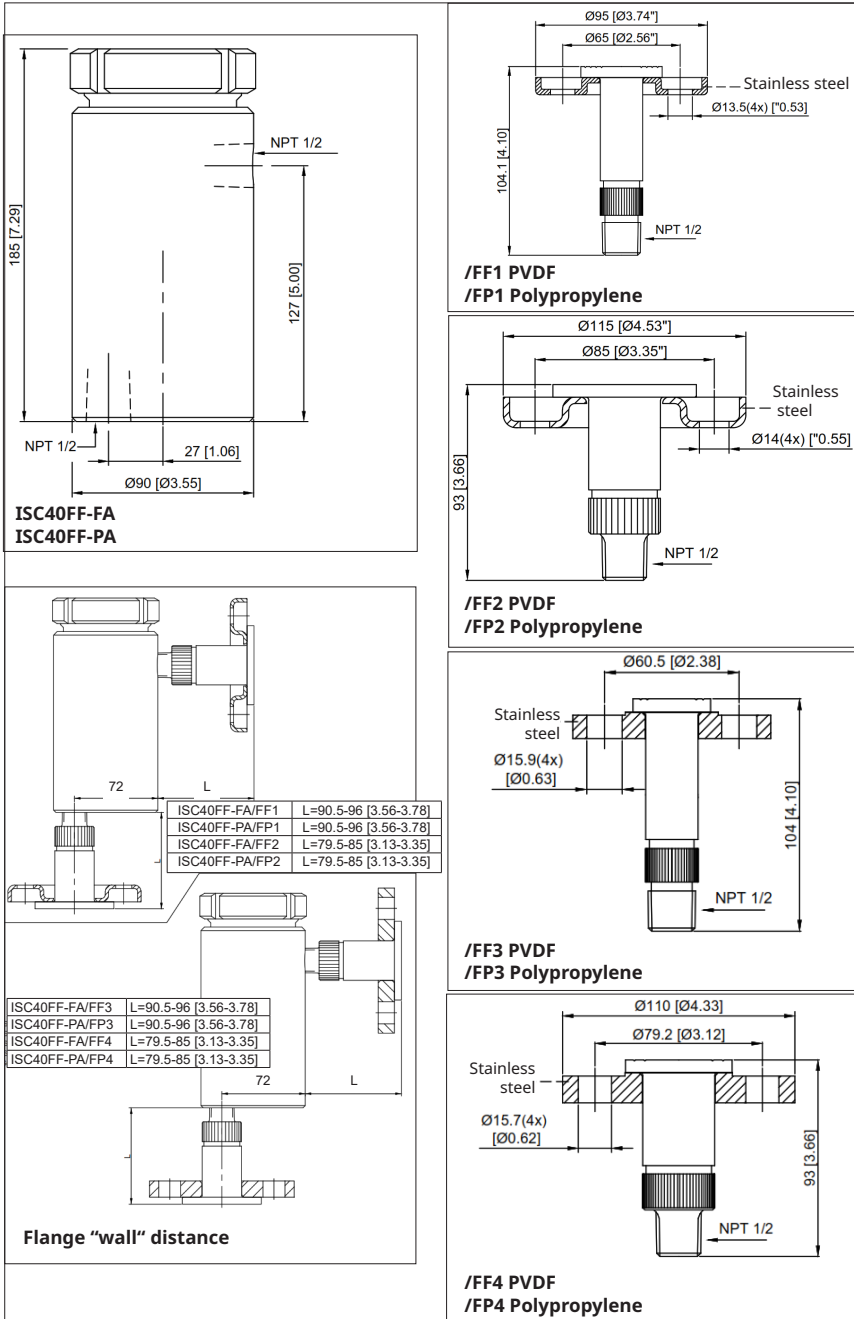
**Figure 1:** Pipe/wall mounting kit /MS



**Figure 2:** Pipe/wall mounting kit /MP

**2.3 DIMENSIONS**

Dimensions in mm (inches)



**Figure 3:** Flow fitting ISC40FF-P, ISC40FF-F  
IM 12D07K04-01EN-P



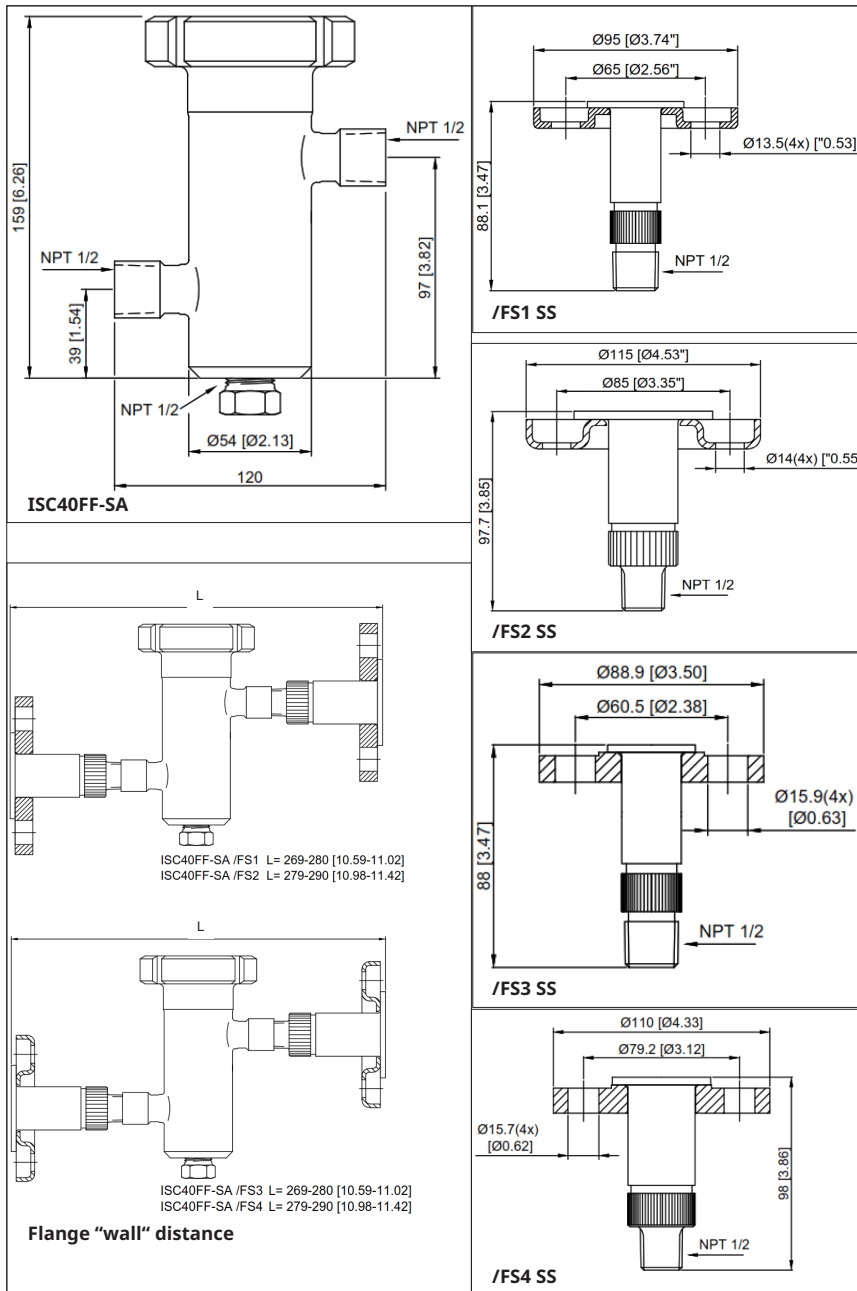


Figure 4: Flow fitting ISC40FF-S

## 2.4 MODEL CODE ISC40FF FITTING

**Table 3:** Model and suffix code table

Model	Suffix Code	Option	Description
ISC40FF			Flow fitting for inductive conductivity
Material	-F		Polyvinylidene fluoride (PVDF)
	-P		Polypropylene (PP)
	-S		Stainless steel AISI 316 (SS)
Process connection	A		½" NPT Screw thread acc to ANSI / ASME
Flange adapters	/FF1		PVDF DN15-PN10 flange adapters
	/FF2		PVDF DN25-PN10 flange adapters
	/FF3		PVDF ½"-150lbs flange adapters
	/FF4		PVDF 1"- 150lbs flange adapters
	/FP1		PP DN15-PN10 flange adapters
	/FP2		PP DN25-PN10 flange adapters
	/FP3		PP ½"- 150lbs flange adapters
	/FP4		PP 1"- 150lbs flange adapters
	/FS1		Stainless steel DN15-PN10 flange adapters
	/FS2		Stainless steel DN25-PN10 flange adapters
	/FS3		Stainless steel ½"-150lbs flange adapters
	/FS4		Stainless steel 1"- 150lbs flange adapters
Mounting set	/MS		Wall/pipe mounting set for SS flow fitting
	/MP		Wall/pipe mounting set for PP/PVDF flow fitting
Material certificate		/M	3.1 acc. EN 10204 - wetted metal parts only

## 2.5 SPARE PARTS ISC40FF FITTING

Options ISC40FF Flow fitting, flange adapters				
Part no.	Description	Process connection		
K1521AL	/FF1	DN15 PN10		
K1521AP	/FF2	DN25 PN10		
K1521AE	/FF3	ANSI ½" - 150lbs		
K1521AH	/FF4	ANSI 1"-150lbs		
K1521AM	/FP1	DN15 PN10		
K1521AQ	/FP2	DN25 PN10		
K1521AF	/FP3	ANSI ½" - 150lbs		
K1521AJ	/FP4	ANSI 1"- 150lbs		
K1521AK	/FS1	DN15 PN10		
K1521AN	/FS2	DN25 PN10		
K1521AD	/FS3	ANSI ½" - 150lbs		
K1521AG	/FS4	ANSI 1"- 150lbs		
Parts ISC40FF Flow fitting				
Part no.	Description	Dimensions	Material	O-ring(s)
K1541KD	Holder, *-F	2"	PVDF	Viton
K1541KL	Holder, *-P	2"	Polypropylene	Viton
K1541KA	Holder, -S	2"	AISI 316 SS	Viton
K1541ZU	/MP for ISC40FF-P/F			
K1541ZZ	/MS for ISC40FF-S			
K1500DZ	Nut FF/S20-3* + ISC40FF/S		AISI 316 SS	
Parts ISC40FF Flow fitting				
O-rings -SA				
Part no.	Description	Dimensions	Material	Quantity
K1500DB	O-ring set	40.64 x 5.33; 26.57 x 3.53; Ring DN50	EPDM	5 sets
K1500DA	O-ring set	40.64 x 5.33; 26.57 x 3.53; Ring DN50	Viton	5 sets
K1500DC	O-ring set	40.64 x 5.33; 26.57 x 3.53; Ring DN50	Silicon	5 sets
K1500CD	O-ring	40.64 x 5.33	FFKM	1
K1500CH	O-ring	26.57 x 3.53	FFKM	1
K1500DD	O-ring	53.34 x 5.33	FFKM	1
O-rings -PA, -FA				
Part no.	Description	Dimensions	Material	Quantity
K1500DF	O-ring set	40.64 x 5.33; 26.57 x 3.53; 56.52 x 5.33	EPDM	5 sets
K1500DE	O-ring set	40.64 x 5.33; 26.57 x 3.53; 56.52 x 5.33	Viton	5 sets
K1500DG	O-ring set	40.64 x 5.33; 26.57 x 3.53; 56.52 x 5.33	Silicon	5 sets
K1500CD	O-ring	40.64 x 5.33	FFKM	1
K1500CH	O-ring	26.57 x 3.53	FFKM	1
K1541ZM	O-ring	56.52x5.33	Viton	5

**Note** O-ring 53.34 x 5.33 (K1500DD) is used as a FFKM replacement for the Ring DN50.

### 3. ISC40FS FLOW FITTING SUBASSEMBLY

#### 3.1 General Specifications

##### 3.1.1 Materials

Wetted parts fitting	
Model ISC40FS-FCSA <sup>(2)</sup>	: PVDF (Kynar); Viton
Model ISC40FS-PCSA <sup>(2)</sup>	: Polypropylene; Viton
Model ISC40FS-SCSA	: AISI 316 SS; Viton
Model ISC40FS-SCWN	: AISI 316 SS; Viton

Non-wetted parts fitting	
Nut	: AISI 304 SS

##### 3.1.2 Operating range

###### Temperature

Model ISC40FS-FCSA	: Max. 130°C (266°F)
Model ISC40FS-PCSA	: Max. 100°C (212°F)
Model ISC40FS-SCSA	: Max. 150°C (302°F)
Model ISC40FS-SCWN	: Max. 150°C (302°F)

###### Pressure

Model ISC40FS-FCSA	: Max. 10 bar (150 PSI) at 20°C (68°F) Max. 1 bar (15 PSI) at 130°C (266°F)
Model ISC40FS-PCSA	: Max. 6 bar (90 PSI) at 20°C (68°F) Max. 1 bar (15 PSI) at 100°C (212°F)
Model ISC40FS-SCSA	: Max. 10 bar (150 PSI) at operating temperature
Model ISC40FS-SCWN	: Max. 10 bar (150 PSI) at operating temperature

##### 3.1.3 Shipping details

Package size (LxWxH)	
Model -FCSA and -PCSA	: 215 x 150 x 100 mm (8.46 x 5.90 x 2.17 inch)
Model -SCSA and -SCWN	: 215 x 150 x 55 mm (8.46 x 5.90 x 2.17 inch)
Package weight (max.)	: 0.9 kg (2.0 lbs)

##### 3.1.4 Process connections

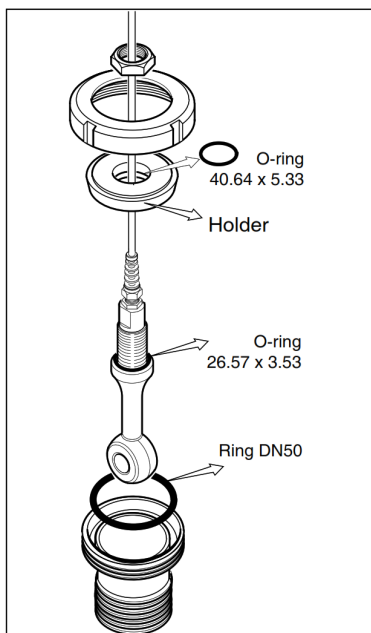
2" screw-in coupling or weld-in coupling

**Note** <sup>(2)</sup>: If required the ISC40 sensor type GG and TG can be supplied with a Viton gasket K1500AM (ordered as spare part). This gasket may be used with the older series of ISC40FS fittings. It should be discarded when the sensor is mounted in combination with the ISC40FS type FCSCA and PCSCA.

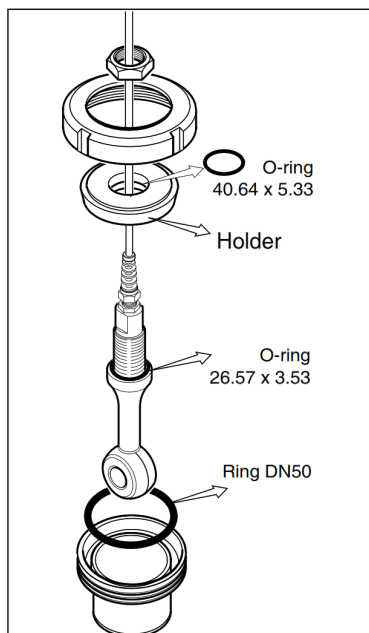
### 3.2 INSTALLATION OF ISC40 SENSOR IN ISC40FS

The key difference between a sensor adapter and a subassembly is, that with subassembly installation the sensor can be removed from the process installation without removing the subassembly first. This allows easier access to the sensor for maintenance activities.

Generally, the subassembly consists of three parts of which one part is fitted permanently to the process installation (welded or threaded); the second part is fitted to the sensor and the third part holds the earlier parts together. In addition to these parts there are elastomeric seals were appropriate. Standard O-ring material is Viton, other O-ring materials are available as spare part (see Figure 5 and 6).



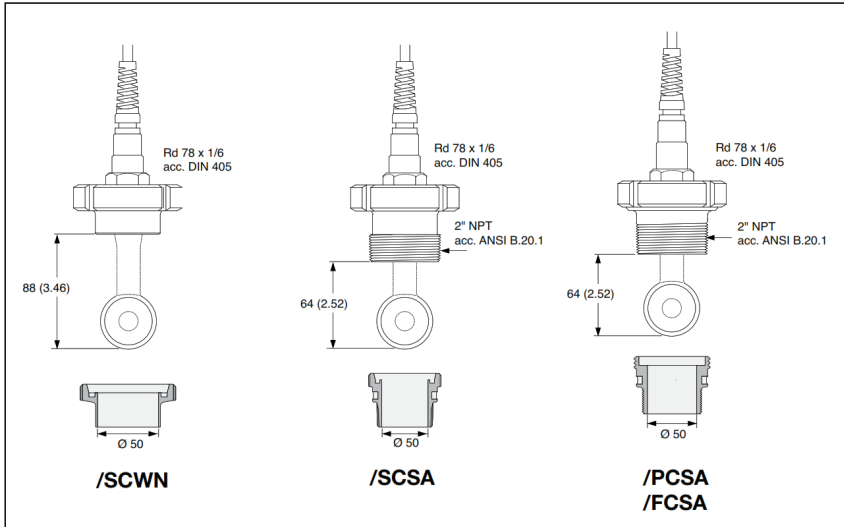
**Figure 5:** ISC40 sensor in screw-in subassembly ISC40FS-SCSA



**Figure 6:** ISC40 sensor in weld-in subassembly ISC40FS-SCWN

### 3.3 DIMENSIONS

Dimensions in mm (inches)



**Figure 7:** Dimensions ISC40FS with sensor installed (dimensions in mm (inches))

### 3.4 MODEL CODE ISC40FS FLOW FITTING SUBASSEMBLY

**Table 4:** Model and suffix code table

Model	Suffix Code	Option	Description
ISC40FS			inductive conductivity flow fitting, subassembly
Material	-F		Polyvinylidene fluoride (PVDF)
	-P		Polypropylene (PP)
	-S		Stainless steel (SS)
Process connection	-CS		2" coupling screw-in
	-CW		coupling weld acc to DIN 11851 (only for -S)
Screw thread NPT or R	-A		screw thread acc to ANSI / ASME (only for -CS)
	-N		no thread (only for -CW weld-in couplings)
Options		/M	material certificate 3.1 (EN 10 204) wetted metal parts only

### 3.5 SPARE PARTS ISC40FS FLOW FITTING SUBASSEMBLY

Parts ISC40FS subassembly				
Part no.	Description	Dimensions	Material	O-ring(s)
K1541KD	Holder+O-rings	2"	PVDF	Viton
K1541KL	Holder+O-rings	2"	Polypropylene	Viton
K1541KA	Holder+O-rings	2"	AISI 316 SS	Viton
K1541KB	Holder, ISC40FS-STWN			
K1541KC	Holder, ISC40FS-S2WN			
K1541ZM	O-rings	56.52x5.33 (5)		Viton
K1500BP	Clamp seal ring	2"		EPDM
K1500CB	O-ring	(5 sets of 2) ISC40/options		Viton
K1500DZ	Nut FF/S20-3* + ISC40FF/S		AISI 316 SS	
Parts ISC40FS subassembly				
O-rings -FCSA, -PCSA, -FCWN, -PCWN				
Part no.	Description	Dimensions	Material	Quantity
K1500DF	O-ring set	40.64 x 5.33; 26.57 x 3.53; 56.52 x 5.33	EPDM	5 sets
K1500DE	O-ring set	40.64 x 5.33; 26.57 x 3.53; 56.52 x 5.33	Viton	5 sets
K1500DG	O-ring set	40.64 x 5.33; 26.57 x 3.53; 56.52 x 5.33	Silicon	5 sets
K1500CD	O-ring	40.64 x 5.33	FFKM	1
K1500CH	O-ring	26.57 x 3.53	FFKM	1
O-rings -SCSA, -SCWN, -S2WN				
Part no.	Description	Dimensions	Material	Quantity
K1500DB	O-ring set	40.64 x 5.33; 26.57 x 3.53; Ring DN50	EPDM	5 sets
K1500DA	O-ring set	40.64 x 5.33; 26.57 x 3.53; Ring DN50	Viton	5 sets
K1500DC	O-ring set	40.64 x 5.33; 26.57 x 3.53; Ring DN50	Silicon	5 sets
K1500CD	O-ring	40.64 x 5.33	FFKM	1
K1500CH	O-ring	26.57 x 3.53	FFKM	1
K1500DD	O-ring	53.34 x 5.33	FFKM	1
K1500DJ	O-ring sets		Viton	2
K1500DK	O-ring sets		Silicon	2
K1541ZH	O-ring sets		EPDM	2
K1541ZK	O-ring sets		EPDM	2

**Note** <sup>(3)</sup> O-ring 53.34 x 5.33 (K1500DD) is used as a FFKM replacement for the Ring DN50.



## 4. ISC40FD IMMERSION FITTING

### 4.1 General Specifications

#### 4.1.1 Materials

Wetted parts without options

Model ISC40FD-S : AISI 316 SS, Viton

Model ISC40FD-V : PVC-C, Viton

Flange ISC40FD-S-\*\*-SF\* : AISI 316 SS

Non-wetted parts fitting

Tube pigtail : plastic

#### 4.1.2 Operating range

##### Temperature

Model ISC40FD-S : Max. 150°C (302°F)

Model ISC40FD-V : Max. 80°C (176°F)

##### Pressure

Model ISC40FD-S : Max. 10 bar (150 PSI) at operating temperature

Model ISC40FD-V : Max. 2 bar (30 PSI) at 20°C (68°F)

Max. 1 bar (15 PSI) at 80°C (176°F)

#### 4.1.3 Shipping details

Package size (LxWxH) and Package weight (max.) is dependable on fitting length.

#### 4.1.4 Process connections

Flange AISI 316 SS 2" or AISI 316 SS DN50, for the type -V an adjustable optional flange is available with ANSI 2" 150 lbs and DN50 PN10 hole pattern.

**Note:** If required the ISC40 sensor type -GG and -TG can be supplied with a Viton gasket K1500AM (ordered as spare part). This gasket may be used with the older series of ISC40FD fittings. It should be discarded when the sensor is mounted in combination with the ISC40FD type -S and -V.

## 4.2 INSTALLATION OF ISC40 SENSOR IN ISC40FD

Installation of the immersion fittings involves two steps:

- Installation of the sensor

The sensor has to be mounted in the immersion fitting (see Figure 8).

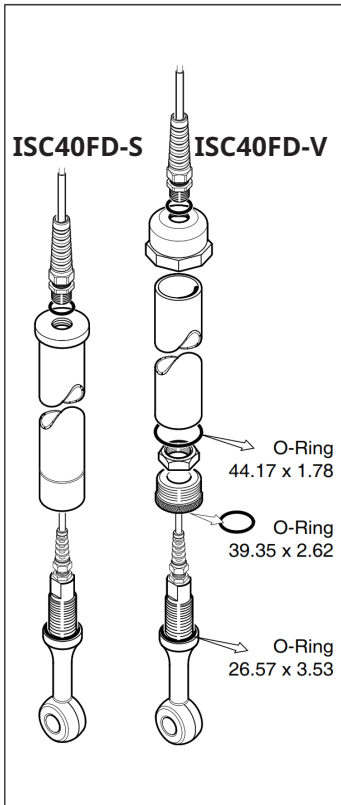
- Installation in the application

» On a railing or stanchion

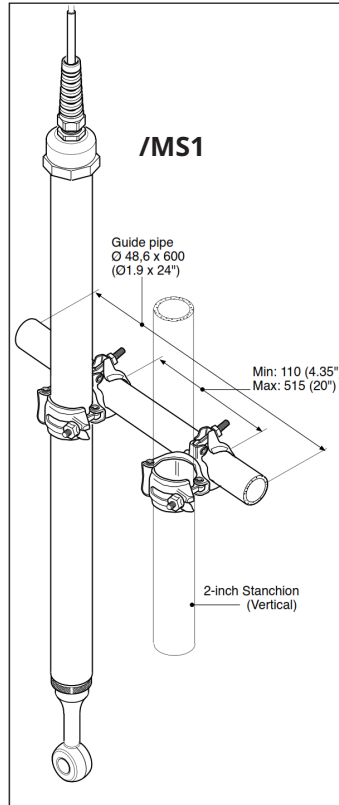
For this purpose the immersion fitting has an optional rail mounting kit /MS1. This kit consists of a piece of guide pipe and two pipe clamps. The guide pipe is mounted horizontally to the stanchion using one pipe clamp. The second pipe clamp connects the guide pipe to the immersion fitting. The distance between the pipe clamps determines the distance between the stanchion and immersion fitting (see Figure 9).

» With flange

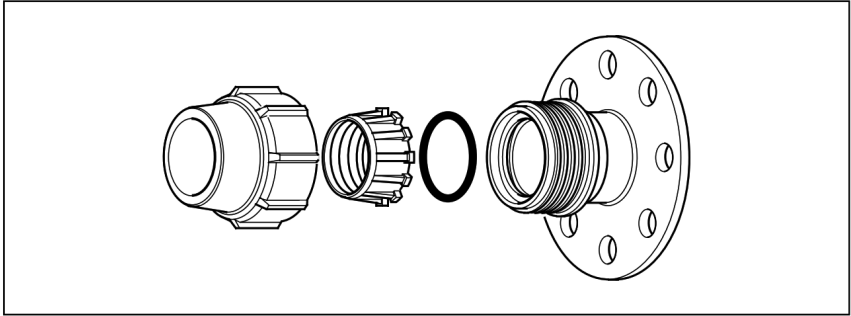
For this purpose a stainless steel immersion fitting can be ordered as type -SFD (DN50) or type -SFA (2"). The PVC immersion fitting has an optional depth adjustable mounting flange /FA (with DN50 and ANSI 2" 150 lbs hole pattern) which is illustrated in Figure 10. You must assure that the mating flange has the same hole pattern as the supplied flange.



**Figure 8:** Installation of ISC40 sensor in immersion fitting



**Figure 9:** Installation on stanchion with /MS1



**Figure 10:** Option /FA

Alternative ways of mounting the immersion fitting are:

- Guide pipe

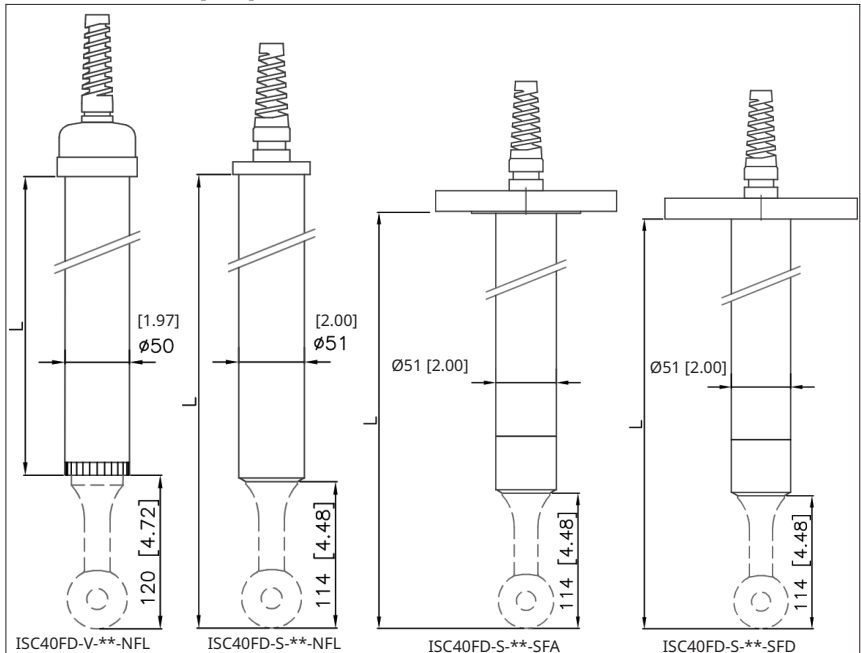
To facilitate this type of mounting the immersion fitting has a larger diameter at the top. The user supplied guide pipe (internal diameter > 52 mm) is fitted to the wall or mounting rail. The immersion fitting slides into this guide pipe and therefore the sensor can be easily removed for inspection.

- Platform mounting

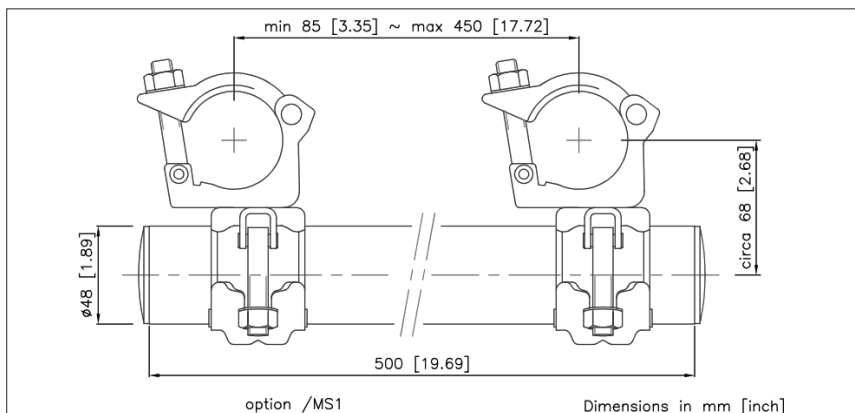
Sometimes there is a walking platform that can be used to mount the immersion fitting. The top of the immersion fitting has a larger diameter than the shaft. The only thing to do is to drill a precise hole in the platform to slide the fitting through.

### 4.3 DIMENSIONS ISC40FD

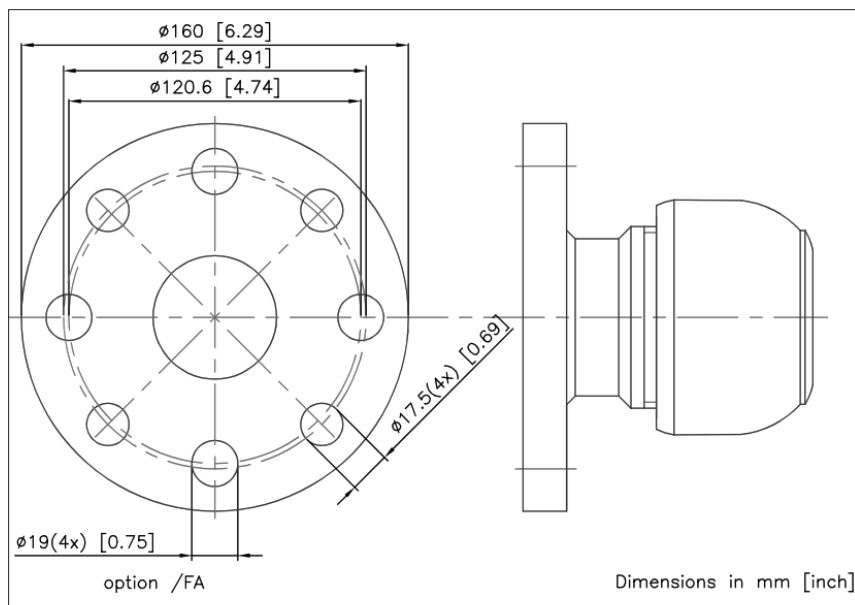
Dimensions in mm [inch]



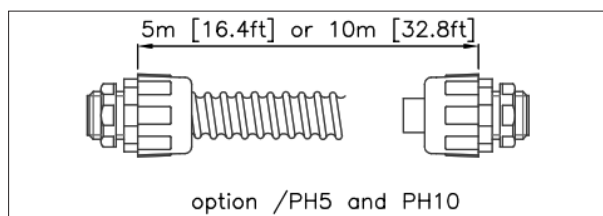
**Figure 11:** Immersion fitting ISC40FD



**Figure 12:** Pipe mounting set - option /MS1



**Figure 13:** Adjustable flange - option /FA



**Figure 14:** Protection hose, option /PH5, /PH10

#### 4.4 MODEL CODE ISC40FD

**Table 5:** Model and suffix code table

Model	Suffix Code	Option	Description
ISC40FD			Immersion fitting
Material	-S		SS AISI 316, Length incl. sensor length
	-V		PVC-C, Length excl. sensor length
Length	-5		0.5 meter
	-6		0.6 m
	-7		0.7 m
	-8		0.8 m
	-9		0.9 m
	-10		1.0 m
	-11		1.1 m
	-12		1.2 m
	-13		1.3 m
	-14		1.4 m
	-15		1.5 m
	-16		1.6 m
	-17		1.7 m
-18		1.8 m	
-19		1.9 m	
-20		2.0 m	
Flange		-SFD	AISI316 SS DN50
		-SFA	AISI316 SS 2"
		-NFL	No flange
Options		/MS1	pipe mounting set
		/FA	adjustable flange with DN50-PN10 and ANSI 2" 150 lbs hole pattern (only pvc)
		/M	material certificate 3.1 (only for SS wetted parts)
		/PH5	protection hose for 5 m cable
		/PH10	protection hose for 10 m cable

#### 4.5 SPARE PARTS ISC40FD

Options ISC40FD Immersion fitting				
Part no.	Description	Process connection	Material	
K1541ZY	/MS1		Carbon steel	
K1520EV	/FA	DN50 PN10; ANSI 2" lbs	PP	
K1500CJ	/PH5		PVC, PA6.6	
K1500CK	/PH10		PVC, PA 6.6	
K1500EM	/PH25 for immersion holders			
K1500AW	Flexible conduit			5 m
K1500AX	Flexible conduit			10 m
K1500AB	Cable gland 1/2 inch NPT			10
K1500AY	Connection parts for conduit			
K1500CB	O-ring (5 sets of 2) viton ISC40/options			
K1541ZS	O-rings viton 44.17x1.78 (5)			
K1500AJ	O-rings EPDM for /FA (2pcs)			
O-rings ISC40FD Immersion fitting				
O-rings -S				
Part no.	Description	Dimensions	Material	Quantity
K1500CE	O-ring set	39.35 x 2.62; 26.57 x 3.53	EPDM	5 sets
K1500CF	O-ring set	39.35 x 2.62; 26.57 x 3.53	Viton	5 sets
K1500CG	O-ring set	39.35 x 2.62; 26.57 x 3.53	Silicon	5 sets
K1500CH	O-ring	26.57 x 3.53	FFKM	1
K1500DB	O-ring set		EPDM	5 sets
K1500DC	O-ring set		Silicon	5 sets
O-rings -V				
Part no.	Description	Dimensions	Material	Quantity
K1500CX	O-ring set	39.35 x 2.62; 26.57 x 3.53; 44.17 x 1.78	EPDM	5 sets
K1500CW	O-ring set	39.35 x 2.62; 26.57 x 3.53; 44.17 x 1.78	Viton	5 sets
K1500CY	O-ring set	39.35 x 2.62; 26.57 x 3.53; 44.17 x 1.78	Silicon	5 sets
K1500DF	O-ring sets		EPDM	5 sets
K1500DG	O-ring sets		Silicon	5 sets

## 5. CHEMICAL COMPATIBILITY

**Table 6:** Chemical compatibility chart

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

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

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 responsibility for claims related to this information.

**YOKOGAWA ELECTRIC CORPORATION**  
World Headquarters  
9-32, Nakacho 2-chome, Musashino-shi  
Tokyo 180-8750  
Japan  
[www.yokogawa.com](http://www.yokogawa.com)

**YOKOGAWA CORPORATION OF AMERICA**  
2 Dart Road  
Newnan GA 30265  
USA  
[www.yokogawa.com/us](http://www.yokogawa.com/us)

**YOKOGAWA EUROPE BV**  
Euroweg 2  
3925 HD AMERSFOORT  
The Netherlands  
[www.yokogawa.com/eu](http://www.yokogawa.com/eu)

**YOKOGAWA ELECTRIC ASIA Pte. LTD.**  
5 Bedok South Road  
Singapore 468270  
Singapore  
[www.yokogawa.com/sg](http://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](http://www.yokogawa.com/cn)

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

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



**YOKOGAWA** ◆

IM 12D07K04-01EN-P

Subject to change without notice  
Copyright©

Printed in The Netherlands, 03-2212