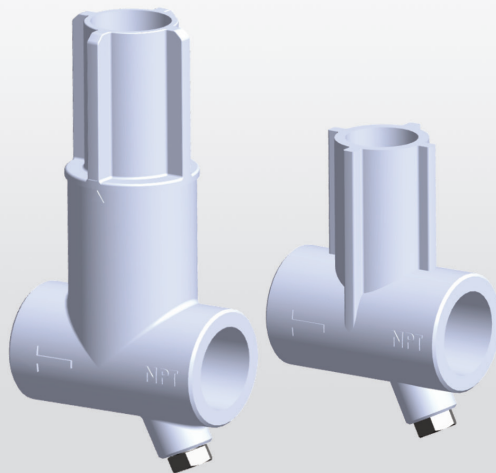


# 100 GP/100 ULTRA/500 PRO

## ¾ in pH/Redox (ORP) sensors



Bayonet and screw-in T-piece assemblies and jet wash cleaning adaptor kit

**Measurement made easy**

### Introduction

This publication details part numbers and installation procedures for T-piece assemblies (bayonet and screw-in) and a jet wash cleaning adaptor kit for use with 100 GP, 100 ULTRA and 500PRO series ¾ in pH/Redox (ORP) sensors.

#### **WARNING**

##### Potential high pressure/high temperature

- These procedures must be carried out by suitably trained personnel and in accordance with the information given.

### Tools required

- 14 mm A/F open-ended spanner

### For more information

Publications for the associated sensors and transmitters are available for free download from:

[www.abb.com/measurement](http://www.abb.com/measurement)

or by scanning this code:



Search for or click on:

Operating instruction 100 GP, 100 ULTRA, 500 PRO ¾ in pH/Redox (ORP) sensors	<a href="#">OI/100/500-EN</a>
Operating instruction OI/AWT210 2-wire conductivity pH/ORP transmitter	<a href="#">OI/AWT210-EN</a>
Operating instruction AWT440 multi-input transmitter	<a href="#">OI/AWT440-EN</a>
Operating instruction AWT420 universal 4-wire single- and dual-input transmitter	<a href="#">OI/AWT420-EN</a>
Data sheet AWT210 2-wire transmitter	<a href="#">DS/AWT210-EN</a>
Data sheet AWT440 multi-input transmitter	<a href="#">DS/AWT440-EN</a>
Data sheet AWT420 universal 4-wire single- and dual-input transmitter	<a href="#">DS/AWT420-EN</a>

## 1 Safety

### Potential safety hazards

The sensor operates on 3.3 V DC. There are no hazardous voltages present in the sensor.

#### WARNING

Before removing a sensor from the process, reduce process pressure to zero and ensure the sensor is cool enough to handle.

#### WARNING

##### Potential high pressure/high temperature

- These procedures must be carried out by suitable trained personnel and in accordance with any local regulations and practices.

## 2 Specification

### Material

T-piece body (BSP/NPT)  
30% GF polypropylene

Cleaning adaptor and blanking nut  
316 stainless steel

### Operating process pressure

Maximum: 6 bar (87 psi)\*

### Operating process temperature

Maximum: 100 °C (212 °F)

\* Cleaning solution pressure to be 1 bar (14.5 psi) higher than process pressure

## 3 Accessory part numbers/kits

Description	Part number	Qty
BSP bayonet T-piece assembly	3KXA163000L0002	1
NPT bayonet T-piece assembly	3KXA163000L0004	1
BSP screw-in T-piece assembly	3KXA163000L0006	1
NPT screw-in T-piece assembly	3KXA163000L0008	1
pH sensor jet wash cleaning adaptor	3KXA163000L0026	1
This publication - 100 GP/100 ULTRA/500 PRO series ¾ in pH/Redox (ORP) sensors	IN/ANAINST/036-EN	1

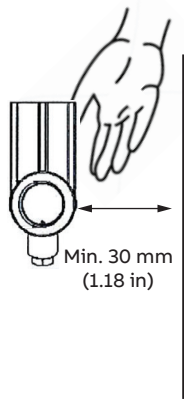
**Table 1 T-piece assemblies and cleaning adaptor**

## 4 Dimensions

Dimensions in mm (in).

### Clearance

Allow sufficient clearance for hand-mounting between the T-piece assembly install location and closest adjacent/ installation surface.



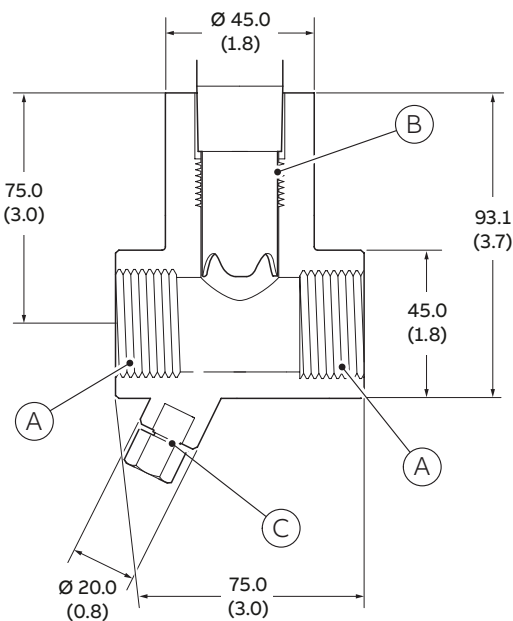
**Figure 1 Recommended clearance between T-piece and installation surface**

### T-piece assemblies

Referring to Figure 2 and Figure 3, the following T-piece mounting accessories are available:

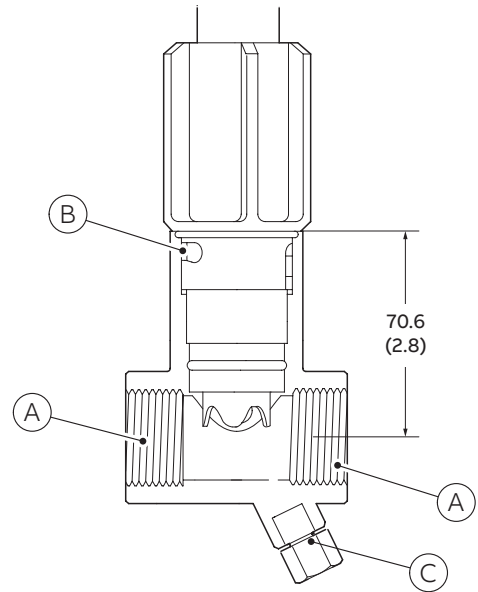
- with 1 in NPT or 1 in BSP threads (A)
- with a threaded or bayonet sensor fitting (B)
- with or without the optional jet wash system (blanking nut (C) shown in place of cleaning adaptor).

#### Screw-in T-piece assembly



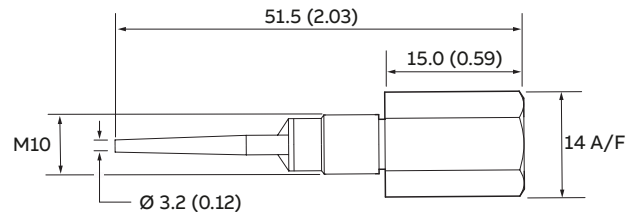
**Figure 2 Screw-in T-piece assembly – BSP/NPT**

### Bayonet T-piece assembly



**Figure 3 Bayonet T-piece assembly – BSP/NPT**

### Jet wash cleaning adaptor



**Figure 4 Jet wash cleaning adaptor**

## 5 Installation

### ⚠ WARNING

- Before proceeding with any installation procedure, reduce process pressure to zero, isolate the process (input/output) supplies and ensure the local components are cool enough to handle.

### Bayonet T-piece assembly

Referring to Figure 5:

- 1 Connect T-piece (A) to the process inline using 1 in BSP or NPT connectors at threaded entries (B).
- 2 Screw sensor (C) into the bayonet adaptor (D) and tighten by hand until secure.
- 3 Fit bayonet (D) into T-piece (A) and secure by twisting until arrows (E) align and bayonet (D) is locked in place.
- 4 Prepare the sensor for operation – refer to Operating Instruction [OI/100/500-EN](#).
- 5 Commission the process, ensuring the T-piece/sensor assembly is free from leaks.

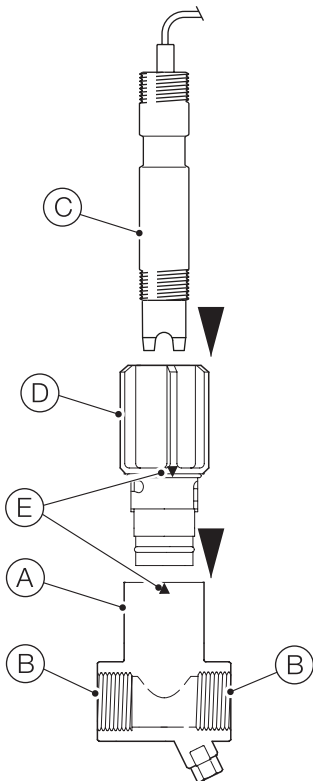


Figure 5 Bayonet T-piece assembly installation – BSP/NPT

### Screw-in T-piece assembly

Referring to Figure 6:

- 1 Connect T-piece (A) to the process inline using 1 in BSP or NPT connectors at threaded entries (B).
- 2 Screw sensor (C) into T-piece (A) and tighten by hand until secure.
- 3 Prepare the sensor for operation – refer to Operating Instruction [OI/100/500-EN](#).
- 4 Commission the process, ensuring the T-piece/sensor assembly is free from leaks.

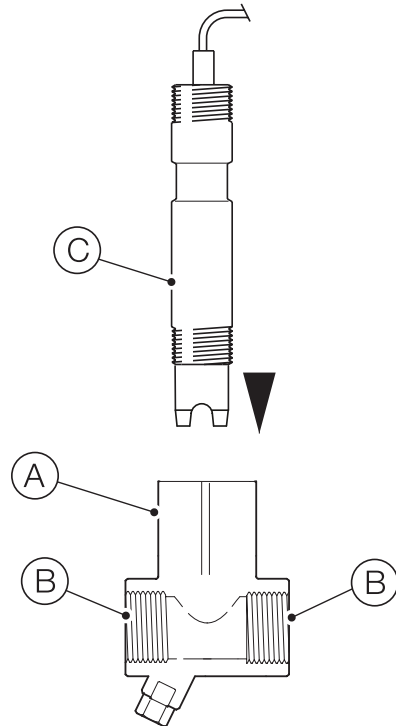


Figure 6 Screw-in T-piece assembly installation – BSP/NPT

## Jet wash cleaning adaptor

### WARNING

#### Spillage

Before performing this procedure, ensure the process line is empty to avoid spillage when removing blanking nut.

Referring to Figure 7:

- 1 Unscrew blanking nut (A) from base of jet wash cleaning adaptor entry (B).
- 2 Insert jet wash cleaning adaptor (C) into adaptor entry (B) and tighten using a 14 mm A/F open-ended spanner until secure.
- 3 Prepare the sensor for operation – refer to Operating Instruction [OI/100/500-EN](#).

**Note.** Cleaning frequency can be set at the associated transmitter – refer to the cover page for details/references for transmitter types.

- 4 Commission the process, ensuring the T-piece/sensor assembly is free from leaks.

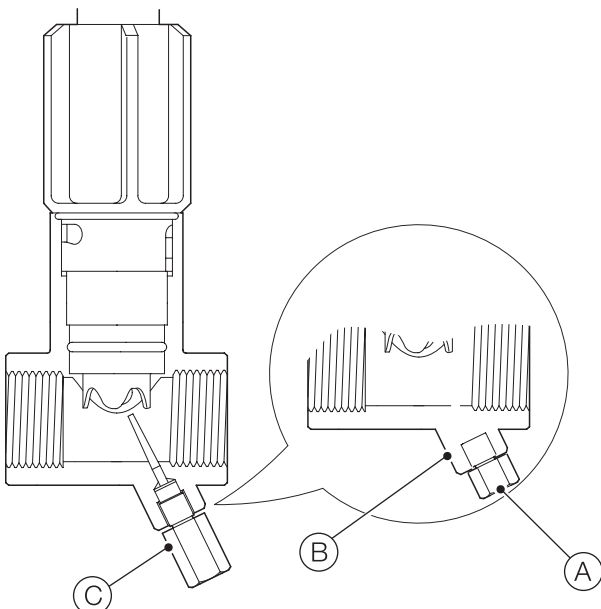


Figure 7 Jet wash cleaning adaptor

## ...5 Installation

### Jet wash system

#### NOTICE

Jet wash system installation must be performed in accordance with local water company and council bylaws.

The jet wash system enables automatic cleaning of both the measuring element and the reference junction by spraying either water or a cleaning solution at them in situ, thus reducing system maintenance requirements. An external pump or solenoid valve is required, controlled by a pH analyzer with auto-cleaning control functions.

#### Note.

For optimal performance, the pressure of the jet wash system must be 2 to 3 bar (30 to 45 psi) greater than the process pressure – see Figure 8.

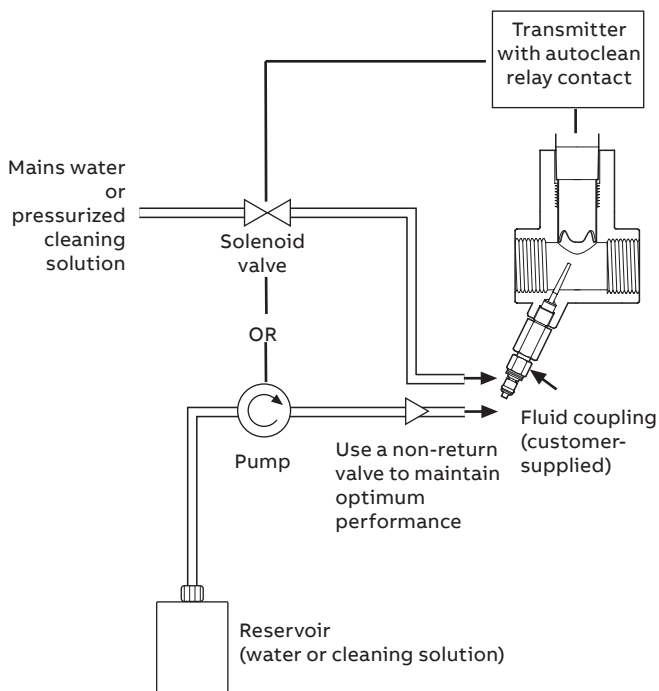


Figure 8 Jet wash system

#### Cleaning solutions

Some typical cleaning solutions are:

Coating	Cleaning Agent
Grease and oils	Alkaline detergents or water-soluble solvents such as alcohols
Resins	Dilute alkalis
Limestone/Carbonates	
Metal hydroxides	Dilute acid
Cyanides	
Heavy biological	
Proteins	Mixture of 1M sulphuric acid and pepsin (saturated)
Fibers	Pressurized water with or without wetting agents
Light biological	Pressurized water
Latex (see NOTICE below)	Pressurized cold water

#### NOTICE

If removed from the process, latex must be removed quickly and completely before it hardens.

## Notes

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