

Instruction Manual

GXS Water Shut Off Accessories

Description	Item Number
Water Shut Off Accessory High Power GXS	D374-85-550
Water Shut Off Accessory Low Power GXS	D374-85-575

Original Instructions



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Contents

Section	Page
1 Introduction	1
1.1 Scope and definitions	1
1.2 Description	1
2 Technical data	2
2.1 Technical data	2
3 Installation	3
3.1 Safety	3
3.2 Unpack and inspect	3
3.3 System requirements	4
3.4 Install the Water shut off accessory low power	4
3.5 Install the Water shut off accessory high power	5
3.6 Perform leak check	7
4 Operation	8
5 Maintenance	9
5.1 Routine maintenance	9
5.2 Fault finding	9
6 Storage and disposal	10
6.1 Storage	10
6.2 Disposal	10
Appendix A1 Tube fittings	11
A1.1 Correct use of tube fittings	11
A1.1.1 Connect a tube fitting	11
A1.1.2 Reconnect a tube fitting	11

For return of equipment, complete the HS Forms at the end of this manual.

Illustrations

Figure	Page
1 GXS Water shut off accessory assembly low power type	5
2 GXS Water shut off accessory assembly high power type	6
A1 Connect a tube fitting	12
A2 Reconnect a tube fitting	12

Tables

Table	Page
1 GXS Water shut off low power accessory parts list for use with Burkert pilot solenoid	3
2 GXS Water shut off high power accessory parts list for use with customer compatible solenoid	4
3 Fault finding	9

1 Introduction

1.1 Scope and definitions

This manual provides installation, operation and maintenance instructions for the Edwards GXS Dry Pumping System Water shut off accessories, abbreviated to Water shut off accessory in the remainder of this manual. Use the Water shut off accessory as specified in this manual. Use this manual in conjunction with the GXS Dry Pumping System instruction manual M588-00-880.

Read this manual before installing and operating the Water shut off accessory. Important safety information is highlighted as WARNING and CAUTION instructions; these instructions must be obeyed. The use of WARNINGS and CAUTIONS is defined below.



WARNING

Warnings are given where failure to observe the instruction could result in injury or death to people.

CAUTION

Cautions are given where failure to observe the instruction could result in damage to the equipment, associated equipment and process.

The units used throughout this manual conform to the SI international system of units of measurement; where appropriate US equivalent units of measurement are also given.

- Notes:**
- 1. The content of this manual may change from time to time without notice. Edwards accepts no liability for any errors that may appear in this manual nor does it make any expressed or implied warranties regarding the content. As far as is reasonably practicable Edwards has ensured that its products have been designed and constructed so as to be safe and without risks when properly installed and used in accordance with Edwards operating instructions. Edwards accepts no liability for loss of profit, loss of market or any other indirect or consequential loss whatsoever.*
 - 2. Product warranty and limit of liability are dealt with in Edwards' standard terms and conditions of sale or negotiated contract under which this document is supplied.*

1.2 Description

When fitted, the Water shut off accessory is used to turn off the water cooling supply to the GXS when the pump is not running to reduce unnecessary water wastage.

2 Technical data

2.1 Technical data

Water inlet	½ inch or ¾ inch male BSPT (pump dependent) to customer water supply
Water outlet	½ inch or ¾ inch male BSPT (pump dependent) to pump water supply
Water temperature range	5 to 40 °C
Maximum particle size in water supply	0.03 mm ²
Ambient operating temperature range	5 to 40 °C
Maximum ambient operating humidity	90 % RH
Recommended water supply pressure	Refer to instruction manual M588-00-880
Recommended air supply pressure	If used with a pneumatic valve
Maximum working pressure	6.9 barg (100 psig)
Supply voltage low power accessory	24 V d.c., ~ 0.025 Amps for low power water shut off accessory supplied from GXS pump
Supply voltage high power accessory	6 Amps @ 30 V d.c. resistive load, 1 Amp @ 60 V d.c. resistive load. Up to 6 Amps @ 0 to 40 V a.c.
Valve assembly low power Burkert	
Pilot valve part number - not supplied	6014-CAABSFFMSGM81-6-EXI/10-AV * PD94 - IDNR 00146214
Pneumatic valve part number - not supplied	2000-A-2-15,0-EE-VA-GM84-C-C * AF12 - IDNR 00178606

3 Installation

3.1 Safety



WARNING

Obey the safety instructions given below and take note of appropriate precautions. Failure to do so can cause injury to personnel and/or damage to equipment.

- A suitably trained and supervised technician must install the Water shut off accessory.
- If the dry pump system is in operation, shut it down and allow it cool to a safe temperature before starting installation.
- Disconnect the dry pump system from the electrical supply so that it cannot be operated accidentally. LOTO - Lock Out Tag Out electrical, water, Nitrogen and air supplies.
- Do not allow debris to get into the water system when fitting the Water shut off accessory.
- Ensure correct connection, disconnection and tightening of all tube connection components (refer to [Appendix A1](#), [Figure A1](#) and [A2](#)).
- Pressurise the water system after installation is complete and seal any leaks found to prevent further leakage. Do not exceed the maximum allowable working pressure of 6.9 barg (100 psig).
- Pressurise the pneumatic system after installation is complete and seal any leaks found to prevent further leakage. Do not exceed the maximum allowable working pressure of 6.9 barg (100 psig).
- Obey all national and local rules and safety regulations when installing the Water shut off accessory.

3.2 Unpack and inspect

Remove all packing materials, protective covers and inspect the Water shut off accessory looms. If any loom is damaged, notify the supplier and the carrier in writing within three days; state the Item Number of the Water shut off accessory together with the order number, serial number (if applicable) and the supplier's invoice number. Retain all packing materials for inspection. Do not use the Water shut off accessory if it is damaged.

If the Water shut off accessory is not to be used immediately, refit any protective packaging and store the Water shut off accessory in suitable conditions, as described in [Section 6.1](#).

Check that the package contains the items listed in [Table 1](#) (Accessory type dependent). If any of these items are missing, notify the supplier in writing within three days.

Table 1 - GXS Water shut off low power accessory parts list for use with Burkert pilot solenoid

Quantity	Description	Check (✓)
2	Cable tie	<input type="checkbox"/>
1	Water shut off low power accessory	<input type="checkbox"/>
0	Pilot valve PD94 - IDNR 00146214 - not supplied	<input type="checkbox"/>
1	Instruction Manual D37485880	<input type="checkbox"/>
0	Pneumatic valve 2000-A-2-15,0-EE-VA-GM84-C-C - not supplied	<input type="checkbox"/>

Table 2 - GXS Water shut off high power accessory parts list for use with customer compatible solenoid

Quantity	Description	Check (✓)
0	Valve - not supplied	<input type="checkbox"/>
3	Cable tie	<input type="checkbox"/>
2	Mounting screws - M5 x 10 mm socket head cap screw	<input type="checkbox"/>
1	Water shut off high power accessory	<input type="checkbox"/>
1	Instruction Manual D37485880	<input type="checkbox"/>

3.3 System requirements

Take note of the following points before starting installation:

- The low power accessory is designed to control a water shut off a pneumatic valve via a pilot solenoid valve and the high power accessory via pneumatic valve or a direct solenoid valve.
- The Water shut off accessory should be oriented such that the arrow on the Water shut off accessory body is pointed in the direction of the water flow i.e. towards the pump system water inlet. If there is no arrow then water flow is from port 2 to port 1 for the low power accessory Burkert pneumatic valve accessory specified.
- If purchasing own valve and the Hi power water shut off accessory loom, consult the valve accompanying documentation and instruction manual for water flow and fitting direction if relevant for the valve.
- There is no waste or emissions to land under normal operating conditions for the Water shut off accessory itself. Water pressure is to be checked during and after kit installation.
- It is recommended that the facilities water supply has a means of shut off or disconnection for installation. The water supply should be locked out and tagged out prior to installation of the Water shut off accessory.
- Do not install the Water shut off accessory with the electrical power, air or water supplies on.
- Do not install the Water shut off accessory in a corrosive gas atmosphere.
- The Water shut off accessory must be used within the specified temperature range. (Refer to [Section 2.1](#)).

3.4 Install the Water shut off accessory low power

Refer to [Figure 1](#).

1. Isolate and lock out tag out the water and air/nitrogen supplies.
2. If required, disconnect the cooling water supply pipelines from the inlet and outlet. Allow any water to drain out.
3. Fit the Water shut off accessory to the cooling water inlet and reconnect the water inlet to the water shut off valve inlet. It may be necessary to disconnect the N₂ flow accessory pipe to do this. Reassemble after fitting the Water shut off accessory valve. Refer to [Appendix A1](#) for compression fittings guide and instructions.
4. If the accessory is the low power Burkert valve assembly, then fit as shown in [Figure 1](#) connecting the 15 way D-type (item 1) as shown, the pilot valve connector (item 8) and affixing the supplied cable ties in the positions shown (item 2).
5. Connect the air supply to the pneumatic valve inlet port (item 3). Refer to [Appendix A1](#) for supply pipe fitting.
6. Ensure all air and water connections are tightened up correctly and that there are no leaks.

Figure 1 - GXS Water shut off accessory assembly low power type



- | | |
|-----------------------------------|--|
| 1. 15 Way D-type connector | 7. Water strainer |
| 2. Cable ties | 8. Accessory cable solenoid plug |
| 3. Air supply port | 9. Nitrogen purge line |
| 4. Port for air outlet diffuser | 10. Inlet for Pneumatic Water shut off valve |
| 5. Pneumatic water shut off valve | 11. Mounting bracket |
| 6. Burkert pilot valve | |

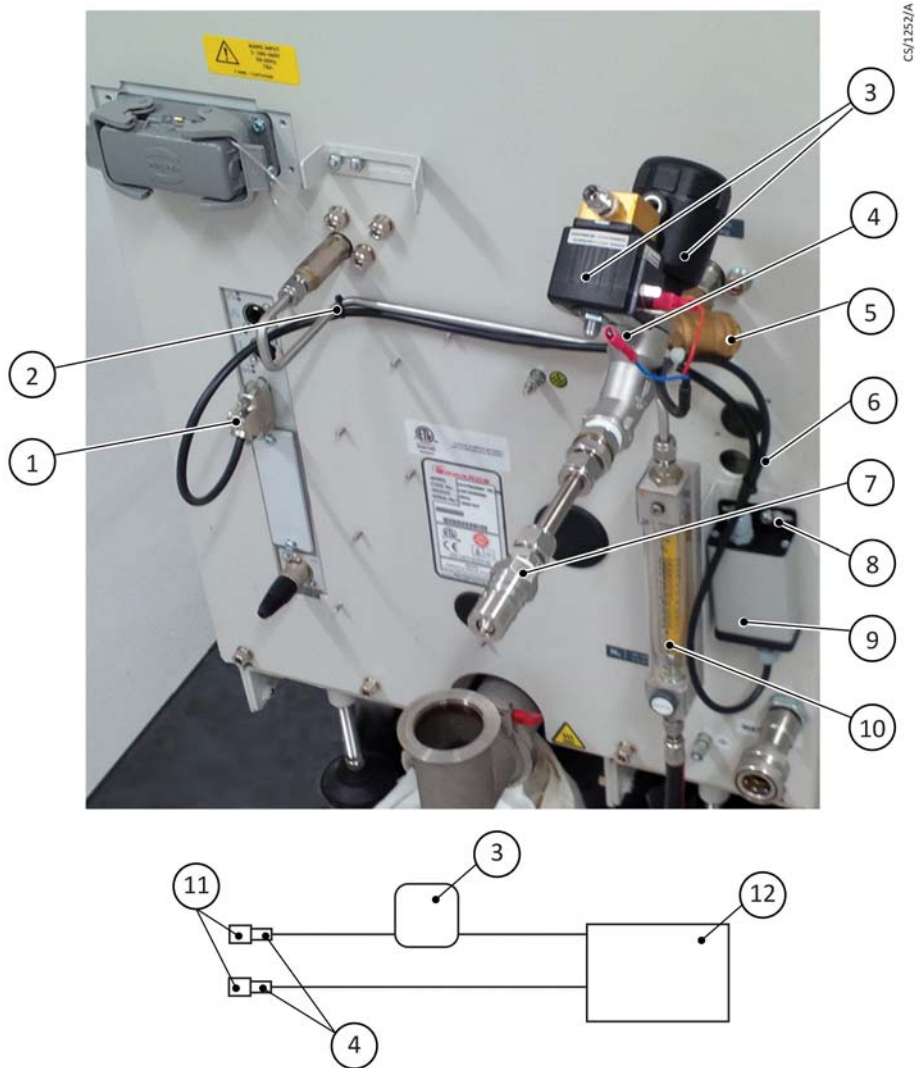
Note: Refer to the instructions in [Appendix A1](#) for assembly of all compression type fittings.

3.5 Install the Water shut off accessory high power

Refer to [Figure 2](#).

1. Isolate and lock out tag out the water and air/nitrogen supplies.
2. If required, disconnect the cooling water supply pipelines from the inlet and outlet. Allow any water to drain out.
3. Fit the Water shut off accessory to the cooling water inlet and reconnect the water inlet to the water shut off valve inlet and outlet if disconnected. It may be necessary to disconnect the N₂ flow accessory pipe to do this. Reassemble the N₂ flow accessory pipe, if disconnected, after fitting the Water shut off accessory valve. Refer to [Appendix A1](#) for compression fittings guide and instructions.
4. Carry out the fitting of accessory electrical parts of the assembly in the depiction shown (for illustration purposes), connecting the 15 way D-type as shown, and the representative picture of the pilot valve connector or main valve connector (item 3).
5. Affix the supplied cable ties (item 2) in the positions shown, then make the connections as per the diagram of the valve circuit to the power supply as drawn.
6. Fit the Water shut off accessory control module using the existing N₂ flow accessory bracket screw (item 10). If no N₂ accessory screw is fitted use the one provided in the kit. Route the cables and fit cable ties as indicated.

Figure 2 - GXS Water shut off accessory assembly high power type



- | | |
|--|--|
| <ul style="list-style-type: none"> 1. 15 Way D-type connector for water shut off control signal 2. Cable tie 3. Solenoid/pneumatic valve (for illustration purposes only) 4. Free crimp for connection to valve and PSU 5. Water strainer and connection point for water shut off accessory valve outlet 6. Water shut off accessory cable | <ul style="list-style-type: none"> 7. Water shut off accessory water inlet (for illustration purposes only) 8. Securing point for the water shut off accessory control module using M5 screw 9. Water shut off accessory control module 10. N₂ flow meter accessory 11. 1/4 inch crimp blade terminals 12. PSU for valve (not supplied) |
|--|--|

3.6 Perform leak check

1. Fit the cooling water supply and return pipeline to the cooling water inlet and outlet connections and turn on the cooling water supply.
2. Fit the N₂ and air supplies and turn on both. Check for leaks.
3. Leave the cooling water supply on for two to three minutes, then inspect the installation for water leaks; seal any leaks found. Start the pump system and recheck for any leaks.

4 Operation

When fitted, the Water shut off accessory will stop any flow of cooling water through the GXS pumping system when the pump is not running. The cooling water flow will turn on when the pump is started.

5 Maintenance

5.1 Routine maintenance

Carry out the following checks when maintaining the GXS pumping system:

- Inspect the Water shut off accessory and check that it is securely fitted to the GXS pumping system.
- Inspect all of the cooling water connections for water leaks: seal any leaks found.
- Inspect the Water shut off accessory cable and check that it is not damaged or has overheated. Replace the Water shut off accessory if damaged or if signs of overheating are noticed.

5.2 Fault finding

Refer to [Table 3](#) for fault finding associated with the Water shut off accessory. Refer to the GXS pumping system instruction manual (M588-0880) for other fault finding.

Table 3 - Fault finding

Symptom	Check	Action
Pump running - no water cooling	Is the 15 way D-type connected correctly?	Check that the 15 way D-type connector is fitted fully home and that the securing screws are done up. Check that the cable is not damaged.
	Is the pilot valve connected correctly?	Check that the pilot valve is connected correctly.
	Is the air pneumatic valve supply on and is it at the correct pressure?	Check that the air/N ₂ supply is on and that the pressure is correct.
Pump not running - water cooling still on	Is the pneumatic check valve jammed open or stuck with contamination?	Check that the valve is not contaminated, preventing closure.

6 Storage and disposal

6.1 Storage

Store the Water shut off accessory kit in clean, dry conditions until required. When required for use, install the Water shut off accessory kit as described in [Section 3](#).

6.2 Disposal

Dispose of the Water shut off accessory kit, its components and by-products in accordance with all local and national safety and environmental requirements.

Appendix A1 Tube fittings

A1.1 Correct use of tube fittings

Note: It is recommend that a second spanner is used to hold the connector in position when connecting or disconnecting a tube fitting.

How to correctly fit and tighten tube fittings in order to prevent gas leaks must be known; use the procedures in the following sections.

A1.1.1 Connect a tube fitting

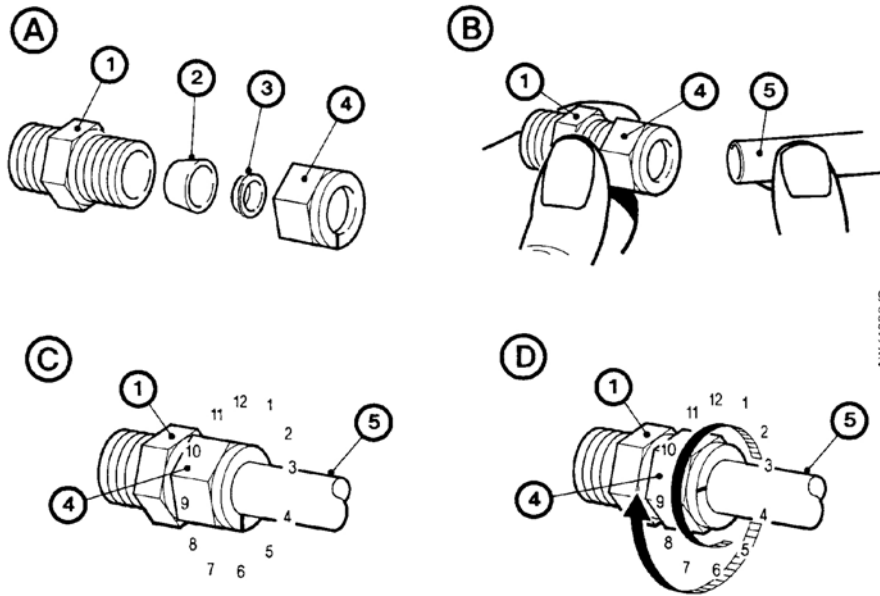
1. Refer to [Figure A1](#) detail A. Undo and remove the nut (4) from the tube fitting (1). Ensure that the front (tapered) ferrule (2) and the rear ferrule (3) are correctly oriented as shown in detail A, then loosely refit the nut (4) to the tube fitting (1).
2. Refer to detail B. Insert the tube (5) through the nut (4) and into the tube fitting (1). Ensure that the tube rests firmly on the shoulder inside the fitting, and that the nut (4) is finger tight.
3. Tighten the nut (4) until you cannot rotate the tube (5). If you cannot turn the tube because of how it is installed, tighten the nut by 1/8th of a turn.
4. Refer to detail C. Mark the nut (4) at the six o'clock position.
5. Refer to detail D. Hold the body of the connector steady, then turn the nut (4) by 1¼ turns (to the nine o'clock position) to fully tighten the connection.

A1.1.2 Reconnect a tube fitting

A tube fitting can be disconnected and reconnected many times whilst still obtaining a correct leak-proof seal. Refer to [Figure A2](#) detail A which shows a tube fitting after it has been disconnected. Use the following procedure to reconnect it:

1. Refer to detail B. Insert the tube (5) with the swaged ferrules (2, 3) into the tube fitting (1), until the front ferrule (2) is fully in the body of the fitting.
2. Refer to detail C. Tighten the nut (4) by hand.
3. Use a wrench or spanner to turn the nut (4) to its original position (an increase in resistance will be felt when the nut is in its original position), then tighten the nut slightly.

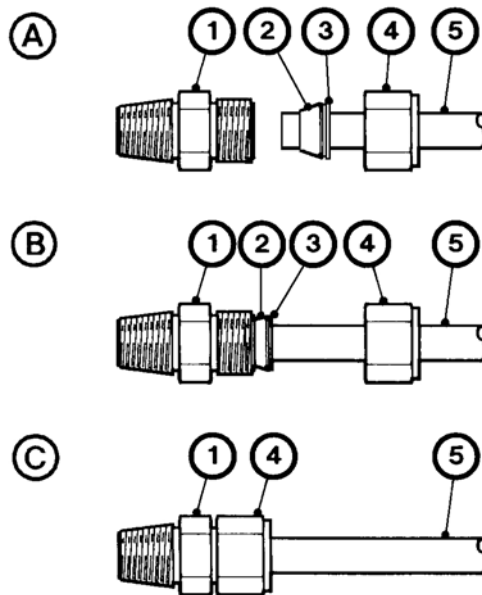
Figure A1 - Connect a tube fitting



AW/4830/C

- 1. Tube fitting
- 2. Front (tapered) ferrule
- 3. Rear ferrule
- 4. Nut
- 5. Tube

Figure A2 - Reconnect a tube fitting



AW/4871/C

- 1. Tube fitting
- 2. Front (tapered) ferrule
- 3. Rear ferrule
- 4. Nut
- 5. Tube

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Return the equipment or components for service

Before you send your equipment to us for service or for any other reason, you must send us a completed Declaration of Contamination of Vacuum Equipment and Components - Form HS2. The HS2 form tells us if any substances found in the equipment are hazardous, which is important for the safety of our employees and all other people involved in the service of your equipment. The hazard information also lets us select the correct procedures to service your equipment.

We provide instructions for completing the form in the Declaration of Contamination of Vacuum equipment and Components - Procedure HS1.

If you are returning a vacuum pump, note the following:

- If a pump is configured to suit the application, make a record of the configuration before returning the pump. All replacement pumps will be supplied with default factory settings.
- Do not return a pump with accessories fitted. Remove all accessories and retain them for future use.
- The instruction in the returns procedure to drain all fluids does not apply to the lubricant in pump oil reservoirs.

Download the latest documents from www.edwardsvacuum.com/HSForms/, follow the procedure in HS1, fill in the electronic HS2 form, print it, sign it, and return the signed copy to Edwards.

Note: *If we do not receive a completed HS2 form, we will not accept the return of the equipment.*

