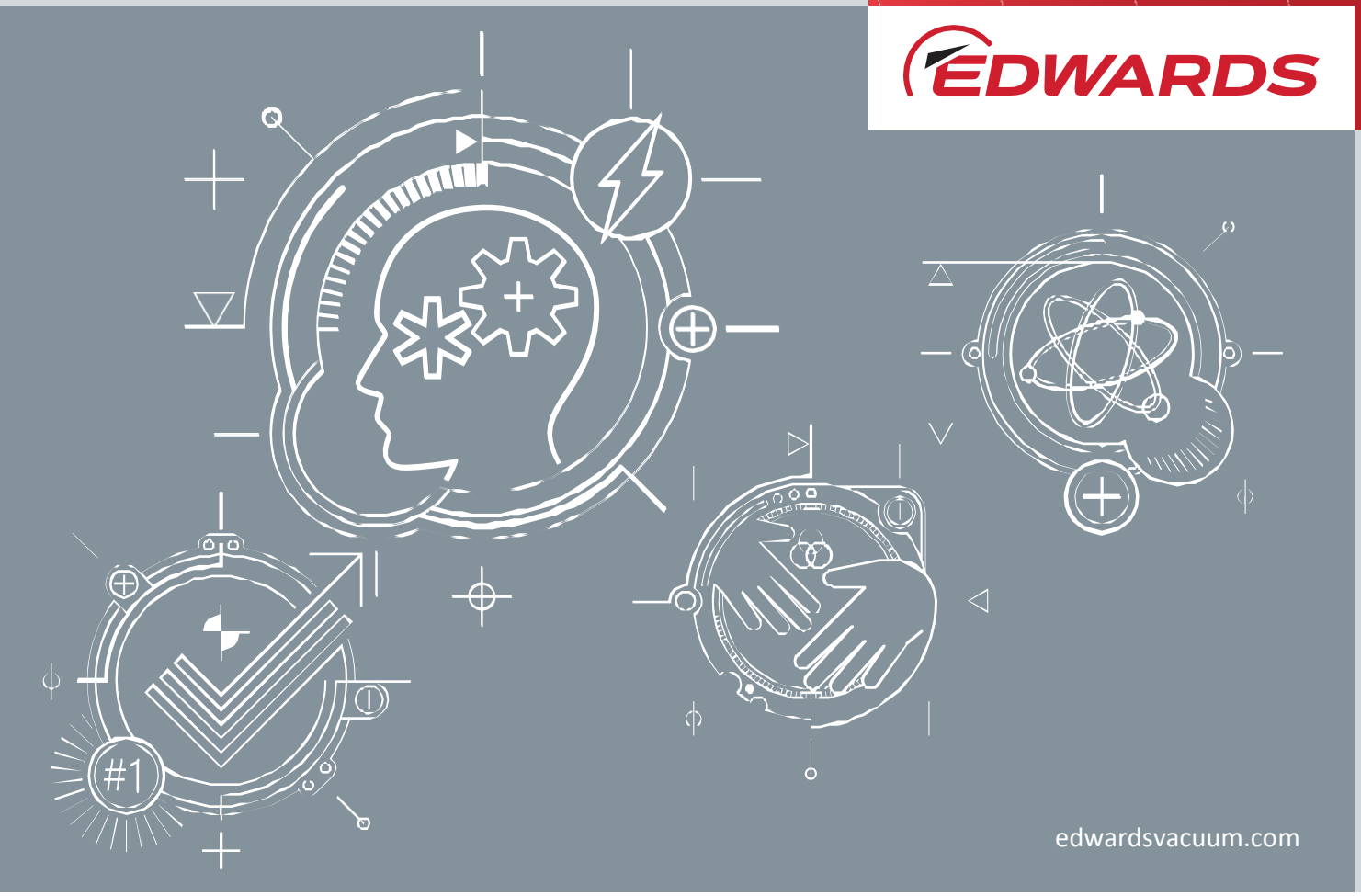

nXDS Replacement Tip Seal Kit

KIT PART NUMBER - A73501801

Official Distributor in Australia

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Vacuum and Thin Film Technology

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Associated publications

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nXDS Scroll Pump	A735018xx

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Disclaimer

The content of this manual may change from time to time without notice. We accept no liability for any errors that may appear in this manual nor do we make any expressed or implied warranties regarding the content. As far as practical we have ensured that the products have been designed and constructed to be safe and without risks when properly installed and used in accordance with their operating instructions.

We accept no liability for loss of profit, loss of market or any other indirect or consequential loss whatsoever.

Product warranty and limit of liability are dealt with in our standard terms and conditions of sale or negotiated contract under which this document is supplied.

You must use this product as described in this manual. Read the manual before you install, operate, or maintain the product.

Products applicable to

Products	Part numbers
nXDS6i	A73501983
nXDS10i	A73601983
nXDS15i	A73701983
nXDS20i	A73801983
nXDS6iC	A73502983
nXDS10iC	A73602983
nXDS15iC	A73702983
nXDS20iC	A73802983
nXDS6iR	A73503983
nXDS10iR	A73603983
nXDS15iR	A73703983
nXDS20iR	A73803983

Contents

1. Safety and compliance

For safe operation from the start, read these instructions carefully before you install or commission the equipment and keep them safe for future use. Read all the safety instructions in this section and the rest of this manual carefully and make sure that you obey these instructions.

1.1 Definition of Warnings and Cautions

Important safety information is highlighted as warning and caution instructions which are defined as follows. Different symbols are used according to the type of hazard.

WARNING:

If you do not obey a warning, there is a risk of injury or death.

CAUTION:

If you do not obey a caution, there is a risk of minor injury, damage to equipment, related equipment or process.

NOTICE:

Information about properties or instructions for an action which, if ignored, will cause damage to the equipment.

We reserve the right to change the design and the stated data. The illustrations are not binding.

1.2 Trained personnel

For the operation of this equipment “trained personnel” are:

- skilled workers with knowledge in the fields of mechanics, electrical engineering, pollution abatement and vacuum technology and
- personnel specially trained for the operation of vacuum pumps

1.3 Safety symbols

The safety symbols on the products show the areas where care and attention is necessary.

The safety symbols that we use on the product or in the product documentation have the following meanings:

	Warning/Caution An appropriate safety instruction must be followed or caution to a potential hazard exists.
	Warning - Dangerous voltage Identifies possible hazards from hazardous voltages.
	Mandatory action symbol
	Mandatory - Read the manual
	Warning - Use protective equipment Use appropriate protective equipment for the task.

2. Important safety information

WARNING: ELECTRICAL HAZARD

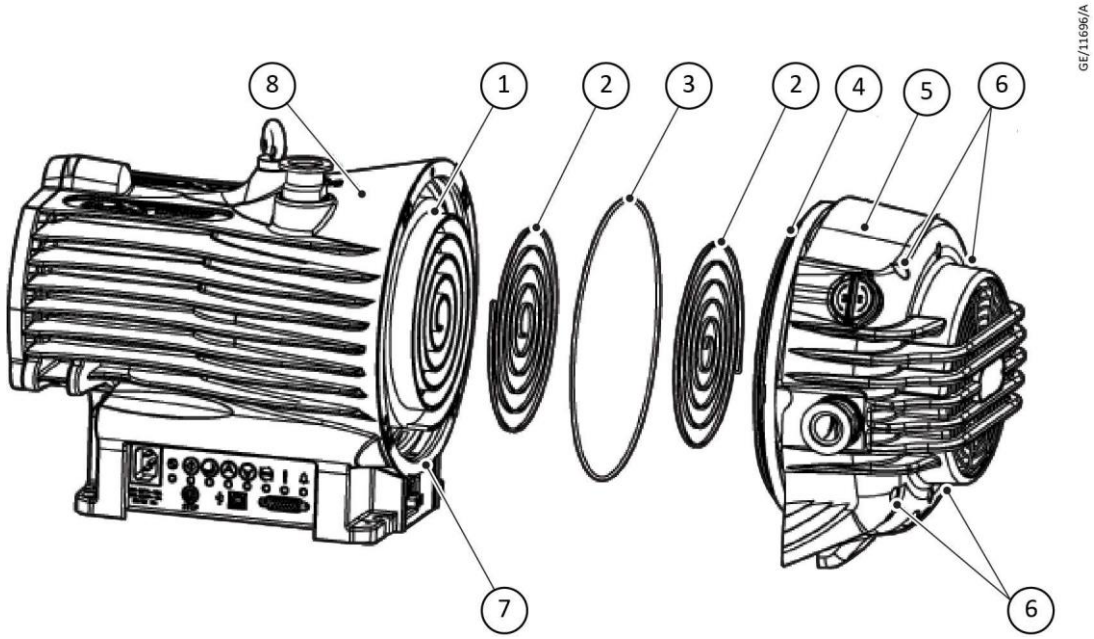
Risk of electric shock. Before you begin with replacement, switch off the pump and isolate from the electrical supply.

- Vacuum pumps are potentially dangerous if incorrectly used, repaired or maintained, approach the repair or maintenance with caution.
- Any incorrectly installed spare parts could damage the pump and could be potentially dangerous.
- If there are any doubts about the servicing procedures or the product's capabilities please contact us.
- Always conform to service schedules unless adverse conditions necessitate more frequent servicing.
- Report if any defect before an accident or consequential damage can occur.
- Observe local and country specific regulations, norms and guidelines.
- Never allow anyone to remove large or heavy components without adequate lifting equipment.
- The pump may have been exposed to processes which use hazardous substances or produce by-products which are dangerous to human health and safety, for example, chemically active, biologically active or radioactive substances.
- Before working on a pump, make sure that the correct personal protective equipment is available and being used. Always wear safety goggles. Wear a breather mask with positive air pressure and take other precautions if there is a possibility that the pump may be contaminated with hazardous substances and dusts.
- When you apply sealants and lubricants, prevent contact with the skin by wearing suitable gloves.
- We recommend wearing suitable gloves to prevent contact with possible sharp edges.
- Seals may contain fluoroelastomer, which when properly handled is not dangerous but which may produce a toxic and corrosive residue (hydrogen fluoride or hydrofluoric acid) in the event of excessive heat or fire depending on the circumstances of degradation and other materials involved.
- On completion of maintenance, check the pump functions correctly and that all guards and protection devices are fitted and working correctly and that the pump is electrically safe.
- If the pump is used for handling hazardous substances check the pump for leak-tightness before use.
- Dispose of waste oil and any process by-products in accordance with local and national safety and environmental requirements. It is illegal to dispose of waste oil into drains or water courses, or to bury it.

3. Replace the tip seals

3.1 Tip seals

Figure 1 Replacing the tip seals



1. *Orbiting scroll*
2. *Tip seal*
3. *Fixed scroll O-ring*
4. *Fixed scroll*
5. *Fan cowl*
6. *Fixed scroll fixing screws (4x)*
7. *Alignment dowel*
8. *Housing assembly*

3.2 Remove the fan cowl

CAUTION: MOTOR FAN LEAD CONNECTED

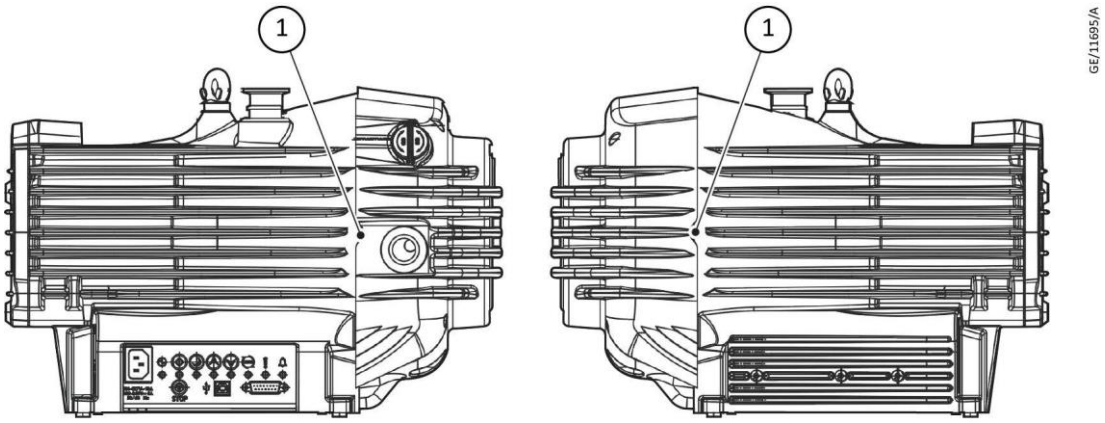
Risk of pump damage. Take care when separating the fan cowl/fixed scroll assembly from the housing assembly. The motor fan lead must be disconnected from the controller before the fan cowl/fixed scroll assembly can be fully removed. Refer to *Figure: Motor fan lead connector*.

Prepare the pump by running the gas ballast control ON for one hour to remove any process gases. Replace the tip seal as described below.

1. Switch OFF the pump and isolate from the electrical supply.
2. Undo the two screws that secure the fan cowl and remove the fan cowl. Refer to *Figure: Fan cowl removal*.
3. Undo the four screws that secure fixed scroll assembly to the housing assembly. Refer to *Figure: Replacing the tip seals*.
4. Carefully separate the fixed scroll assembly from the housing assembly using a suitable lever in the slots provided Refer to *Figure: Pump side views*.

Figure 2 Fan cowl removal

Figure 3 Pump side views



1. *Levering slot*

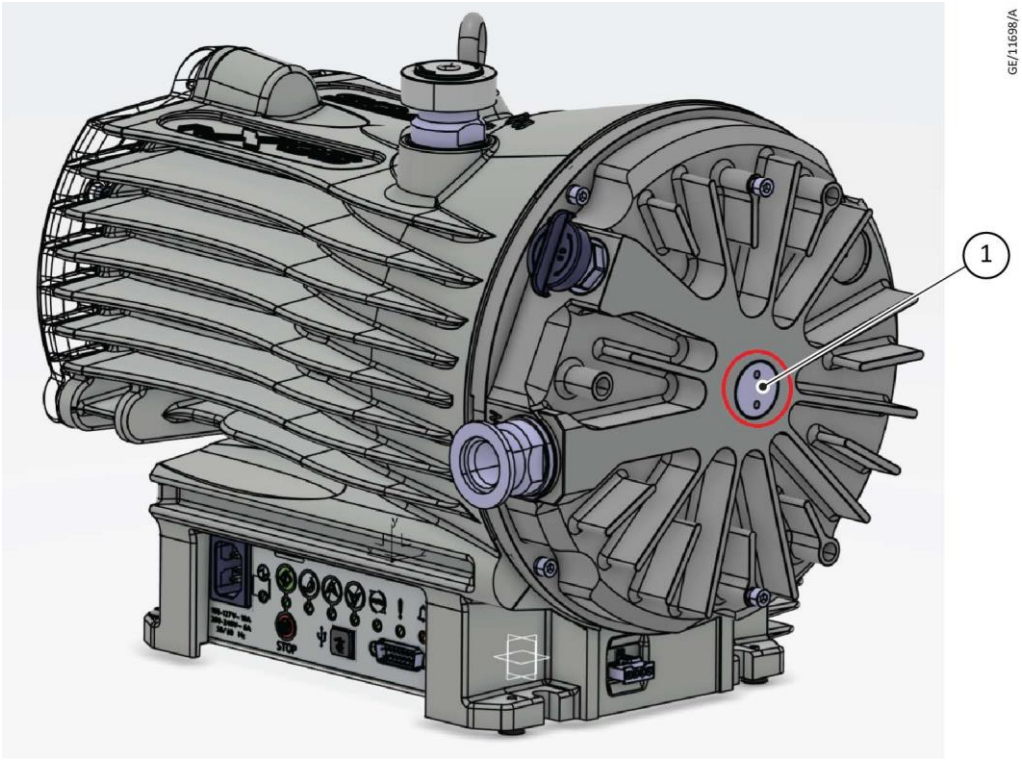
Figure 4 Motor fan lead connector

1. Connector

3.3 Remove old tip seal

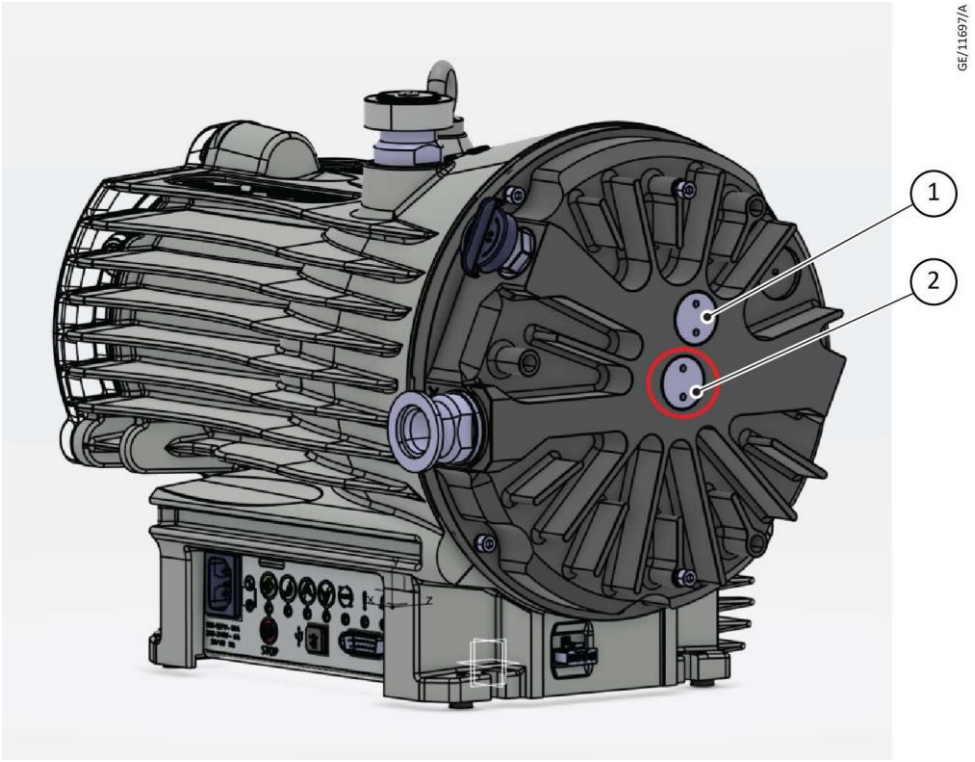
1. Starting from one end, remove the tip seal from the fixed scroll. Repeat this operation for the orbiting scroll. Remove the fixed scroll O-ring. Dispose of all used items that are removed after this operation. Refer to *Figure: Replacing the tip seals*.
2. From outside of fixed scroll loose the middle exhaust valve cover using a 14 mm pin spanner and open exhaust assembly. Refer to *Figure: Exhaust valve nXDS6/10/15* and *Figure: Exhaust and blow off valve nXDS20*. For details about exhaust valve assembly refer to *Figure: Exhaust valve assembly*.
3. Using a clean dry lint-free cloth swab sticks and IPA, remove all dust and process debris from the scroll forms and grooves, from exhaust valve pad, from all surfaces in exhaust channel and clear also the O-rings. Heavier process debris can be removed with Green Scotch Brite® only. We recommend wearing glove during this process.
4. Place cleaned exhaust assembly back to fixed scroll and tight again by 14 mm pin spanner till metal to metal contact. During the assembly be careful and avoid the O-rings damage.

Figure 5 Exhaust valve nXDS 6/10/15



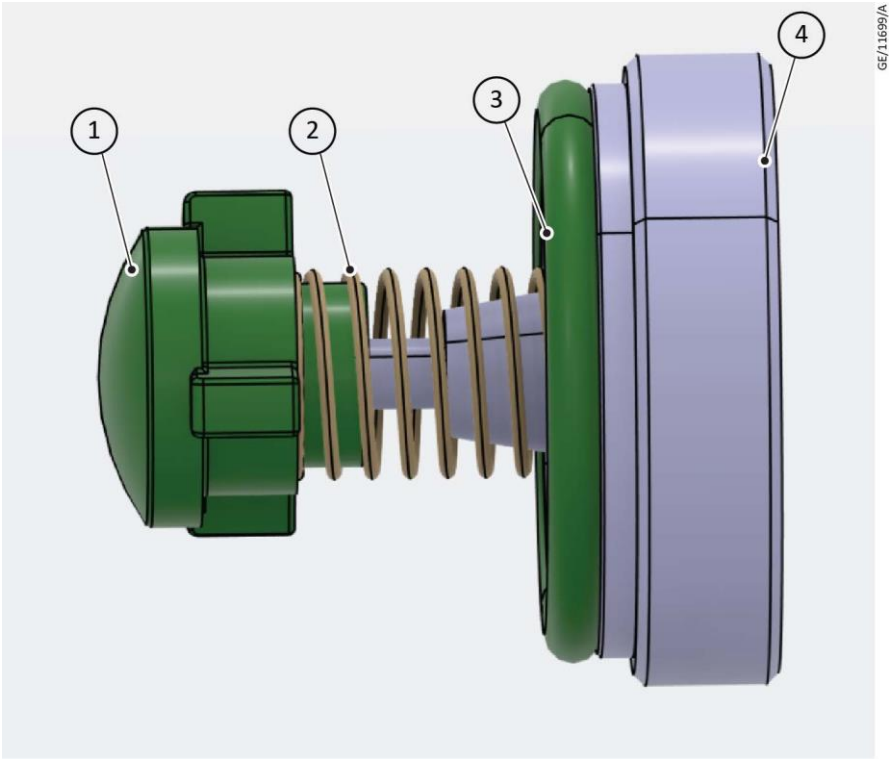
1. Exhaust valve

Figure 6 Exhaust and blow off valve nXDS20



1. Blow off valve *2. Exhaust valve*

Figure 7 Exhaust valve assembly



1. *Valve pad*
2. *Stainless steel spring*
3. *O-ring*
4. *Exhaust valve cover*

3.4 New tip seal fitting

Install the new tip seal using the following technique in both the orbiting scroll and the fixed scroll:

1. Starting at the centre of the scroll form, insert the tip seal into the tip seal channel. Make sure that each tip seal starts as close as possible at the start of the scroll channel. Refer to *Figure: Tip seal fitting*.

   Note:

   The nXDS20i has multiple tip seal starts in both the orbiting and fixed scrolls.

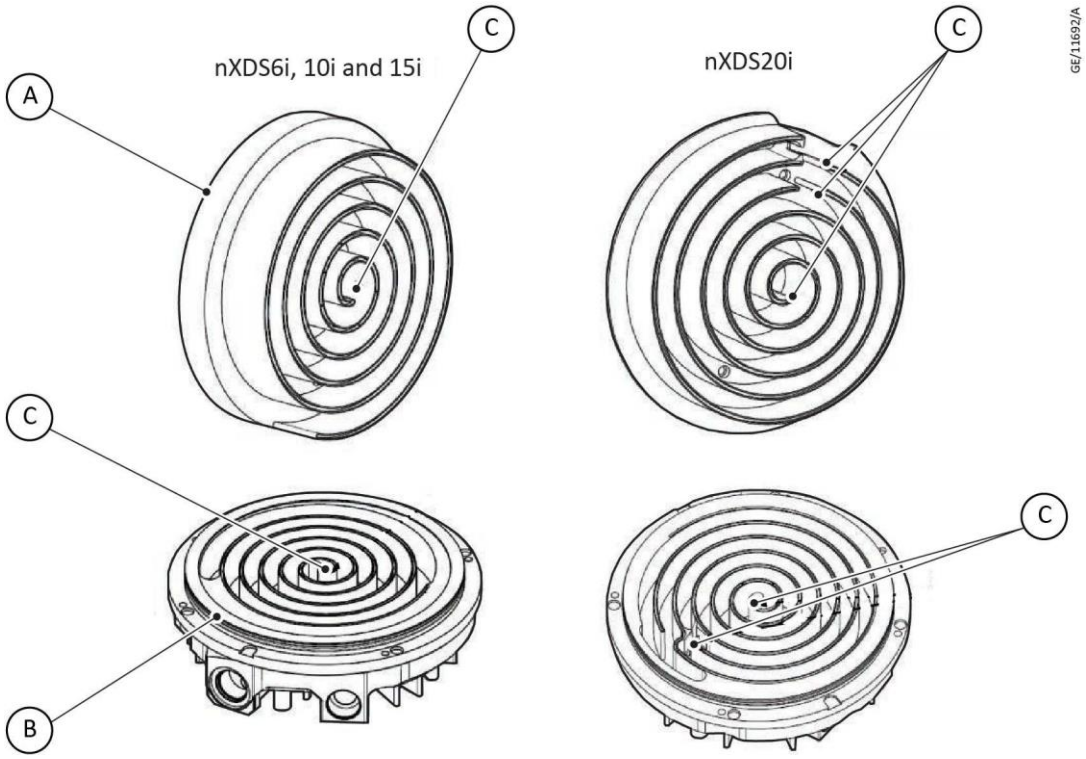
2. Continue to push the tip seal into the tip seal channel while working your way around the channel profile until you have reached the end. Make sure the tip seal is pressed squarely and fully home at each pinch point, these are located closer to the centre of the scroll.
3. Cut short the tip seal at the end of the scroll channel. There should be at least 20 mm between the end of the channel and the tip seal, this is to allow for expansion.

   Note:

   A mark is provided at the end of all the tip seal channels to indicate where to cut the tip seal. Refer to Figure: Tip seal finish mark.

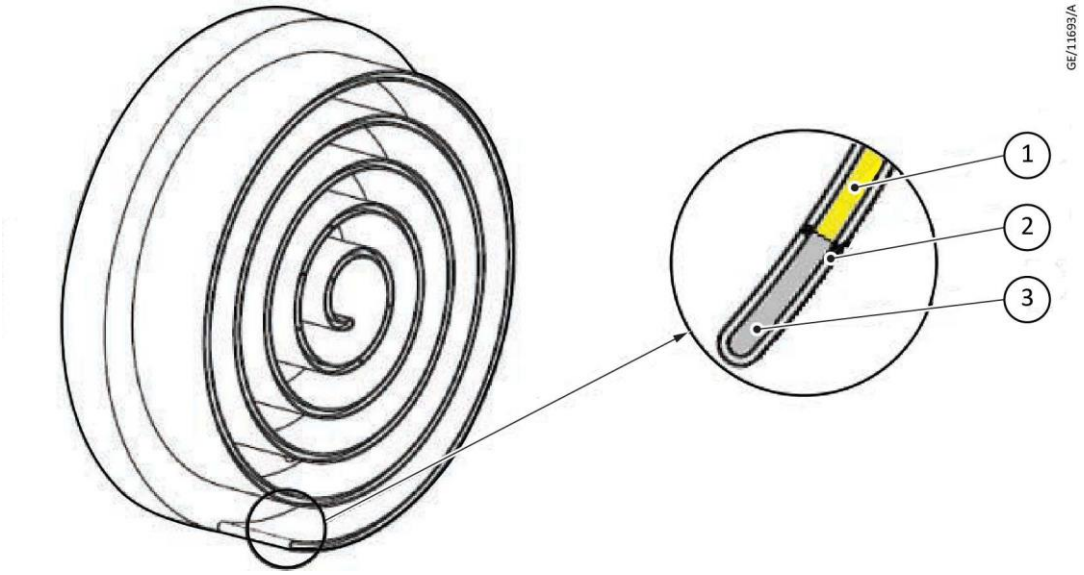
4. Remove any tip seal debris which may have been produced while inserting the new tip seals.

Figure 8 Tip seal fitting



A. Orbiting scroll *B. Fixed scroll*
C. Start

Figure 9 Tip seal finish mark



1. Tip seal ***2. Cut mark***
3. Gap (approximately 20 mm)

3.5 Refit the fan cowl

CAUTION: PARTS ALIGNMENT

Risk of pump damage. Check that the alignment dowel in the housing assembly lines up with the hole in the fixed scroll. Make sure that the fixed scroll is fitted squarely onto the housing assembly.

The fan-cowl/fixed scroll assembly must be installed evenly while tightening each screw, do not start by assembling one side first.

1. Install the new O-ring onto the fixed scroll. The O-ring may be moistened with water (H_2O) only, to aid assembly. Refer to *Figure: Replacing the tip seals*.
2. Position the pump on its end and carefully offer the fan cowl/fixed scroll assembly up to the housing assembly. Connect up the motor fan connector into the controller mating connector. Refer to *Figure: Motor fan lead connector*.
3. Assemble the fan-cowl/fixed scroll assembly onto the housing assembly by hand using even downward pressure.
4. Tighten the fastening screws in small increments and pull-up evenly the fan-cowl/ fixed scroll assembly onto the housing assembly. Torque each screw to 9 Nm. Refer to *Figure: Replacing the tip seals*.

Note:

Make sure that you do not to damage or trap the O-ring.

5. Rotate the pump by hand using a 4 mm Allen key.
6. Reinstall your pump in accordance refer to Installation chapter of the nXDS Scroll Pump manual A735018xx.
7. When you operate the pump follow the tip seal change, make sure the fan is operating correctly.

Note:

The pump tip seals may take a few hours to bed-in before full performance is restored.

4. Service

4.1 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.

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

NOTICE:

If we do not receive a completed HS2 form, your equipment cannot be serviced.