




Instructions for Bolt Torque Procedure for Sahara Air Products Regenerative Air Dryers

SAHARA AIR PRODUCTS
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Service Guide

-  Before servicing equipment, it is important and advised to read and understand all instructions and procedures in this Service Guide, as well as those in the air dryer instruction manual. They provide information that can help prevent serious injury, damage to components, or both.
- Read and observe all warnings and cautions in this Service Guide, as well as those in the air dryer instruction manual which was included with the air dryer upon shipment. They provide information that can help prevent serious injury, damage to components, or both.
- Follow your company's maintenance, service, installation, and diagnostics guidelines.
- Use proper tools to help avoid serious personal injury and damage to components.

*These instructions apply
to the following
Sahara Regenerative
Air Dryers:*

Blower Purge (BP)

Closed System (CS)

Exhaust Purge (EP)

**Heat-of-Compression
(HC & SP)**

Heatless (T & HL)

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PREVENTIVE MAINTENANCE PRIOR TO START-UP

This preventive bolt torque procedure will save time and money in the long run, as well as help keep the air dryer covered under warranty. Failure to follow this bolt torque procedure may result in premature gasket failure which is not covered under warranty.

All air dryers are tested at the factory for leak-tight joints and tightness of bolts; however, during shipment, some bolts may vibrate loose. We have no control over the handling our compressed air systems receive after leaving our factory. To prevent costly problems at start-up and operation, all bolts should be checked for tightness prior to system pressurization. This will assure gasket life, as well as prevent possible gasket blowout. Gasket joints should be bubble tested after four or five complete cycles of the dryer, to ensure gaskets are sealed. Any loose joints will need to be re-tightened and re-tested for leaks.

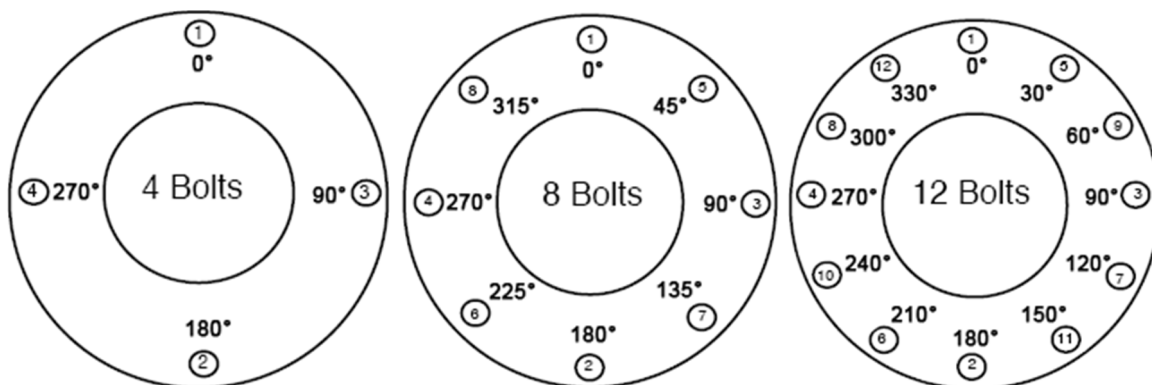
If the dryer includes manual ball or butterfly valves, valves must be totally closed before re-torquing bolts.

Following is a comprehensive procedure for tightening all pressurized gasketed joints:

1. Align component parts and clamp together with hold down.
2. Lubricate stud (or bolt) threads in area of nut (or forged ring) engagement. Also lubricate face of nuts (or bolt head) using a suitable lubricant.
3. Install all bolts and nuts finger tight.
4. Number bolts so that torquing requirements can be followed.
5. Apply torque in 20% (1/5) steps of required final torque. Loading all bolts at each step before proceeding to next step.
6. TIGHTEN BOLTS IN SEQUENTIAL ORDER (i.e. 0-180°, 90°-270°, 45°-225°, 135°-315° for 8 Bolt pattern as illustrated below) at each step until final torque is reached.

FLANGE BOLT TORQUE PROCEDURE

SEQUENTIAL ORDER		
4 BOLTS	8 BOLTS	12 BOLTS
1-2	1-2	1-2
3-4	3-4	3-4
	5-6	5-6
	7-8	7-8
		9-10
		11-12



Reference the next page for continuation of the flange bolt torque procedure.

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7. Use ROTATIONAL TIGHTENING until all bolts are stable at final torque level (two complete rotations are usually required).

FLANGE BOLT TORQUE PROCEDURE

ROTATIONAL ORDER		
4 BOLTS	8 BOLTS	12 BOLTS
1	1	1
3	5	5
2	3	9
4	7	3
	2	7
	6	11
	4	2
	8	6
		10
		4
		8
		12

FLANGE BOLT TIGHTENING TORQUES

150# FLANGE RATING					
SIZE	BOLT QTY.	BOLT SIZE	RECOMMENDED TORQUE / BOLT (FT. LBS.)	MINIMUM TORQUE (FT. LBS.)	MAXIMUM TORQUE (FT. LBS.)
1"	4	1/2"	44	37	49
1 1/2"	4	1/2"	44	37	49
2"	4	5/8"	87	73	97
3"	4	5/8"	87	73	97
4"	8	5/8"	87	73	97
6"	8	3/4"	155	125	172
8"	8	3/4"	155	125	172
10"	12	7/8"	150	125	167

- Based on SA307 GR B bolts and 1/16" gasket material.
- If other than 150# flange rating, consult Henderson Engineering.

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When contacting Henderson Engineering, please have the following information available:

- **Serial Number** which can be found on the air dryer; either on the ASME code nameplate on the dryer towers or in the electrical enclosure.
- **Model Number** which can be found on the air dryer; either on the ASME code nameplate on the dryer towers or in the electrical enclosure.
- Inlet air temperature and pressure.
- Actual inlet flow rate.



Henderson Engineering Co., Inc.,
is proud to be certified to the
ISO 9001 Quality Management System
standards and guidelines.

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Business Office Hours: Monday - Friday 8:00 a.m. - 4:30 p.m.
Receiving Dock Hours: Monday - Thursday 7:30 a.m. - 3:30 p.m.

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