SWI, Top Flange Assembly, Vx Spectra

Testing Services-Singapore Well Testing Centre

Introduction

This SWI has specific information for Vx Spectra, 63 Bar Meter. Take care while using the procedure.

This SWI consist of steps for the assembly of the top flange onto the venturi.

Steps

1 Tools needed for Standard Vx Spectra

SL No	Description
1	2" Studs and nuts
2	3" Studs and nuts
3	4" Studs and nuts
4	6" Studs and nuts
5	27mm Socket
6	36mm Socket
7	41mm Socket
8	46mm Socket
9	2" Seal ring
10	3" Seal ring
11	4" Seal ring
12	6" Seal ring
13	Molykyote 111
14	Foam Swab
15	Cleaning Alcohol
16	Lint Free paper
17	Nozzle Plugged to air network
18	2" Top flanges
19	3" Top flanges
20	4" Top flanges
21	6" Top flanges

Tools needed for Vx Spectra, 63 Bar

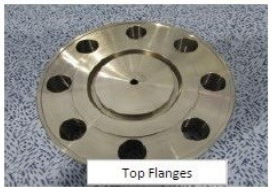
Steps

	2a	Vx Spectra, 63 BarTop Flanges: 103173341 (2IN), 103173342 (3IN), 103173343 (4IN).
	2b	Vx Spectra, 63 Bar Top Flange Studs: 103259295 (2IN & 3IN), 103259296 (4IN).
	2c	Vx Spectra, 63 Bar Top Flange Nuts: 103162216 (2IN & 3IN), 103162220 (4IN).
	2d	Feeler gauge if necessary.

SL No	Description
1	Torque wrench (20-100Nm)
2	Torque wrench (60-300Nm)
3	Molykote 111
4	Nut running machine
5	Torque multiplier
6	Cleaning alcohol
7	Lint free wipes
8	Chesterton 785
9	Foam swab
10	30mm socket
11	36mm socket

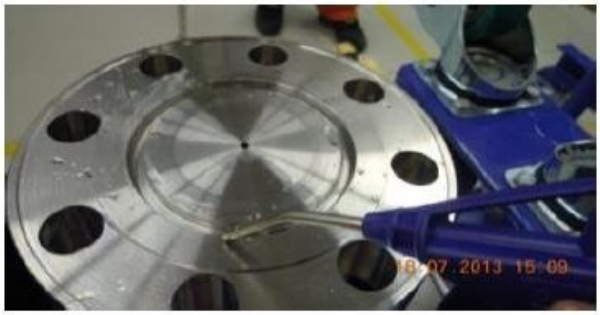
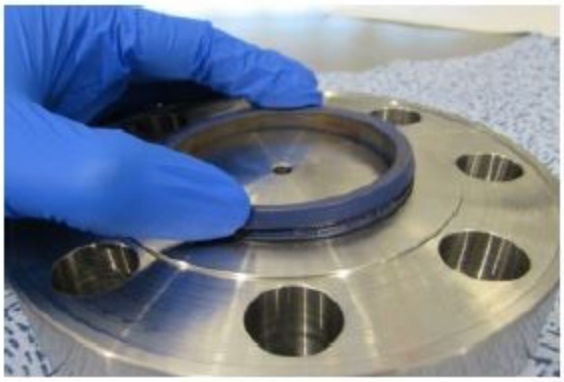
Standard Vx Spectra Venturi shall have compact flange interface and Vx Spectra, 63 Bar Venturi shall have GOST flange interface.

3 Remove protection cover on the Venturi and perform visual inspection.

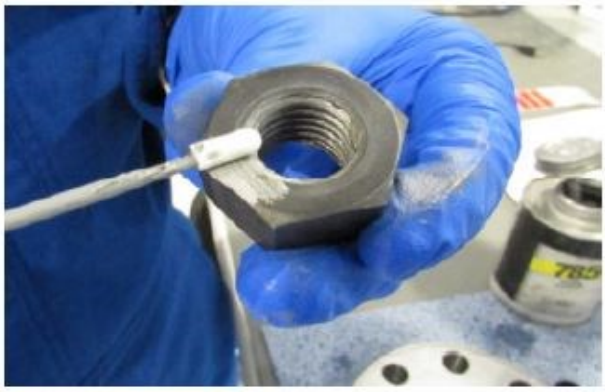


Top flange and venturi flange interface need to be checked for any damages.

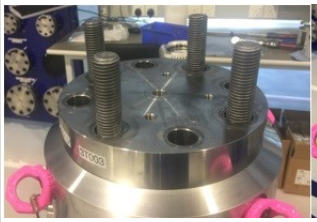
Step 4

Steps			
	4a	Using air gun, blow compressed air on the sealing interface.	
	4b	Use alcohol and lint free paper or foam swabs to perform cleaning.	
	4c	Complete cleaning using compressed air via air gun.	
	Ensure there is no dust particles as it will affect sealing.		
	If there are any debris/dust or particles that cannot be removed, stop the work and report to Supervisor.		
	Standard Vx Spectra Venturi shall use IX seal ring and Vx Spectra, 63 Bar Venturi shall use GOST seal. Do not use wrong seal.		
Step 5			
	5a	For Standard Vx Spectra, place the IX seal ring in the groove and by using hand verify that it rocks slightly in the groove.	
	5b	For Vx Spectra, 63 Bar Meter, place the GOST seal in the groove.	

Steps			
6	Remove the seals and apply small amount of Molykote 111 over the IX seal ring/GOST seal as shown in the picture.		
Step 7			
	7a	For Standard Vx Spectra, place the IX seal ring with Molykote 111 in the groove and by using hand verify that it rocks slightly in the groove.	
	7b	For Vx Spectra, 63 Bar Meter, place the GOST seal with Molykote 111 in the groove.	

Steps		
⚠	**For Vx Spectra, 63 Bar Venturi, only use Vx Spectra, 63 Bar Top Flanges as per step 2.**	
Step 8		
	8a	Install 2 studs as guiding studs into the threaded hole.
	8b	Place the top flange on top of the venturi and seal ring as shown in the picture.
9	Apply chesterton 785 on the stud thread and nut bearing surface as shown in the picture.	 
⚠	**For Vx Spectra, 63 Bar Venturi, only use Vx Spectra, 63 Bar studs as per step 2.**	
Top Flange Fasteners		

Steps

	10a	For standard Vx Spectra, Install the remaining studs into the threaded hole on top of the top flange.	 
	10b	For Vx Spectra, 63 Bar meter, use Vx Spectra, 63 Bar studs as per step 2.	
i	Make sure the seal ring is attached to the flanges and tooling flanges.		

For Standard Vx Spectra Only

	11a	Put all the nuts and torque using a torque wrench in a cross pattern.	 
	11b	Use a torque multiplier when the torque value needed is more than 300Nm.	  
i	Tighten nuts in a diagonal sequence as illustrated below.The preload used in the first step shall not be greater than 30% of the total preload when using only one tool. Tighten bolts to 100% of the applied tension or tourque value given in the table given in step 12.		
12	For Standard Vx Spectra follow torque values for different venturis as per the picture.		

Venturi Size	First Torque Value (N.m)	Second Torque Value(N.m)	Final Torque Value (N.M)	Socket size(mm)
2"	60	120	192	1-1/16"
3"	160	320	544	1-7/16"
4"	240	490	816	1-5/8"
6"	360	710	1194	1-13/16"

Steps

Measure the flange gap using a caliper/feeler gauge around the circumference after each round of torqueing. Make appropriate adjustments if the gap is not reasonably uniform.

For Vx Spectra, 63 Bar Meter Only

13a	Put all the Vx Spectra, 63 Bar nuts and torque using a torque wrench in a STAR pattern.
13b	Use a torque multiplier when the torque value needed is more than 300Nm.
13c	After the final torque is applied in STAR pattern, perform only the final torque again in a CIRCULAR CLOCKWISE pattern until no further nut rotation occurs.
13d	Mark all the nuts that have been torqued.

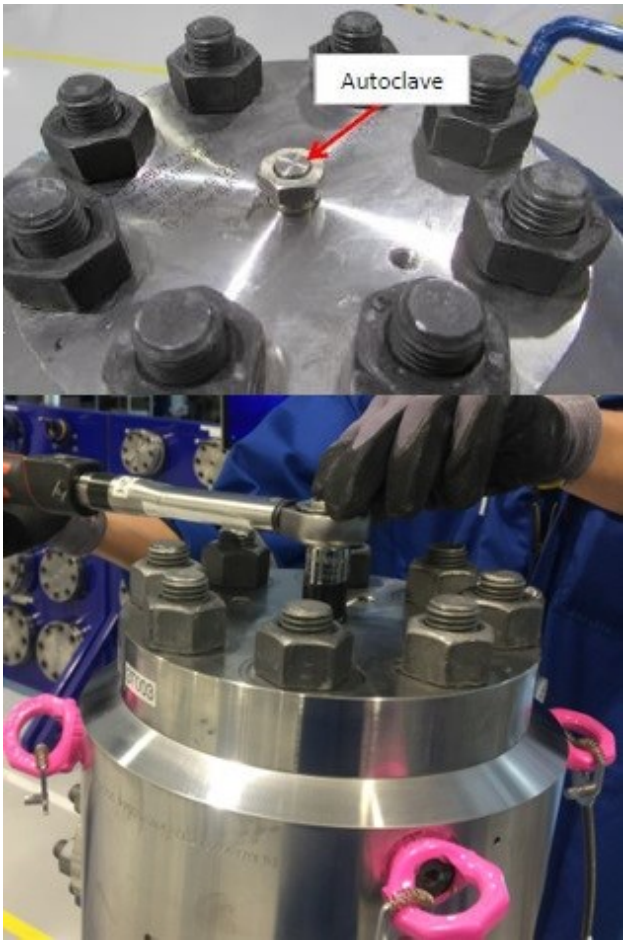
Refer to Step 14 for the torque value and tooling requirement for Vx Spectra, 63 Bar parts.

14 For Vx Spectra, 63 Bar meter follow torque values and tooling for different venturi as per the picture.

For RCA Meter only

Venturi Size	First Torque Value (N.m)	Second Torque Value (N.m)	Final Torque Value (N.m)	Socket Size (mm)
2″ RCA	85	200	335	30
3″ RCA	85	200	335	30
4″ RCA	115	275	456	36

Steps

15	Place an autoclave at the center of the tooling flanges and use a torque wrench to torque to 40 N.m.	

END OF STANDARD WORK INSTRUCTION

This symbol means that the equipment cannot be discarded in a rubbish-bin. At its end of life, the equipment and/or its components must be treated, following Schlumberger Environmental procedures, in compliance with Schlumberger QHSE Policy and applicable laws and regulations on waste management.