

# PETRA CARBON PTE LTD

1001 REDHILL INDUSTRIAL ESTATE #04-01 / 06 JALAN  
 BUKIT MERAH, SINGAPORE 159455.  
 FAX:(65) 6273-3121 / 6273-9670  
 TEL:(65) 6271-0800

FLANGE MATL: ASTM A105  
 FLANGE SIZE: \_\_\_\_\_  
 JOINT REF: \_\_\_\_\_

BOLT MATL: \_\_\_\_\_  
 BOLT SIZE: \_\_\_\_\_  
 NO. OF BOLT: \_\_\_\_\_  
 NUT SIZE (A/F): \_\_\_\_\_

ASME VIII BOLT LOADS AND SYSTEM PRESSURES TO ASME VIII 1996 DIVISION 1

## METHOD OF STATEMENT (BOLT TENSIONING) AND CHECK SHEET

GASKET TYPE: \_\_\_\_\_ BOLT TENSIONER MODEL: \_\_\_\_\_  
 TOOL COVERAGE : 100% of Stubs per bolting exercise NUMBER OF BOLT TENSIONER: \_\_\_\_\_

The following procedure shall be carried out with reference to the appropriate "BOLT TENSIONING DATA SHEET".

	Required Bolt Load: _____ lbf. Bolt Stress at: _____ psi	Check " √ "
<b>STEP 1</b>	Assemble 50% of the tensioning tools to one side of the joint equally spread with the remaining 50% on the opposite adjacent stub bolts	<input type="checkbox"/>
<b>STEP 2</b>	Ensure all hydraulic hose are connected from both side of the tensioners	<input type="checkbox"/>
<b>STEP 3</b>	Then apply 2nd pass pressure as specified on the "Bolt Tensioning Data". while maintaining the pressure, turn down all nuts using tommy bar.	<input type="checkbox"/>
	2nd Pass Pressure _____ psi	<input type="checkbox"/>
<b>STEP 3</b>	Release the system pressure and repeat the STEP 3, until there is no further nut movement.	<input type="checkbox"/>
	Final Pass Pressure _____ psi	<input type="checkbox"/>
<b>STEP 4</b>	Using a hammer, "ring" each nut to ensure that no slack bolts are remain.	<input type="checkbox"/>
	<u>At this stage the tensioning operation is said to be completed.</u>	
<b>SAFETY CHECK</b>	* All necessary safety precautions have been carried out.	<input type="checkbox"/>
	* Personnel involved in bolt tensioning are competent and fully trained in the use of bolt tensioners and tightening techniques.	<input type="checkbox"/>
<b>REMARKS</b>	_____ _____ _____ _____ _____ _____	

Client: _____	Work performed by: _____
Contract No.: _____	Work checked by: _____
Attention to: _____	Date: _____

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BOLT MATL: \_\_\_\_\_  
 BOLT SIZE: \_\_\_\_\_  
 NO. OF BOLT: \_\_\_\_\_  
 NUT SIZE (A/F): \_\_\_\_\_

ASME VIII BOLT LOADS AND SYSTEM PRESSURES TO ASME VIII 1996 DIVISION 1

**METHOD OF STATEMENT (BOLT TENSIONING) AND CHECK SHEET**

GASKET TYPE: \_\_\_\_\_ BOLT TENSIONER MODEL: \_\_\_\_\_  
 TOOL COVERAGE : 50% of Stubs per bolting exercise NUMBER OF BOLT TENSIONER: \_\_\_\_\_

The following procedure shall be carried out with reference to the appropriate "BOLT TENSIONING DATA SHEET".

	Required Bolt Load: _____ lbf. Bolt Stress at: _____ psi	Check "√"
<b>STEP 1</b>	Number all bolts in consecutively order, 1, 2, 1, 2, 1, 2, etc... and in a clockwise direction.	<input style="width: 100%;" type="text"/>
<b>STEP 2</b>	Assemble tensioning tools to 50% of the bolts (example all number 1 bolts) and apply nominal pressure for box up. Then apply 1st pass pressure as specified on the "Bolt Tensioning Data".	<input style="width: 100%;" type="text"/>
	1st Pass Pressure _____ psi	<input style="width: 100%;" type="text"/>
<b>STEP 3</b>	Move tensioning tools to the next 50% of the bolts (example all number 2 bolts) and apply 2nd pass pressure as specified on the "Bolt Tensioning Data".	<input style="width: 100%;" type="text"/>
	2nd Pass Pressure _____ psi	<input style="width: 100%;" type="text"/>
<b>STEP 4</b>	Move tensioning tools to the previously tightened in STEP 2 (all the number 1 bolts) and apply 2nd pass pressure as a final check.	<input style="width: 100%;" type="text"/>
	Final Pass Pressure _____ psi	<input style="width: 100%;" type="text"/>
<b>STEP 5</b>	Using a hammer, "ring" each nut to ensure that no slack bolts are remain.	<input style="width: 100%;" type="text"/>
	<u>At this stage the tensioning operation is said to be completed.</u>	
<b>SAFETY CHECK</b>	* All necessary safety precautions have been carried out.	<input style="width: 100%;" type="text"/>
	* Personnel involved in bolt tensioning are competent and fully trained in the use of bolt tensioners and tightening techniques.	<input style="width: 100%;" type="text"/>
<b>REMARKS</b>	_____ _____ _____ _____ _____ _____	

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BOLT MATL: \_\_\_\_\_  
 BOLT SIZE: \_\_\_\_\_  
 NO. OF BOLT: \_\_\_\_\_  
 NUT SIZE (A/F): \_\_\_\_\_

ASME VIII BOLT LOADS AND SYSTEM PRESSURES TO ASME VIII 1996 DIVISION 1

**METHOD OF STATEMENT (BOLT TENSIONING) AND CHECK SHEET**

GASKET TYPE: \_\_\_\_\_ BOLT TENSIONER MODEL: \_\_\_\_\_  
 TOOL COVERAGE : 33-1/3% of Stubs per bolting exercise NUMBER OF BOLT TENSIONER: \_\_\_\_\_

The following procedure shall be carried out with reference to the appropriate "BOLT TENSIONING DATA SHEET".

	Required Bolt Load: _____ lbf. Bolt Stress at: _____ psi	Check "√"
<b>STEP 1</b>	Number all bolts in consecutively order, 1, 2, 3, 1, 2, 3, 1, 2, etc... and in a clockwise direction.	<input type="text"/>
<b>STEP 2</b>	Assemble tensioning tools to 33-1/3% of the bolts (example group A, all number 1 bolts) and apply nominal pressure for box up. Then apply 1st pass pressure as specified on the "Bolt Tensioning Data".	<input type="text"/>
	1st Pass Pressure _____ psi	<input type="text"/>
<b>STEP 3</b>	Move tensioning tools to the next 33-1/3% of the bolts (example group B, all number 2 bolts) and apply 1st pass pressure as specified on the "Bolt Tensioning Data".	<input type="text"/>
	1st Pass Pressure _____ psi	<input type="text"/>
<b>STEP 4</b>	Move tensioning tools to the next 33-1/3% of the bolts (example group C, all number 3 bolts) and apply 2nd pass pressure as specified on the "Bolt Tensioning Data".	<input type="text"/>
	2nd Pass Pressure _____ psi	<input type="text"/>
<b>STEP 5</b>	Due to the number of passes required load loss will have occurred in bolts tightened in STEP 2 and STEP 3. Therefore, assemble tensioning tools to bolts previously tightened in STEP 2 (group A) and STEP 3 (group B) and apply final checked pass (2nd pass pressure).	<input type="text"/>
	Final Pass Pressure _____ psi	<input type="text"/>
<b>STEP 6</b>	Using a hammer, "ring" each nut to ensure that no slack bolts are remain.	<input type="text"/>
	<u>At this stage the tensioning operation is said to be completed.</u>	
<b>SAFETY CHECK</b>	* <i>All necessary safety precautions have been carried out.</i>	<input type="text"/>
	* <i>Personnel involved in bolt tensioning are competent and fully trained in the use of bolt tensioners and tightening techniques.</i>	<input type="text"/>
<b>REMARKS</b>	_____ _____ _____ _____ _____	

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BOLT MATL: \_\_\_\_\_  
 BOLT SIZE: \_\_\_\_\_  
 NO. OF BOLT: \_\_\_\_\_  
 NUT SIZE (A/F): \_\_\_\_\_

ASME VIII BOLT LOADS AND SYSTEM PRESSURES TO ASME VIII 1996 DIVISION 1

**METHOD OF STATEMENT (BOLT TENSIONING) AND CHECK SHEET**

GASKET TYPE: \_\_\_\_\_ BOLT TENSIONER MODEL: \_\_\_\_\_  
 TOOL COVERAGE : 25% of Stubs per bolting exercise NUMBER OF BOLT TENSIONER: \_\_\_\_\_

The following procedure shall be carried out with reference to the appropriate "BOLT TENSIONING DATA SHEET".

	Required Bolt Load: _____ lbf. Bolt Stress at: _____ psi	Check "√"
<b>STEP 1</b>	Number all bolts in consecutively order, 1, 2, 3, 4, 1, 2, 3, 4, 1, etc... and in a clockwise direction.	<input style="width: 80px; height: 20px;" type="text"/>
<b>STEP 2</b>	Assemble tensioning tools to 25% of the bolts (example group A, all number 1 bolts) and apply nominal pressure for box up. Then apply 1st pass pressure as specified on the "Bolt Tensioning Data".	<input style="width: 80px; height: 20px;" type="text"/>
	1st Pass Pressure _____ psi	<input style="width: 80px; height: 20px;" type="text"/>
<b>STEP 3</b>	Move tensioning tools to the next 25% of the bolts (example group B, all number 2 bolts) and apply 1st pass pressure as specified on the "Bolt Tensioning Data".	<input style="width: 80px; height: 20px;" type="text"/>
	1st Pass Pressure _____ psi	<input style="width: 80px; height: 20px;" type="text"/>
<b>STEP 4</b>	Move tensioning tools to the next 25% of the bolts (example group C, all number 3 bolts) and apply 2nd pass pressure as specified on the "Bolt Tensioning Data".	<input style="width: 80px; height: 20px;" type="text"/>
	2nd Pass Pressure _____ psi	<input style="width: 80px; height: 20px;" type="text"/>
<b>STEP 5</b>	Move tensioning tools to the next 25% of the bolts (example group D, all number 4 bolts) and apply 2nd pass pressure as specified on the "Bolt Tensioning Data".	<input style="width: 80px; height: 20px;" type="text"/>
	2nd Pass Pressure _____ psi	<input style="width: 80px; height: 20px;" type="text"/>
<b>STEP 6</b>	Moving tensioning tools to bolts previously tightened in STEP 2 (group A) and STEP 3 (group B) and apply final checked pass (2nd pass pressure).	<input style="width: 80px; height: 20px;" type="text"/>
	Final Pass Pressure _____ psi	<input style="width: 80px; height: 20px;" type="text"/>
<b>STEP 7</b>	Using a hammer, "ring" each nut to ensure that no slack bolts are remain.	<input style="width: 80px; height: 20px;" type="text"/>
	<b><u>At this stage the tensioning operation is said to be completed.</u></b>	
<b>SAFETY CHECK</b>	<i>* All necessary safety precautions have been carried out.</i>	<input style="width: 80px; height: 20px;" type="text"/>
	<i>* Personnel involved in bolt tensioning are competent and fully trained in the use of bolt tensioners and tightening techniques.</i>	<input style="width: 80px; height: 20px;" type="text"/>
<b>REMARKS</b>	_____ _____ _____	

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