
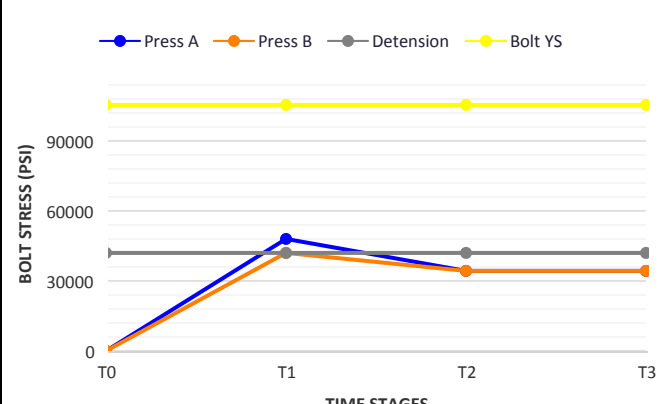


Bolt Load Datasheet					Joint Integrity Management					
Client Name										
Project										
Module										
Date										
Engineer Name										
Job Reference (Code/Identification)					Other Information					
Job Report Number					Joint Type		?			
Drawing Number					Job Identification		HW12019-L-561/562-E-001			
P&ID Number					Joint Criticality		High			
Line Number					Joint Number		#24			
Joint Information					Joint Tag Number		PSI-0001			
Nominal Pipe Size		18	in	450	mm	Equipment Number		HW12019		
Joint Rating		Class 300		Gasket Ring Type Joint		Methods of tightening				By Tensioning
Joint Specification		ASME B16.5		Seal Ring	RTJ					
Bolt Configuration (Unified)			Flange Configuration			Flange End				
Nominal Thread Size (inches)			1-1/4	Flange Dimensions						
Thread Per Inch, TPI (inches)			8	F1	2.630	in	66.80	mm		
				RF1	0.060	in	1.52	mm		
				Gap	0.175	in	4.45	mm		
Number of Bolts			24	RF2	0.060	in	1.52	mm		
Bolt to Tool Ratio			25%	F2	2.630	in	66.80	mm		
Load Transfer Factor (LTF)			1.24	Spacer	0.000	in	0.00	mm		
Clamp Length					5.555	in	141.10	mm		
Bolt Tensioning Tool Information					Tensioning Sequence					
Tensioner Identification		BT2	Puller Size	1-1/4"		Number of Pass @ 25%		Pressure Setting (psi)		
Tool Hydraulic Area		4.740	in ²	3058.06	mm ²	Bolt #1	Bolt #2	Bolt #3	Bolt #4	
Maximum Working Pressure		21750	psi	1500	bar	Pass 1	10184.67	-	-	
Bolt & Nut Information					Tension Checking Pass					
Bolt / Nut (Specification - Grade)		ASTM A193 B7		A194 Grade 2H		Pass 2	-	8856.24	-	
Bolt / Nut (Material)		Alloy Steel		Carbon Steel		Pass 3	-	-	8856.24	
Nut Size (A/F)		2	in	50.8	mm	Pass 4	-	-	8856.24	
Bolt Yield Strength		105152.00	lb/in ²	725.00	N/mm ²					
Bolt Length		8.250	in	209.55	mm	Check 1	8856.24	-	-	
Elongation, where Young's Modulus (psi) = 29900000		0.0063	in	0.160	mm					
Torque Information					Torquing Procedure					
Bolt Area @ Root		0.929	in ²	599.26	mm ²	Pass #	%	lb.ft	N.m	Pump Pressure
Bolt Area @ Stress		1.000	in ²	644.97	mm ²	Pass 1	30.00	169.53	229.85	Manual
Coefficient of Friction		0.12				Pass 2	60.00	339.05	459.69	1614.53
Lubricant Type		Molykote 1000				Pass 3	100.00	565.09	766.15	2690.88
Bolt Torque based on 34000.00 psi		565.09	lb.ft	766.15	N.m	Final	100.00	565.09	766.15	2690.88
Ave Bolt Load based on 34000.00 psi		31581.11	lb	140.48	kN	Torque Model	TX-2			
Determining Stresses			Bolt Stress		Bolt Load		% of Bolt Yield			
Based on Tensile Stress Area		lb/in ²	N/mm ²	Tons	kN	%				
Pressure A @ T1		48289.38	332.94	21.55	214.74	45.92				
Pressure B @ T1		41990.77	289.52	18.74	186.73	39.93				
Residual Bolt Stress @ T2 (based on 32.33% of Bolt YS)		34000.00	234.42	15.17	151.20	32.33				
Detensioning Stress		41990.77	289.52	18.74	186.73	39.93				
Tensioning Pressure			Pressure A		Pressure B		Check Pass			
Based on Cross Loading Factor of 1.15		psi	Bar	psi	Bar	psi	Bar			
100% Tensioning Pressure		10184.67	702.21	8856.24	610.61	8856.24	610.61			
Max Detensioning Pressure		8856.24	610.61	-	-	-	-			
Predicted Bolt					Application Comments					
					Bolt Tensioning of Pipe Flange					
Flange Management Specialist		Sub-Contractor			Contractor		Company			