

Customer Sample
 Project Sample Project
 Project Reference 12345-R1
 Date and Engineer 18/02/2009 PRE/SM

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Subsea Tensioning Summary

Bolted Joint Description	Flange Spec	Flange Type		Bolt Dia	No Bolts	Bolt Material	Residual Target Bolt Stress		Tool Ident	(ii) 100% Tensioning		(ii) 50% Tensioning				(i) Detensioning			Torque Values			Bolt Length	Reaction Nut Type	Spacer Washer Req	
		S.1	S.2				lbs/In2	N/mm2		1st Pass		1st Pass		2nd Pass		Max Pressure		Yield	N.m	Ft.lbs	u				mm
										psi	bar	psi	bar	psi	bar	psi	bar	%							
4" Rigid Spooler to Rigid Sp 4 x 2500 ANSI	ANSI B16.5 & MSS-SP44	WN	SW	1.1/2"-8UN	8	BS:4882 - L7m	55000	379.21	C10-03	13693	944								2205	1626	0.12	462.3	SPT	N	
10" Rigid to Spool 10 x 2500 ANSI	ANSI B16.5 & MSS-SP44	WN	SW	2.1/2"-8UN	12	BS:4882 - L7m	50000	344.74	C10-05	14785	1019								9587	7071	0.12	719.7	SPT	N	
4" Rigid Spool to Flex 4 x 2500 ANSI	ANSI B16.5 & MSS-SP44	WN	SW	M39x4	8	BS:4882 - L7m	54607	376.50	C10-03	13647	941								2369	1747	0.12	464.8	SPT	N	
10" Rigid Spool to Flex 10 x 2500 ANSI	ANSI B16.5 & MSS-SP44	WN	SW	M64x6	12	BS:4882 - L7m	53752	370.61	C10-05	14722	1015								9763	7201	0.12	740.1	SPT	N	
Flex 4" to Flex 4 x 2500 ANSI	ANSI B16.5 & MSS-SP44	WN	SW	M39x4	8	BS:4882 - L7m	54607	376.50	C10-03	13796	951								2369	1747	0.12	447.3	SPT	N	
4" Bend Stiffner to Half Plate MANUAL INPUT	Manual Input	WN	WN	M27x3	10	ASTM A320 - L7	95315	657.18	C10-01	38881	2681								1487	1097	0.12	226.0	?	N	
4" BSC Plate Ext I Tube Sw MANUAL INPUT	Manual Input	WN	SW	M33x3.5	28	BS:4882 - L7m	50175	345.95	C10-02	12869	887								1361	1004	0.12	385.2	SPT	N	
I Tube Ext to I Tube 30 x 150 ANSI	ANSI B16.5 & MSS-SP44	WN	WN	M33x3.5	28	ASTM A193 - B7	73192	504.64	C10-02	19086	1316								1985	1464	0.12	368.2	SPT	N	
4" I Tube to Hang Off Collar MANUAL INPUT	Manual Input	WN	WN	M33x3.5	20	BS:4882 - L7m	67116	462.75	C10-02	18329	1264					21995	1516	128.7	1820	1343	0.12	333.7	?	N	
10" Bend Stiffner to Bend Stif MANUAL INPUT	Manual Input	WN	WN	M30x3.5	20	ASTM A320 - L7	77616	535.14	C10-01	31133	2147					37360	2576	132.3	1572	1159	0.12	262.0	?	N	
10" Bend Stiff to Ext I Tube SW MANUAL INPUT	Manual Input	WN	WN	M39x4	32	BS:4882 - L7m	22290	153.68	C10-03	5612	387					6735	464	39.6	967	713	0.12	452.5	SPT	N	
10" I Tube Ext to I Tube 34 x 150 ANSI	ANSI B16.5 & MSS-SP44	WN	WN	M39x4	32	BS:4882 - L7m	53511	368.95	C10-03	14056	969					16867	1163	99.2	2321	1712	0.12	400.5	SLD	N	
10" I Tube to Hang Off Collar MANUAL INPUT	Manual Input	WN	WN	M39x4	22	BS:4882 - L7m	61376	423.17	C10-03	16786	1157					20143	1389	118.5	2662	1963	0.12	368.0	?	N	
4" Mid Water Arch Flex R Clamp MANUAL INPUT	Manual Input	WN	WN	M24x3	10	ASTM A320 - L7	52251	360.26	C10-01	10145	699					12174	839	68.6	571	421	0.12	561.0	SPT	N	
10" Mid Water Arch Flex R Clam MANUAL INPUT	Manual Input	WN	WN	M30x3.5	10	ASTM A320 - L7	41891	288.83	C10-01	12935	892					15522	1070	55.0	848	626	0.12	700.0	SPT	N	
4" Mid Water Arch Tether MANUAL INPUT	Manual Input	WN	WN	M20x2.5	10	ASTM A320 - L7	41472	285.94	C10-00	9832	678								286	211	0.12	360.0	SPT	N	
4" Mid Water Arch Tether C Out MANUAL INPUT	Manual Input	WN	WN	M20x2.5	4	ASTM A320 - L7	14877	102.57	C10-00	3864	266								103	76	0.12	236.0	SPT	N	
10" M W Arch Flex R Tether MANUAL INPUT	Manual Input	WN	WN	M36x4	10	ASTM A320 - L7	37283	257.06	C10-02	10814	746					12977	895	48.9	1263	931	0.12	675.2	SPT	N	
10" Mid water Arch Flex R Clam	Manual Input	WN	WN	M30x3.5	4	ASTM A320 - L7	22918	158.01	C10-01	8523	588					10227	705	36.2	464	342	0.12	280.0	SPT	N	

(i) Max Detensioning Pressure refers to the maximum capacity of the tensioning tool and should not be considered to be the safe max load capacity of the flange
 (ii) 100% Tensioning is the recommended mode of bolt tensioning, wherever possible use 100% Bolt to tool ratio

SPT - Standard Split Nut
 HDN - Heavy Duty Split Nut
 SLD - Solid Reaction Nut

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										psi	bar	psi	bar	psi	bar	psi	bar	%	N.m	Ft.lbs	u				mm

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