



## **WILLIAM JOHNSTON & COMPANY LIMITED**

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The following charts indicate the approximate bolt torque required to seal flanged joints against internal pressure. The torques given are based on using a 3mm thick 70 IRHD rubber gasket.

The torque values are applicable for the type of gasket specified and bolts, nuts and washers should be free from damage, rust etc. The relationship between applied torques and the actual load imparted is not precisely predictable, therefore the values in the tables are, of necessity, an approximate guide.

The need to seal a flanged joint at a pressure greater than the flange rating is only for site hydrostatic test purposes. Flange joints should not be operated at pressures above the flange rating.

All gaskets should be installed using the appropriate methodology. Control of torque and equal torque is essential. Over or under compression will lead to failure. Lack of/wrongly lubricated fastener assemblies will also cause inaccurate torque readings and ultimately seal failure.

IF IN DOUBT ASK FOR OUR OUR INSTALLATION GUIDE.

<b>NP16 Flange Joints</b>								
Dia	to seal at 10 bar		to seal at 16 bar		to seal at 20 bar		to seal at 25 bar	
	<b>Approximate Bolting Torque setting Nm</b>							
80mm	70		70		75		75	
100mm	75		80		80		80	
150mm	115		120		125		135	
200mm	110		115		120		130	
250mm	155		165		175		180	
300mm	165		180		190		210	
350mm	160		175		185		200	
400mm	200		220		235		270	
450mm	195		215		230		260	
500mm	240		270		295		345	
600mm	305		365		425		505	
700mm	350		465		540		635	
800mm	470		630		735		870	
900mm	475		645		760		900	
1000mm	605		835		985		1175	
1100mm	610		840		1005		1205	
1200mm	810		1140		1360		1630	
1400mm	915		1340		1555		1875	

## NP25 Flange Joints

Dia	to seal at 20 bar		to seal at 25 bar		to seal at 35 bar		to seal at 40 bar	
	Approximate Bolting Torque setting Nm							
80mm	80		85		85		90	
100mm	120		125		130		135	
150mm	180		185		195		230	
200mm	170		180		190		220	
250mm	230		250		275		335	
300mm	220		235		265		325	
350mm	290		330		375		460	
400mm	380		435		495		615	
450mm	355		410		470		580	
500mm	415		485		555		695	
600mm	595		700		800		1010	
700mm	675		795		915		1160	
800mm	965		1150		1330		1690	
900mm	990		1185		1375		1755	
1000mm	1355		1620		1885		2420	
1100mm	1380		1655		1930		2480	
1200mm	1610		1940		2265		2920	
1400mm	1980		2395		2805		3625	

## PE Stub flanges NP16 Torque settings

Dia o/d	SDR 17.6			SDR 11		
	min		max	min		max
Approximate Bolting Torque setting Nm						
63				40		60
90				50		70
110	70		90	70		90
125	70		90	70		90
160	90		110	90		110
180	90		110	90		110
200	110		130	110		130
225	110		130	110		130
250	110		130	110		130
280	110		130	110		130
315	130		150	130		150
355	130		150	130		150
400	170		190	190		210
450	200		220	220		240
500	230		250	250		270
630	300		320	330		350

<b>Flange Joint Dimensions</b>											
All dimensions are mm											
Dia	flange rating		flange dia		No of bolts		bolt hole dia		PCD		bolt dia
<b>80mm</b>	D/E		184		4		4		146		16
	PN10		200		8		18		160		16
	PN16		200		8		18		160		16
	PN25		200		8		18		160		M16
<b>100mm</b>	D		216		4		17		178		16
	E		216		8		17		178		16
	PN10		220		8		18		180		16
	PN16		220		8		18		180		M16
	PN25		235		8		22		190		M20
<b>150mm</b>	D		279		8		17		235		16
	E		279		8		22		235		19
	F		305		12		22		260		19
	PN10		285		8		22		240		M20
	PN16		285		8		22		240		M20
	PN25		300		8		26		250		M24

<b>200mm</b>	D		337		8		17		292		16
	E		337		8		22		292		19
	F		368		12		22		324		19
	PN10		340		8		22		295		M20
	PN16		340		12		22		295		M20
	PN25		360		12		26		310		M24
<b>250mm</b>	D		406		8		22		356		19
	E		406		12		22		356		19
	F		432		12		25		381		22
	PN10		395		12		22		350		M20
	PN16		405		12		26		355		M24
	PN25		425		12		30		370		M27
<b>300mm</b>	D		457		12		22		406		19
	E		457		12		25		406		22
	F		489		16		25		438		22
	PN10		445		12		22		400		M20
	PN16		460		12		26		410		M24
	PN25		485		16		30		430		M27
<b>350mm</b>	D/E		527		12		25		470		22
	F		552		16		29		495		25
	PN10		505		16		22		460		M20
	PN16		520		16		26		470		M24
	PN25		555		16		33		490		M30

<b>400mm</b>	D/E		578		12		25		521		22
	F		610		20		29		552		25
	PN10		565		16		26		515		M24
	PN16		580		16		30		525		M27
	PN25		620		16		36		550		M33
<b>450mm</b>	D		641		12		25		584		22
	E		641		16		25		584		22
	F		673		20		32		610		29
	PN10		615		20		26		565		M24
	PN16		640		20		30		585		M27
	PN25		670		20		36		600		M33
<b>500mm</b>	D/E		705		16		25		642		22
	F		737		24		32		673		29
	PN10		670		20		26		620		M24
	PN16		715		20		33		650		M30
	PN25		730		20		36		660		M33
<b>600mm</b>	D		825		16		29		756		25
	E		825		16		32		756		29
	F		851		24		35		781		32
	PN10		780		20		30		725		M27
	PN16		840		20		36		770		M33
	PN25		845		20		39		770		M36