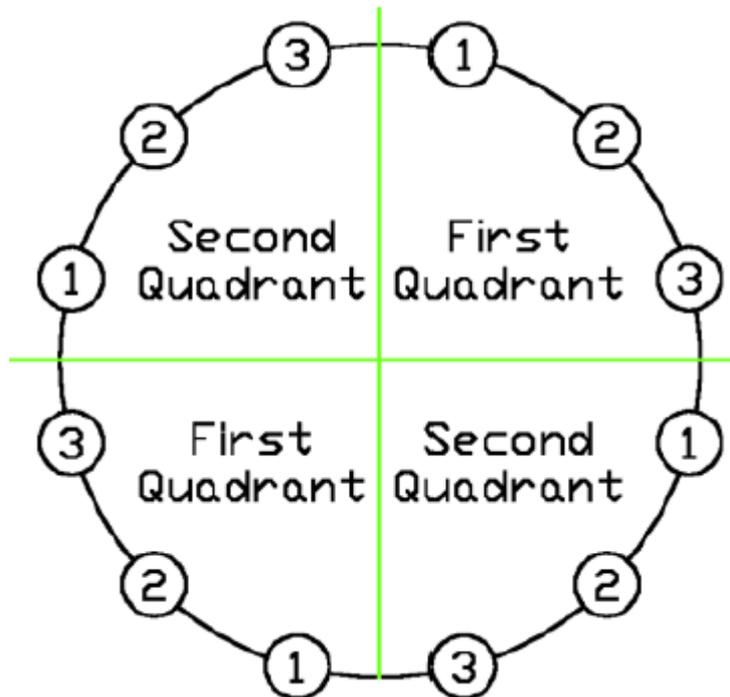
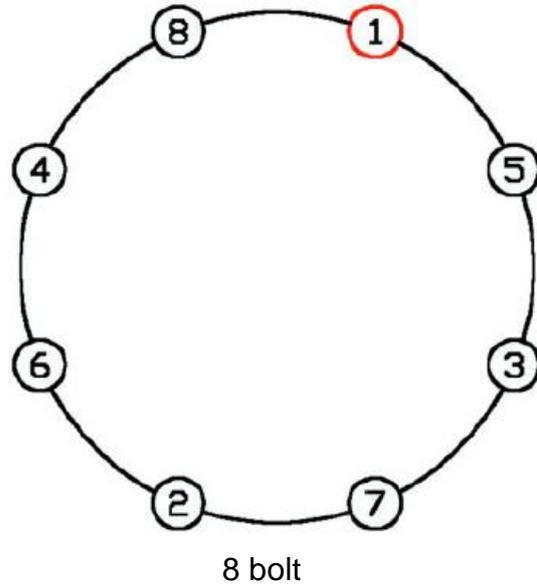
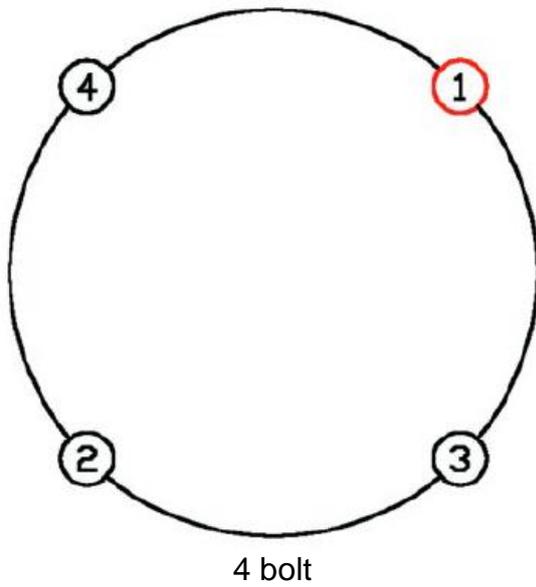


RECOMMENDED ASSEMBLY PROCEDURE FOR VALVE FLANGED JOINTS

1. Pipe work/product must be fabricated/positioned so that the mating flanges faces are aligned and abutted squarely.
2. A calibrated torque wrench must be used.
3. Select the correct gasket for the application. It is recommended to use a 2mm thick Compressed Fibre joint to BS7531 grade Y for above ground installations and a 3mm thick, 80 shore hardness Nitrile rubber gasket to EN681-1 for below ground applications.
4. Ensure the valve flange face and the face of the mating flange is clean and free from dirt, debris and defects that may compromise the sealing capability.
5. Carefully fit gasket into position taking care not to damage the gasket surface.
6. Install studs/bolts lubricated with machine oil finger tight in turn.
7. Bolts should be tightened in the correct sequence as below and a sufficient number of circuits undertaken to ensure that the specified bolt torques are achieved as shown.
8. Throughout the bolt tightening sequence frequent checks should be made to ensure parallel 'pull-up' of the flanges.
9. Torque to a maximum of 30% of the final torque in an equal and opposite sequence as below.





For flanges having 12 bolts or more it is recommended that two Operatives work simultaneously on diametrically opposite bolts. Each Operative tightens the first nut in the quadrant, then the first nut in the second quadrant, returns to the second nut in the first quadrant and so on.

10. Torque to 60% of the final torque value using the same tightening sequence.
11. Torque to the final value using the same tightening sequence.



12. Continue with one final pass torquing the bolts/studs in a clockwise sequence.
13. It must be noted on flanged joints using elastomeric gaskets that some relaxation of the gasket will be experienced and it should be verified that the bolting torques, as shown in the table below, are effective at the time of pressure testing.

Note:

1. All torques are shown are N.m.
2. These figures assumed lubricated bolts with machine oil.
3. The torque figures below are for connecting two metallic flanges. If the valve is being fastened to a PE stub flange then the PE Stub Flange manufacturer's recommendations regarding the final tightening torque must be followed.

Valve Size DN	Final Torque (Nm)	
	Rubber Gasket	Compressed Fibre Gasket
80	70	90
100	75	90
150	115	170
200	110	170
250	155	300
300	165	300

Bolting Guidance

As per EN1092-2 it is recommended that any flanged connection comprising of at least one grey cast iron flange it is recommended that bolting with a maximum yield strength of 240N/mm² should be used. Therefore, in this case, a grade 4.6 bolt should be used and the torque must not exceed the maximum quoted below.

Nominal Thd. Dia. mm	Yield approx. 230Nm ⁻² Grade 4.6		Yield approx. 620Nm ⁻² Grade 8.8		Yield approx. 705Nm ⁻² Grade B7	
	<i>Minimum</i>	<i>Maximum</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Minimum</i>	<i>Maximum</i>
16	59	95	158	252	183	294
20	115	185	308	492	352	565
24	200	319	530	851	621	990

Following successful pressure testing any metallic flange/fasteners must be protected against corrosion.



QUALITY

Remember each individual is responsible for the quality of each product. Please ensure that each valve meets AVK's requirements. If you are not sure during any point you must **STOP and seek advice from your Line Manager.** All non-conforming items **MUST** be clearly identified.

START RIGHT, KEEP RIGHT, FINISH RIGHT

REMEMBER

RIGHT FIRST TIME, EVERY TIME

Prepared By	B Shipley	Sign:	Job title	Product Engineer
Authorised By	R Morewood	Sign:	Job title	Technical Manager

