

TABLE 1
150 LB. FLANGE WITH A193 GR. B7 SCREWS

NOM. SIZE	BOLT SIZE	QTY	APPLIED TORQUE IN FT.-LBS.	
			MINIMUM	MAXIMUM
1/2"	1/2"-13	4	9	28
3/4"	1/2"-13	4	13	40
1"	1/2"-13	4	17	53
1-1/4"	1/2"-13	4	26	60
1-1/2"	1/2"-13	4	35	81
2"	5/8"-11	4	69	120
2-1/2"	5/8"-11	4	81	120
3"	5/8"-11	4	114	155
3-1/2"	5/8"-11	8	66	120
4"	5/8"-11	8	84	114
5"	3/4"-10	8	117	200
6"	3/4"-10	8	148	200
8"	3/4"-10	8	190	200
10"	7/8"-9	12	188	320
12"	7/8"-9	12	250	320
14"	1"-8	12	317	430
16"	1"-8	16	301	490
18"	1-1/8"-8	16	448	710
20"	1-1/8"-8	20	395	710
24"	1-1/4"-8	20	563	1000
30"	3/4"-10	144	190	200

TABLE 2
300 LB. FLANGE WITH A193 GR. B7 SCREWS

NOM. SIZE	BOLT SIZE	QTY	APPLIED TORQUE IN FT.-LBS.	
			MINIMUM	MAXIMUM
1/2"	1/2"-13	4	12	28
3/4"	5/8"-11	4	21	51
1"	5/8"-11	4	28	67
1-1/4"	5/8"-11	4	43	102
1-1/2"	3/4"-10	4	64	151
2"	5/8"-11	8	46	108
2-1/2"	3/4"-10	8	60	141
3"	3/4"-10	8	88	200
3-1/2"	3/4"-10	8	99	200
4"	3/4"-10	8	125	200
5"	3/4"-10	8	156	200
6"	3/4"-10	12	131	200
8"	7/8"-9	12	205	320
10"	1"-8	16	219	490
12"	1-1/8"-8	16	319	710
14"	1-1/8"-8	20	287	652
16"	1-1/4"-8	16	401	912
18"	1-1/4"-8	24	489	1000
20"	1-1/4"-8	24	484	1000
24"	1-1/2"-8	24	662	1552
30"	1-3/8"-8	36	650	1360

TABLE 3
300 LB. GRAY IRON MULTI-STAGE COMPR. FLG. WITH J429 GR.5 SCREWS

NOM. SIZE	BOLT SIZE	QTY	APPLIED TORQUE IN NEWTON-METER	
			MINIMUM	MAXIMUM
6"	3/4"-10	12	131	170
10"	1"-8	16	219	297
14"	1-1/8"-8	20	287	389
20"	1-1/4"-8	24	484	656
				1003

TABLE 4
COMPRESSOR INTERSTAGE CONNECTION

NOM. SIZE	BOLT SIZE	QTY	APPLIED TORQUE IN NEWTON-METER	
			MINIMUM	MAXIMUM
4"	5/8"-11	4	147	155
5"	5/8"-11	4	147	155
6"	3/4"-10	4	247	260
8"	7/9"-9	4	390	410
				529
				556

TABLE 5
PRESSURE VESSEL SIGHT GLASSES 150 LB. FLANGES

NOM. SIZE	BOLT SIZE	QTY	APPLIED TORQUE IN NEWTON-METER	
			MINIMUM	MAXIMUM
4"	3/8"-16	8	10	11
6"	3/4"-10	8	52	55
				71
				75
				SEE NOTE 4

TABLE 6
PRESSURE VESSEL SIGHT GLASSES 300 LB. FLANGES

NOM. SIZE	BOLT SIZE	QTY	APPLIED TORQUE IN NEWTON-METER	
			MINIMUM	MAXIMUM
6"	3/4"-10	8	52	55
				71
				75
				SEE NOTE 4

TABLE 7
RECEIVER LEVEL INDICATOR

BOLT SIZE	QTY	APPLIED TORQUE IN NEWTON-METER	
		MINIMUM	MAXIMUM
5/16"-24	4	11	12
			15
			16

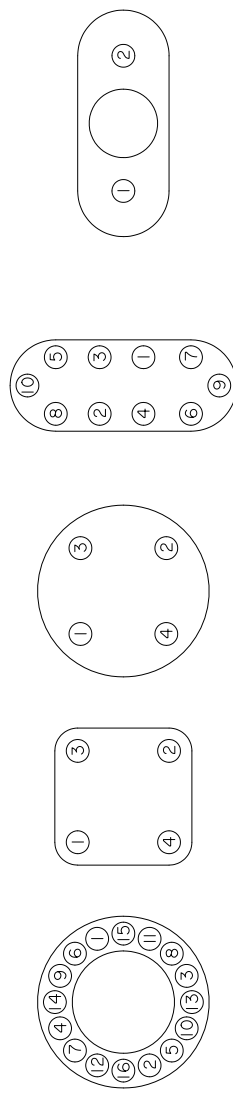
TABLE 8
2-BOLT OVAL TONGUE & GROOVE FLANGES

BOLT SIZE	QTY	APPLIED TORQUE IN NEWTON-METER	
		MINIMUM	MAXIMUM
7/16"-14	2	27	28
5/8"-11	2	84	85
			114
			115

NOTES:

- SPECIFIED TORQUE VALUES WERE CALCULATED ASSUMING MATING FLANGE SURFACES ARE PARALLEL SO THE GASKET CONTACT SURFACES BEAR UNIFORMLY ON THE GASKET WHEN TORQUE IS APPLIED. IF A LEAK TIGHT JOINT CAN NOT BE ACHIEVED USING MAXIMUM TORQUE VALUES, CHECK INSTALLATION FOR PARALLELISM.
- THE MINIMUM TORQUE VALUES ARE THE MINIMUM REQUIRED TO SEAT THE GASKET AND PROVIDE A LEAK-TIGHT JOINT.
- TORQUE VALUES ARE BASED ON GARLOCK IFG 5500 GASKET MATERIAL FOR TABLES 1, 2 & 3. ALL GASKETS ARE TO BE INSTALLED DRY.
- TORQUE VALUES FOR 6"-150 LB. & 300 LB. FLGS. PRESSURE VESSEL SIGHT GLASS IN TABLES 5 & 6 ARE BASED ON GARLOCK IFG 5500 CUSHION GASKET AND GYLON 3545 SEAL GASKET. ALL GASKETS ARE TO BE INSTALLED DRY. GASKET INSTRUCTION: INSTALL GYLON 3545 GASKET FIRST, SIGHT GLASS SECOND, GARLOCK IFG 5500 GASKET LAST.
- TORQUE WRENCHES MUST BE USED FOR THIS PROCESS. THE FOLLOWING ARE GUIDELINES FOR PROPER TORQUE:
 - BOLT TIGHTENING MUST PROGRESS IN A CRISSCROSS MANNER (SEE FIGURE 1).
 - TORQUE SHALL BE APPLIED IN TWO STEPS TO AVOID UNEVEN GASKET COMPRESSION. THE FIRST STEP IS TO BE 25% OF THE TOTAL VALUE. FOR EXAMPLE, IF THE FINAL VALUE IS 600 FT.-LBS./ 814 NEWTON-METER, THE FIRST STEP WOULD BE 150 FT.-LBS./ 203 NEWTON-METER.
- FIELD TORQUE REQUIREMENTS ARE IDENTICAL TO THE ABOVE EXCEPT AS FOLLOWS:
 - RETORQUE THE BOLTS AFTER A PERIOD OF FROM 12 TO 24 HOURS TO INSURE A TIGHT JOINT AND AVOID THE LOOSENING EFFECTS ASSOCIATED WITH GASKET CREEP.
- TORQUE VALUES BASED ON ALL SCREW, STUD & NUT SURFACES LUBRICATED.
- COMPRESSOR SUCTION AND DISCHARGE FLANGES AND INTERSTAGE CONNECTION ARE NOT INCLUDED IN THE SCOPE OF ASME B31.5 (SEE B31.5, PARAGRAPH 500.1.3.d.).

CERTIFIED FOR CONSTRUCTION
 YORK
 INTERNATIONAL CORP.
 DATE 08-05-04 BY A.R. SHANKO JR.



CIRCULAR MULTI-BOLT SQUARE FOUR-BOLT CIRCULAR FOUR-BOLT NONCIRCULAR MULTI-BOLT OVAL TWO-BOLT TONGUE & GROOVE

FIGURE 1
CORRECT BOLTING PATTERNS

YORK INTERNATIONAL CORPORATION YORK, PA. 17405		INSTRUCTION BOLT TORQUE TITAN OM CHILLER REFRIG. FLANGE CONN'S.		MATERIAL TYPE _____ ENG. STD. _____ PART NO. _____ CUT SIZE _____	
DIMENSIONS ARE IN INCHES TOLERANCES PER ENG. STD. M-282 WELDING PER ENG. STD. M-30 REF. DWG.		SIZE D 66935		CAGE NO. 077-10989-000	
NAME DR. D.J. PETROSKIE APPR. D.J. PETROSKIE SCALE: N.L.S.		DATE 08-16-01 II-29-01		DRAWING NUMBER 077-10989-000	
LBS. _____		WT. = _____		ORI.G. NO. 077-10989-000 SHEET _____	
REV. DATE		REV. LEV.		REV. DATE	
DR. CK.		DR. CK.		DR. CK.	
CHG. NO.		CHG. NO.		CHG. NO.	
REVISION RECORD		REVISION RECORD		REVISION RECORD	
REFILM - ADDED CERTIFICATION STAMP		REFILM - ADDED CERTIFICATION STAMP		REFILM - ADDED CERTIFICATION STAMP	
08-05-04		08-05-04		08-05-04	
C		C		C	
D		D		D	
E		E		E	
F		F		F	
G		G		G	
H		H		H	
I		I		I	