

NOTES:

- 1.INSULATING JOINTS ARE TO BE HOUSED IN A WELL DRAINED AND VENTILATED CHAMBER WITH INSPECTION ACCESS.
- 2.FLANGES SHALL BE HYDRAULIC TESTED IN FACTORY TO 1.25 TIMES THE FLANGE CLASSIFICATION. THE TYPE 2 FLANGE SETS SHALL NOT LEAK AT FIELD TEST PRESSURE.
3. THE ASSEMBLED INSULATING JOINT SHALL BE TESTED AS FOLLOWS FOR ELECTRICAL DISCONTINUITY.
- A) PLACE A FREE FLOATING COMPASS ON TOP OF THE INSULATING FLANGE. THE NEEDLE WILL ALIGN PARALLEL TO THE PIPELINE
- I) BRIDGE THE TWO SIDES OF THE INSULATING JOINT WITH EITHER A 12 VOLT HEAVY DUTY CAR BATTERY OR WELDING GENERATOR. IF THE INSULATING FLANGE IS NOT FUNCTIONING THE COMPASS NEEDLE WILL DEFLECT TO A POSITION ORTHOGONAL TO PIPELINE. THE INSULATION DEFLECTS 90 DEGREES. THE NEEDLE DEFLECTION SHALL BE 5 TO 10 DEGREES AND THE MAXIMUM CURRENT FLOWING ACROSS THE JOINT SHOULD NOT EXCEED 50 AMPS.
- II) SHOULD A FAULTY INSULATING JOINT BE LOCATED THEN THE FAULTY MATERIALS SHALL BE REPLACED AND THE JOINT SYSTEM RE-TESTED.
- III) IT IS RECOMMENDED THAT EACH BOLT BE TESTED FOR NON-CONTINUITY BEFORE TIGHTENING THEREOF. THE SAME MUST APPLY WHEN A JOINT IS TESTED AND FOUND TO BE CONTINUOUS. THE FAULTY BOLT'S MUST BE NOTED.
- B) THE FINAL DEFLECTED POSITION OF THE COMPASS NEEDLE TO BE NOTED. ie. THE STABILIZED POSITION AND NOT THE INITIAL MOVEMENTS
4. FLANGE MACHINING AND FINISHES TO RAND WATER DRG A11791
5. THE MATING FLANGES SHALL BE DRILLED IN PAIRS AND MARKED.
6. WHERE MATING FLANGES ARE TO BE WELDED ON SITE, THE FLANGES SHALL BE BOLTED UP WITH AT LEAST 3 FITTED BOLTS AND ALIGNED PROPERLY BEFORE WELDING.
7. INSPECTION OF INSULATING JOINTS : AFTER INSTALLATION, THE INSULATING JOINTS MUST BE INSPECTED TO ENSURE THEIR COMPLIANCE WITH THE SPECIFICATIONS AND DRAWINGS AND THEIR EFFECTIVELY TESTED FOR SATISFACTORY ELECTRICAL INSULATION (PARAGRAPH 3 ABOVE). THE INSPECTION SHALL BE WITNESSED BY THE ENGINEER OR AN ENGINEER REPRESENTATIVE OF THE DESIGNER OF THE CATHODIC PROTECTION INSTALLATION AND THE CONTRACTOR.
8. INSULATING SLEEVES : THE MAXIMUM GAP WIDTH BETWEEN INSIDE FACES OF STEEL WASHER AND ENDS OF INSULATING SLEEVE TO BE BETWEEN 2 TO 3 mm AT ANY END BEFORE TIGHTENING. A 1 mm GAP MAY BE LEFT BETWEEN THE SLEEVE END AND THE STEEL FLANGE WHERE STUDS ARE REQUIRED AT VALVE CONNECTIONS.

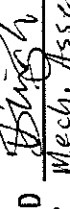
REVISION CHECKED BY			
NAME	DESIGNATION	SIGNATURE	DATE
Mandy Skals	CWE		04/08/2015
TSHERO PHILLIPA	SPT		04/08/2015
DIANA KATSEH	S.G.T		04/08/15
Thabane Mademah	M.B.E.F		05/10/15
C. Mesmer	SUNE		05/10/15

REVISIONS			
No	DATE	CHECKED	DESCRIPTION
A9548	04-03-93	01/07/93	DESIGN DRAWING 0
A9548	02-04-12	06-06-12	STD DRAWING 1
A9548			STD DRG WITH- 2
DIMENSIONS			

REFERENCE DRAWINGS			
A11791 REV3	STD FLANGE DIMENSION		
NUMBER	TITLE		



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SAP No.	CHECKED	SECTION HEAD
CONTRACT No.		
ORIGINATOR	T.MADONSELA	APPROVED 
DRAWN BY	L.MALINDI	CAPACITY <i>Welding, Electrical, Plumbing</i>
DATE	23/04/15	DATE <i>11 Aug 2015</i>

STANDARDS

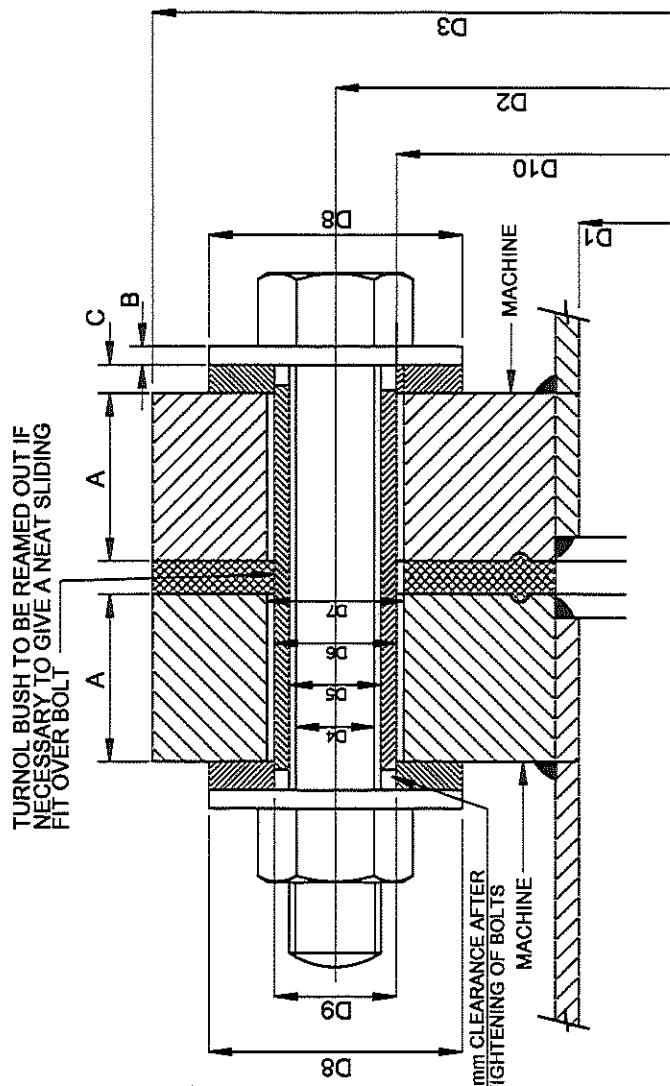
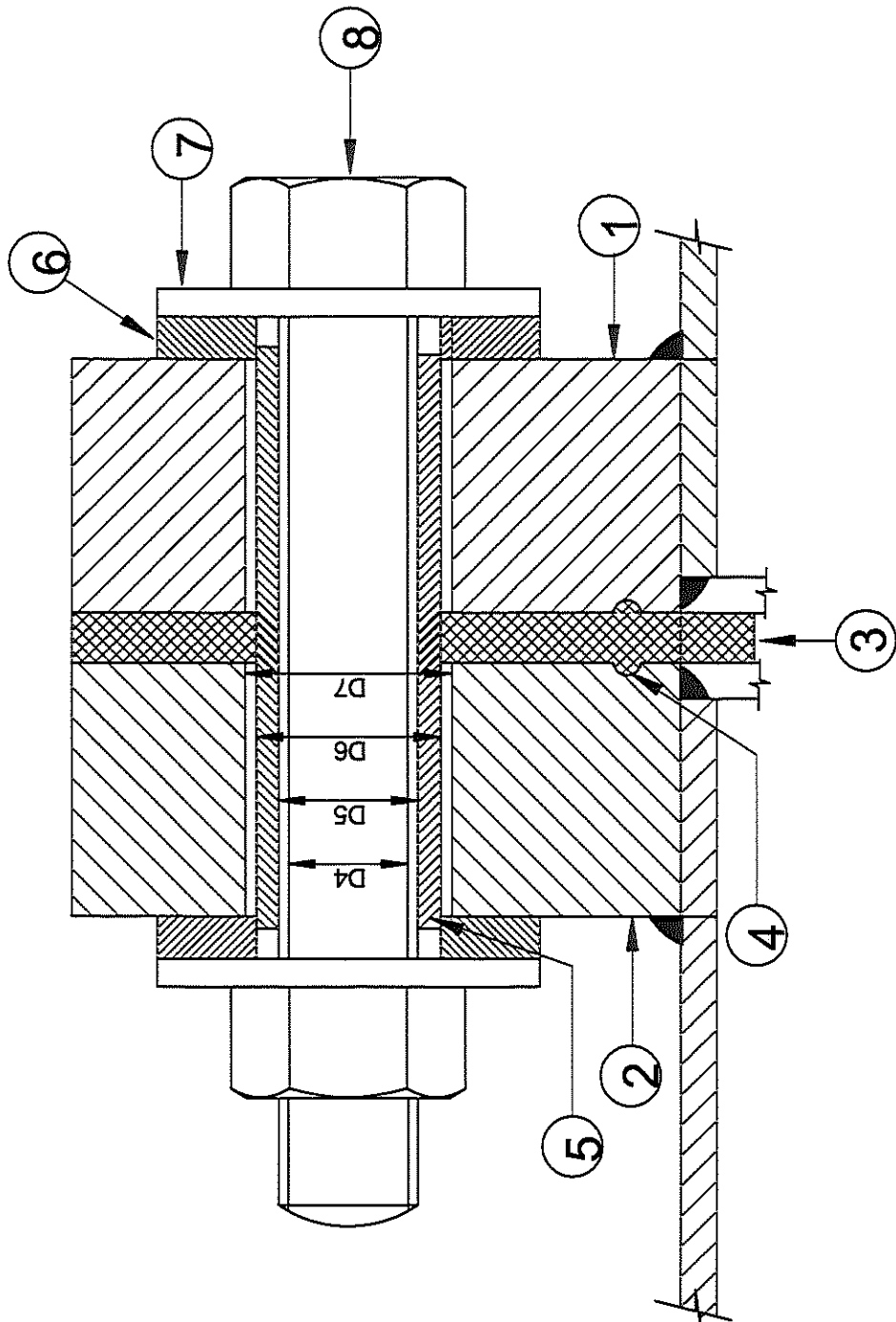
INSULATION FLANGE

STATION: D I R W B 1 1 1 WKS C M X A

DOC. TYPE: A

SCALE:-NTS

REVISION: 2



FLANGE INSULATING MATERIALS

ITEM	DESCRIPTION
1	PIPE : DIAMETER, WALL THICKNESS, STEEL GRADE, PROTECTION AND END PREPARATIONS TO BE AS SPECIFIED ELSEWHERE.
2	FLANGES : TO BE FULL FACED, MANUFACTURED AND DRILLED TO RAND WATER DRAWING A11791 Rev 3
3	ISOLATING GASKET: 3,2mm THICK COMPRESSED NON-ASBESTOS FIBRE (CNAF) MATERIAL SHALL BE A SPECIAL MIXTURE OF STRONG SYNTHETIC FIBRES AND INORGANIC FIBRES, ADDITIVES AND NITRILE RUBBER BINDERS. THE GASKETS SHALL COMPLY TO BS 7531 AND WATER REGULATIONS ADVISORY SCHEME (WRAS), WITH MINIMUM DIELECTRIC STRENGTH OF 120 VOLTS/METER AND GASKET SEATING OF 40N/mm² AT 20°C
4	'O'-RING : NATURAL RUBBER RING TO SANS 4633, REFER TO RAND WATER DRAWING A11791 Rev 3
5	INSULATING SLEEVE : 1 mm to 1,5 mm THICK GLASS-FIBRE REINFORCED POLYESTER SLEEVE FOR EACH BOLT. LENGTH OF SLEEVE TO BE SUCH THAT TOTAL GAP ON SLEEVE LENGTH BETWEEN INSIDE FACES OF STEEL WASHERS IS BETWEEN 2 TO 3 mm.
6	INSULATING WASHER : 6,3 mm THICK FABRIC REINFORCED PHENOLIC RESIN WASHER WITH OD. THE SAME AS THAT OF THE MACHINED STEEL WASHER, 2 OFF FOR EACH STUDBOLT : ID TO BE A SLIDING FIT OVER OD OF ITEM 5 .
7	STEEL WASHERS : MACHINED WITH DIAMETER AND THICKNESS TO SANS 1700-16 PART 1-5.
8	STUDBOLTS & STUDS : CLASS 8.8 AND NUTS CLASS 8.8 TO SANS 1700-5-1. STUDBOLT DIAMETERS SHALL BE SELECTED TO THE NEXT SMALLER SIZE FOR INSTALLATION IN STANDARD DRILLED FLANGES. STUD BODIES SHALL BE MACHINED DOWN TO THE NEXT STANDARD SMALLER SIZE AND SUITABLE SMALLER NUT TO BE USED.

STANDARD DRILLING TABLES FOR FLANGES FOR TEST PRESSURES UP TO 1600KPa													
NOMINAL INTERNAL DIA. OF PIPE, VALVE OR SPECIAL D1	D3	D2	NUMBER OF BOLTS	D4	D7	I.D. OF TUFNOL D5	THICKNESS OF FLANGE (STEEL) A	D8	INSIDE DIAMETER OF WASHERS	THICKNESS OF WASHER	OUTSIDE DIAMETER OF TUFNOL BUSHES D6	INSIDE DIAMETER OF TUFNOL BUSHES D8	THICKNESS OF TUFNOL WASHERS C
25	115	85	4	12	20	13	18	24	14	2,5	18	24	19
50	165	125	4	16	25	17	20	30	18	3	22	30	23
80	200	160	8	16	25	17	20	30	18	3	22	30	23
100	220	180	8	16	25	17	20	30	18	3	22	30	23
150	285	240	8	20	29	21	22	37	22	3	26	37	27
200	340	295	8	20	29	21	24	37	22	3	26	37	27
300	445	400	12	20	29	21	26	37	22	3	26	37	27
400	565	515	16	24	33	25	32	44	26	4	30	44	31
450	615	565	20	24	33	25	34	44	26	4	30	44	31
500	670	620	20	24	33	25	34	44	26	4	30	44	31
600	780	725	20	30	39	31	36	56	33	4	36	56	37
700	895	840	24	30	39	31	36	56	33	4	36	56	37
800	1015	950	24	30	39	31	44	56	33	4	36	56	37
900	1115	1050	28	30	39	31	44	56	33	4	36	56	37
1000	1230	1160	28	36	47	38	50	66	39	5	44	66	45

STANDARD DRILLING TABLES FOR FLANGES FOR TEST PRESSURES UP TO 3500KPa													
NOMINAL INTERNAL DIA. OF PIPE, VALVE OR SPECIAL D1	D3	D2	NUMBER OF BOLTS	D4	D7	I.D. OF TUFNOL D5	THICKNESS OF FLANGE (STEEL) A	D8	INSIDE DIAMETER OF WASHERS	THICKNESS OF WASHER	OUTSIDE DIAMETER OF TUFNOL BUSHES D6	INSIDE DIAMETER OF TUFNOL BUSHES D8	THICKNESS OF TUFNOL WASHERS C
25	115	85	4	12	20	13	18	24	14	2,5	18	24	19
50	165	125	4	16	25	17	20	30	18	3	22	30	23
80	200	160	8	16	25	17	20	30	18	3	22	30	23
100	235	190	8	20	29	21	24	37	22	3	26	37	27
150	300	250	8	24	33	25	28	44	26	4	30	44	31
200	360	310	12	24	33	25	30	44	26	4	30	44	31
300	485	430	16	30	39	31	34	56	33	4	36	56	37
400	620	550	16	36	47	37	40	66	39	5	44	66	45
450	675	605	20	36	47	37	42	66	39	5	44	66	45
500	730	660	20	36	47	37	44	66	39	5	44	66	45
600	845	770	20	36	47	38	46	66	39	5	44	66	45
700	960	875	24	42	55	44	50	78	45	6	50	78	51
800	1085	990	24	48	59	50	54	92	52	10	56	92	57
900	1185	1090	28	48	59	50	56	92	52	10	56	92	57
1000	1320	1210	28	56	69	58	62	105	62	10	66	105	67

STANDARD DRILLING TABLES FOR FLANGES FOR TEST PRESSURES UP TO 7000KPa													
NOMINAL INTERNAL DIA. OF PIPE, VALVE OR SPECIAL D1	D3	D2	NUMBER OF BOLTS	D4	D7	I.D. OF TUFNOL D5	THICKNESS OF FLANGE (STEEL) A	D8	INSIDE DIAMETER OF WASHERS	THICKNESS OF WASHER	OUTSIDE DIAMETER OF TUFNOL BUSHES D6	INSIDE DIAMETER OF TUFNOL BUSHES D8	THICKNESS OF TUFNOL WASHERS C
25	140	100	4	16	25	17	24	30	18	3	22	30	23
50	180	135	4	20	29	21	26	37	22	3	26	37	27
80	215	170	8	20	29	21	26	37	22	3	26	37	27
100	250	200	8	24	33	25	30	44	26	4	30	44	31
150	345	280	8	30	39	31	36	56	33	4	36	56	37
200	415	345	12	36	47	37	42	66	39	5	44	66	45
300	530	460	16	36	47	37	62	66	39	5	44	66	45
400	670	595	16	42	53	44	60	78	45	6	50	78	51
450	735	645	20	42	53	44	65	78	45	6	50	78	51
500	800	705	20	48	59	50	68	92	52	10	56	92	57
600	930	820	20	56	69	58	76	105	62	10	66	105	67
700	1045	935	24	56	69	58	84	105	62	10	66	105	67
800	1165	1050	24	56	69	58	92	105	62	10	66	105	67
900	1285	1170	28	56	69	58	98	105	62	10	66	105	67
1000	1415	1280	28	64	81	66	108	115	70	10	78	115	79