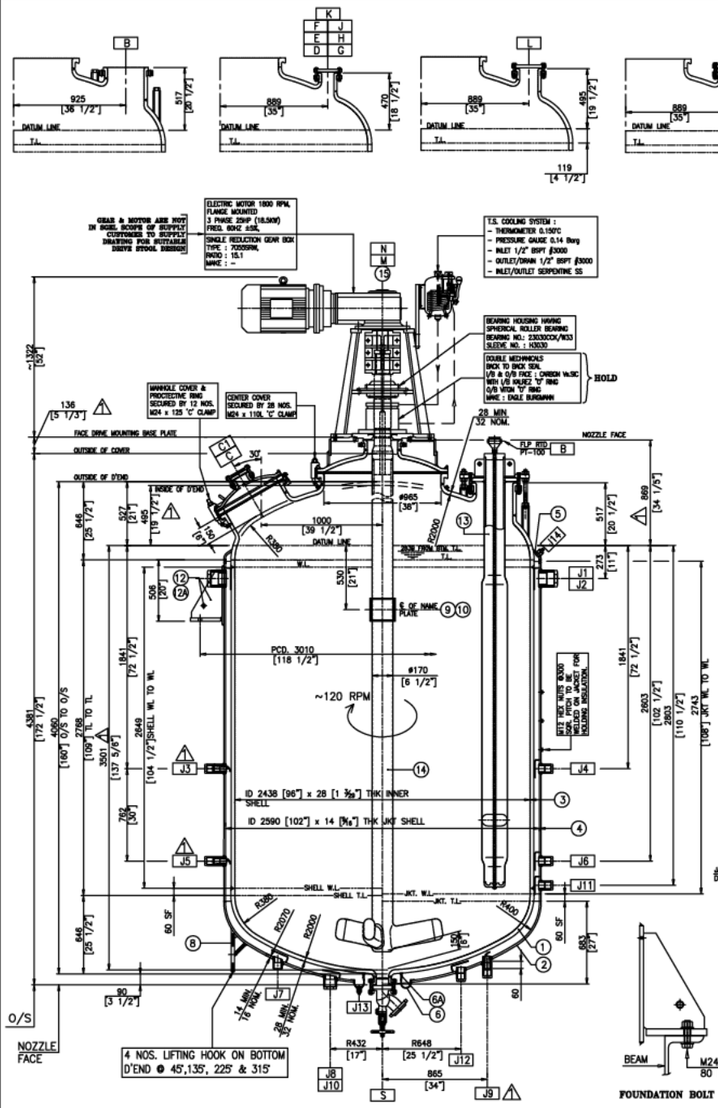

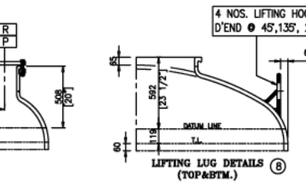

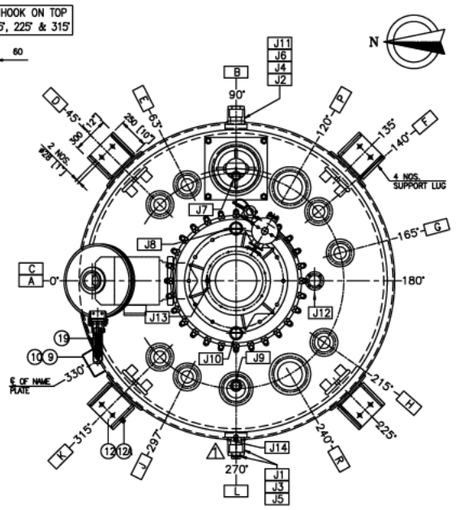

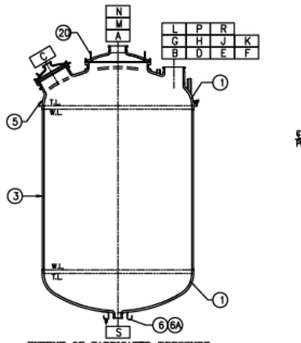

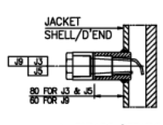

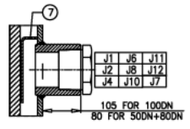

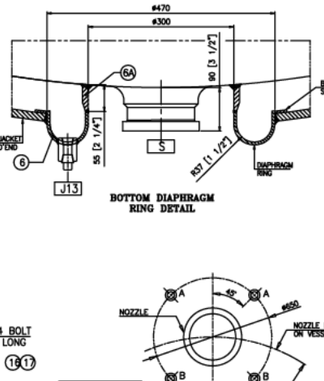

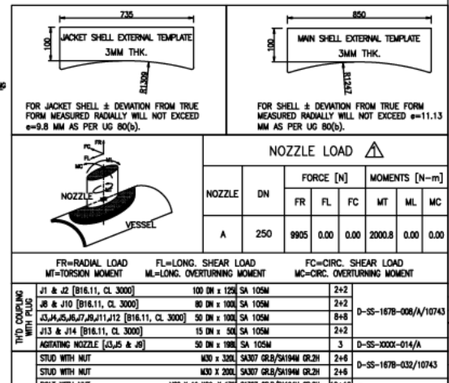

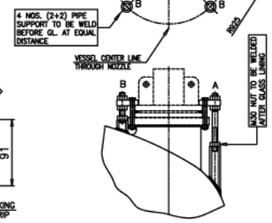

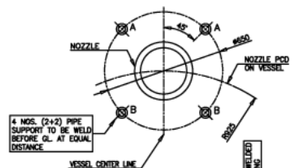

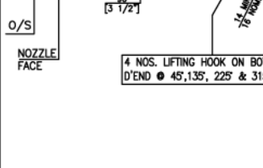

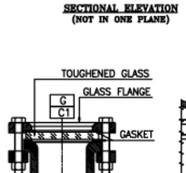

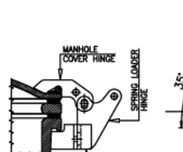

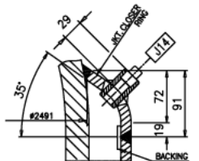

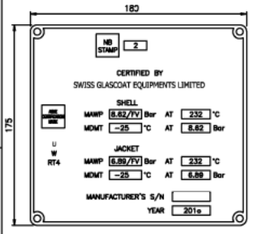

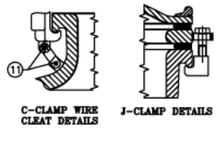

NOTES

A) GENERAL :
1. INSPECTION BY : AI (U DESIGNATOR).
2. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
3. GASKET PROPERTIES SHALL BE OF SPECIFIED VALUES BELOW
   FOR COC FLANGE: STRESS VALUE y : 11.03 MPa (MIN.), FACTOR m : 1.75
   FOR NOZZLE GASKETS & MANHOLE FLANGE GASKETS: STRESS VALUE y : 11.03 MPa (MIN.) FACTOR FACTOR m : 2.0
4. AS ENDMOTE 38 OF UG-99(b) & AS DEFINED IN APPENDIX-3, MAWP HAS BEEN CONSIDERED SAME AS DESIGN PRESSURE.
5. TIME TO TEMPERATURE RECORD REQUIRED FOR EACH GLASSING CYCLE SHALL BE AS PER PROCEDURE NO. P-SGEL-002.
6. LOCAL LOAD ANALYSIS OF NOZZLE M IS PERFORMED AS PER WRC 107 AS PERMITTED BY U-2(g) AND CONFIGURATION OF SHELL AND MANHOLE BODY FLANGE AND C-CLAMPS ARE NOT COVERED BY CODE, WITH ASSUMPTIONS THESE PARTS ARE DESIGNED AS PER RULES GIVEN APPENDIX-2 AND 1-6 AS PERMITTED BY U-2(g)
7. MDR SHOULD CONTAIN REMARK THE VESSEL IS CONSTRUCTED AS PER APPENDIX-27.
8. REFER GLASCOAT INSTALLATION & SERVICE MANUAL FOR INSTALLATION, STORAGE & HANDLING OF EQUIPMENT.

B) MATERIALS :
1. ALL MACHINED SURFACES SHALL BE VISUALLY EXAMINED FOR SURFACE DEFECTS.
2. BOLTS, STUDS AND NUTS SHALL BE PROTECTED BY RUST PREVENTIVE COATING.
3. ALL NON PRESSURE PARTS ATTACHED TO PRESSURE PARTS SHALL BE OF SAME MATERIAL AS PRESSURE PARTS.
4. ALL MATERIAL SHALL BE EXAMINED FOR MIN. THICKNESS, SURFACE DEFECTS AND TRACEABILITY TO MATERIAL TC.
5. CONSENT OF AI SHALL BE SOUGHT PRIOR TO ANY REPAIR.

C) FABRICATION :
1. ALL BOLT HOLES IN NOZZLE FLANGES TO STRADDLE PRINCIPAL CENTER LINES.
2. SHELL ROLLING MUST BE IN ROLLING DIRECTION OF PLATE.
3. ALL GAS CUT SURFACES SHALL BE GROUND SMOOTH BEFORE FURTHER FABRICATION.
4. ALL WELDS ACCESSIBLE FROM SECOND SIDE SHALL BE GROUND/CHIPPED BACK TO SOUND METAL AND THEN WELDED. ALL SINGLE SIDE WELDS SHALL BE MADE WITH ROOT RUN BY GTAW.
5. ENDS OF NOZZLES OR MANHOLE NECKS WHICH REMAIN UN-WELDED IN COMPLETED VESSELS SHALL BE FINISHED BY MECHANICAL MEANS.
6. ALL TACK WELDS SHALL BE DONE BY QUALIFIED WELDER ONLY.
7. ALL TEMPORARY ATTACHMENTS SHALL BE REMOVED BY GRINDING ONLY.
8. ANY SURFACES DAMAGED DURING FABRICATION SHALL BE TREATED FOR RESTORING THICKNESS AS PER UW-42.
9. ALL IDENTIFICATION MARKING ON PRESSURE PARTS SHALL BE VISIBLE WHEN VESSEL IS COMPLETED.
10. AVOID WELD SPOTS ALONG LONGITUDINAL JOINTS IN SHELL SECTION WHILE ROLLING. SEE UG-79(b).
11. ALL SHARP CORNERS SHALL BE ROUNDED OFF TO 3R (MIN).
12. SPECIFIED FILLET SIZE IS LEG SIZE OF THE FILLET WELD.
13. ALL MACHINED SURFACES SHALL BE COVERED WITH RUST PREVENTIVE.
14. THE EQUIPMENT SHALL UNDERGO MULTIPLE HEAT TREATMENT CYCLES DURING GLASS LINING AND HENCE SEPARATE POST FORMING HEAT TREATMENT IS NOT REQUIRED.
15. SIMULATION HEAT TREATMENT REQUIREMENTS:
    a. SHT TO BE CARRIED OUT FOR FORGED FLANGES (SA 836M CLASS I)
    b. SHT AND TESTING SHALL BE EXEMPTED FOR SA 516M & SA 106 MATERIALS IF CONDITIONS OF APP. 27-5(b) ARE MET.
16. JACKET TOP CLOSURE RING & JACKET DIAPHRAGM RING SHALL BE WELDED TO SHELL/HEAD BEFORE GLASS LINING.
17. JACKET SHALL BE INSERTED ONLY AFTER SATISFACTORY COMPLETION OF VISUAL EXAMINATION & HYDROSTATIC TEST OF INNER VESSEL.
18. DISHED END LONG SEAM SHALL NOT OVERLAP ON SHELL LONG SEAM, MINIMUM DISTANCE BETWEEN T JOINT SHOULD NOT BE LESS THAN 5 TIMES OF THICKNESS
19. PERMISSIBLE OUT OF ROUNDNESS OF THE SHELL SHALL NOT BE EXCEED 3% OF THE NOMINAL DIAMETER AFTER GLASS LINING.
20. 1:3 TAPER TRANSITION SHALL BE PROVIDED AT JOINTS BETWEEN D'END AND SHELL THAT DIFFER IN THICKNESS BY MORE THAN ONE-FOURTH THE THICKNESS OF THE THINNER SECTION OR BY MORE THAN 3 MM, WHICHEVER IS LESS.
21. INNER SURFACE OF BUTT WELDS IN INNER VESSEL SHALL BE GROUND FINISH

D) WELDING :
1. ALL WELDING SHALL BE DONE BY QUALIFIED WELDER AND AS PER QUALIFIED WPS ONLY.
2. MINIMUM PREHEAT TEMPERATURE BEFORE COMMENCEMENT OF WELDING SHALL BE 16°C.
3. SURFACES TO' BE WELDED SHALL BE CLEAN AND FREE FROM SCALE, RUST, OIL, GREASE, SLAG, AND DETRIMENTAL OXIDES.
4. ANY GRINDING SHALL BE TAPERED AND SMOOTH.
5. ALL BUTT WELDS NOT ACCESSIBLE FROM OTHER SIDE SHALL BE FPW., WELDING SHALL BE INITIATED BY GTAW
6. WELD REINFORCEMENT SHALL BE AS PER UW-35, AND INDIVIDUAL WELD PASS SHALL NOT EXCEED 13 MM
7. ALL ACCESSIBLE BUTT WELDS SHOULD BE FLUSH GROUND FROM INSIDE

E) NDE :
1. RADIOGRAPHY REQUIRED : RT4 (SPOT SELECTION BY AI). NUMBER OF SPOTS SHALL BE AS PER UW-52(B).
2. ALL CUT EDGE SURFACES SHALL BE EXAMINED BY PT BEFORE FURTHER FABRICATION.
3. ALL WELDS SHALL BE PERFORMED BY QUALIFIED NDE PERSONNEL DULY CERTIFIED BY NDE LEVEL-III
4. FILLET & TACK WELDS SHALL BE EXAMINED BY PT.
5. ALL SURFACES BUILT UP SHALL BE EXAMINED BY PT AS REQUIRED IN UW-42.
6. ADDITIONAL SHOT REQUIRED (ALL T-JOINT + 1 ADDITIONAL) FOR DISHED END TO SHELL CIRCUMFERENTIAL SEAM AS PER UW-11(a)(5)(b) SPOT RADIOGRAPH REQUIRED BY THIS SHALL NOT BE USED TO SATISFY THE SPOT RADIOGRAPHY RULES AS APPLIED TO ANY OTHER WELD INCREMENT.
7. PT SHALL BE CARRIED ON THE SNAGED RADII OF ALL NOZZLE OPENINGS AFTER SWAGING.

F) INSPECTION & TESTING :
1. DISHED ENDS SHALL BE INSPECTED FOR MINIMUM THICKNESS AND OTHER DIMENSIONS SHELL BE AS PER UG-81
2. PT SHALL BE CARRIED ON THE KNUCKLE PORTION ALONG THE INSIDE & OUTSIDE SURFACE AND ALONG THE EDGE OF THE DISHED END.
3. ALL WELDS SHALL VISUALLY EXAMINED FOR ANY DEFECTS ALONG THEIR INSIDE & OUTSIDE SURFACE.
4. INSIDE SURFACE OF THE VESSEL SHALL BE VISUALLY EXAMINED PRIOR TO CLOSING.
5. BACK CHIPPED SURFACES OF ALL WELDS SHALL BE EXAMINED BY PT.
6. ALL RADIOGRAPHY SHALL BE CONDUCTED PRIOR TO ANY PWHT AND AS PER APPROVED PROCEDURE.
7. ENSURE CALIBRATION OF GAUGES BEFORE PRESSURE TEST.
8. USE MIN 2 GAUGES DURING HYDROSTATIC TEST.
9. CLEAN POTABLE WATER SHALL BE USED FOR HYDROSTATIC TEST. SEA WATER SHALL NOT BE USED.
10. HYDRO TESTING SHALL BE STRICTLY AS PER PROCEDURE NO. P-SGEL-003.
11. GASKETS IDENTICAL TO THOSE SPECIFIED FOR THE EQUIPMENT SHALL BE USED FOR PRESSURE TEST.
12. AFTER HYDROSTATIC TEST, THE VESSEL SHALL BE THOROUGHLY DRAINED AND DRIED OFF.

G) SURFACE PREPARATION & PAINTING :
1. CARBON STEEL SURFACE PREPARATION AND FINISH : BLAST CLEANING SA 2-1/2 DEGREE
2. PRIER COAT OF IN ORGANIC ZINC RICH PRIMER OF 50 um
3. FINISH TWO COATS OF WHITE EPOXY ALUMINUM (RAL 9006) OF 30 um EACH
4. ALL C-CLAMPS & SPLIT FLANGES SHALL BE PROVIDED WITH ZINC+YELLOW PASSIVATED. ALL FASTENERS SHALL BE PROVIDED WITH YELLOW PASSIVATED.

H) TOLERANCES :
1. INSIDE DIAMETER : ±3
2. T.L. TO T.L. & W.L. TO W.L. : ±15
3. NOZZLE ELEVATION : ±10
4. NOZZLE PROJECTION FOR AGITATOR NOZZLE : +5, –0; FOR OTHER NOZZLES : +20, –0
5. NOZZLE RADIAL POSITION : ±3
6. NOZZLE BOLT HOLE POSITION : ±2 AT PCD
7. NOZZLE FACE DEFLECTION : ±1/2°
8. BASE PLATE PCD : ±5
9. FILLET WELD LEG : +5, –0

I) GLASS LINING SPECIFICATIONS :
1. BLUE GLASS
2. QUALITY CONTROL : ACC. TO DIN EN ISO 28721-1
3. SPARK TEST : INTERNAL INSPECTION : 20,000 V (ONLY ONCE); BEFORE SHIPMENT : 10,000 V; DURING COMMISSIONING : 5,000 V
4. THICKNESS TEST : BY MAGNETIC INSTRUMENT
5. MAX REPAIR BY PLUGS ON GLASS : PLUG FREE

J) SCOPE :
1. INSPECTION OF FOLLOWING ITEM UNDER SCOPE OF TPI NOT AI (AS PER SWISS GLASCOAT (SGEL) STANDARD):
   a. DRIVE ASSEMBLY INCLUSIVE OF MOTOR, GEAR BOX, MECHANICAL SEAL, MUFF COUPLING, BEARING HOUSING etc.
   b. GLASS LINING OF ENTIRE EQUIPMENTS c. BOTTOM OUTLET VALVE ASSEMBLY d. SPRING LOADER FOR MANHOLE COVER

DIAMETER SHOWN ARE INSIDE DIAMETER AS THEY ARE NOT STANDARD DN SIZES

#1 THIS DETAIL DRAWING IS BASED ON GENERAL ARRANGEMENT INQUIRY DRAWING NO. G-CE-181B-XXX/E203/15 REV. 0D

DESIGN DATA		INNER VESSEL	JACKET
1	CONSTRUCTION CODE : ASME SEC VIII DIV. 1 : ED-2015 + APPENDIX-27		
2	POSITION VERTICAL / HORIZONTAL	VERTICAL	
3	SERVICE (LETHAL OR NON-LETHAL)	NON-LETHAL	
4	DESIGN PRESSURE (MAWP) Barg	8.62/F.V.	6.89/F.V.
5	DESIGN TEMPERATURE (MDMT/MIN./MAX.) °C	–25/–25/232	–25/–25/232
6	OPERATING PRESSURE Barg	1.0	6.20
7	OPERATING TEMPERATURE (MIN./ MAX.) °C	25–112	25–171
8	HYDRO TEST PRESSURE (BEFORE GL.) Barg	11.0	N.A.
9	HYDRO TEST PRESSURE (AFTER GL.) Barg	9/F.V.	7/F.V.
10	HYDROSTATIC TEST TEMPERATURE (MIN/MAX) °C	20/48 (RECOMMENDED)	20/48 (RECOMMENDED)
11	CORROSION ALLOWANCE (WETTED/NON-WETTED/GL) MM	1.5 / 0 / 0	1.5 / 0 / –
12	PROCESS FLUID	CATALYST SLURRY	WATER / STEAM
13	DENSITY OF FLUID (MAXIMUM) KG/M³	979	1000
14	DYNAMIC VISCOSITY cp	2–100	~1.0
15	FILL LEVEL IN RATED CONDITION MM	2839 FROM T.L.	–
16	VOLUME (RATED / NOMINAL) M³ / GALLON	15.142/16.712 4000/4415	1.528 ⚠1 403
17	JACKET HEAT TRANSFER AREA M²	–	31.15 ⚠1
18	RADIOGRAPHY SHELL/HEAD	SPOT/FULL (NDE NOTE–6)	SPOT/FULL (NDE NOTE–6)
19	JOINT EFFICIENCY SHELL/HEAD	REFER RADIOGRAPHY & JOINT EFFICIENCY TABLE	
20	POST FORMING HEAT TREATMENT (PFHT)	YES (FOR PART NO. 1,5 & 6 (REF. FABRICATION NOTE–14)	
21	POST WELD HEAT TREATMENT (PWHT)	NOT REQUIRED (UW–2, UCS–56, UCS–68 & APP.–27)	
22	IMPACT TESTING	EXEMPTED (AS PER UG–20(f),UCS–66(c) AND NOTE (c) OF FIG UCS–66)	
23	NATIONAL BOARD STAMPING REQUIREMENT	YES	
24	WEIGHT (EMPTY) Kg	~14500	
25	HYDRO TEST WEIGHT Kg	~32740 ⚠1	
26	OPERATING WEIGHT Kg	~30852 ⚠1	
27	WIND CODE (PRESSURE)	UBC 97 [WIND VELOCITY 53.65 M/SEC]	
28	SEISMIC ZONE	ZONE ZERO [UBC 97]	

29 UG–22 LOADINGS

NO.	CLAUSE	DESCRIPTION	APPLICABLE	REMARK
1	UG–22(a)	INTERNAL DESIGN PRESSURE / EXTERNAL DESIGN PRESSURE	YES	–
2	UG–22(b)	WEIGHT OF THE VESSEL AND NORMAL CONTENTS UNDER OPERATING & TEST CONDITIONS	YES	–
3	UG–22(c)	SUPERIMPOSED STATIC REACTIONS FROM WEIGHT OF ATTACHED EQUIPMENT etc.	YES	DRIVE ASSEMBLY
4	UG–22(d)	ATTACHMENT OF (1) INTERNALS	NO	–
		(2) SUPPORTS	YES	SIDE SUPP, LIFT. LUG
5	UG–22(e)	CYCLIC & DYNAMIC REACTIONS DUE TO PRESSURE OR THERMAL VARIATIONS OR FROM EQUIPMENT MOUNTED ON A VESSEL AND MECHANICAL LOADINGS	NO	LOW RPM, FULLY BALANCED AGITATOR
6	UG–22(f)	SEISMIC LOADINGS	YES	ZONE 0 (UBC–97)
		WIND LOADINGS	YES	53.65 M/SEC
		SNOW LOADINGS	NO	UNDER ROOF
7	UG–22(g)	IMPACT REACTIONS DUE TO FLUID SHOCK	NO	–
8	UG–22(h)	TEMPERATURE GRADIENTS AND DIFFERENTIAL THERMAL EXPANSION	NO	–
9	UG–22(i)	ABNORMAL PRESSURES SUCH AS THOSE CAUSED BY DIFFERENTIAL THERMAL EXPANSION	NO	–
10	UG–22(j)	TEST PRESSURE AND COINCIDENT STATIC HEAD ACTING DURING THE TEST	YES	–

30 APPLICABLE CODES AND STANDARDS
1. ASME BOILER & PRESSURE VESSEL CODE, SEC IIA, IIC, IID, V, VIII DIV 1, IX : ED–2015
2. ASME B16.5 ED–2013 – STANDARD FOR PIPE FLANGES AND FLANGED FITTINGS
3. ASME B16.11 ED–2011 – FORGED STEEL FITTINGS, SOCKET WELDED & THREADED
4. ASME B36.10M ED–2015 – WELDED AND SEAMLESS WROUGHT STEEL PIPE
5. UBC–97 – SEISMIC DESIGN & WIND CODE.

: PTFE ENVELOPED ASBESTOS FREE WITH S.S. CORRUGATED RING INSERT

N	C–CLAMP WITH NUT	M24 X 110 MM CLAMPING LENGTH	SA 193/SA194 GR. B7/2H	28+28	D–SS–167B–024/C2/10743
	BODY FLANGE GASKET	1075 OD X 997 ID X 10T #		1	D–SS–167B–010/A/10743
	MAIN BODY FLANGE	⚠1 965 ID X 1080 OD X 80T	SA 836M CLASS I	1	D–SS–167B–003/10743
	COC COVER	1000 DN x 28 T	SA 516M GR. 380	1	D–SS–167B–019/A/10743
	J–CLAMP	M12 x 70 L	SA 193 GR. B7	4	D–SS–167B–023/10743
	C–CLAMP WITH NUT	M24 X 125 MM CLAMPING LENGTH	SA 193/SA194 GR. B7/2H	12+12	D–SS–167B–024/C2/10743
	PROTECTION RING	610 x 503 x 28T	SA 836M CLASS I	1	D–SS–167B–021/10743
	GASKET	605 x 527 x 10 #		2	D–SS–167B–010/A/10743
C	MANHOLE BODY FLANGE HINGE	AS PER DRG.	SA 516M GR. 380	1	
	MANHOLE COVER HINGE	160 X 90 X 14T	SA 516M GR. 380	1	D–SS–XXXX–072
	SPRING LOADER HINGE	AS PER DRG.	SA 516M GR. 380	1	
	MANHOLE COVER	⚠1 DN 500 x 18T	SA 516M GR. 380	1	D–SS–167B–020/10743
	MANHOLE BODY FLANGE	DN 500 x 120H	SA 836M CLASS I	1	D–SS–167B–004/10743
20	LANTERN RIB ON TOP DISH	100 X 120 X 14T	SA 516M GR. 380	24	D–SS–167B–019/A/10743
19	SPRING LOADER ASSEMBLY	AS PER DRG.	–	1	D–SS–1820–038
18	F.B.O.V. ASSEMBLY	100 X 80	–	1	G–SS–1009–022
17	WASER FOR FOUNDATION BOLT	44 OD X 26 ID X 3.75T	CS	8	–
16	FOUNDATION BOLT WITH NUT	M24 X 80L	SA 193/SA194 GR. B7/2H	8+8	–
15	DRIVE ASSEMBLY.	FOR 140# SHAFT	–	1	D–SS–167B–065/10743
14	AGITATOR DETAILS	RETREAT CURVE IMPELLER	–	1	D–SS–167B–030/10743
13A	BAFFLE SUPPORT BOSS	#168.3 X 10.97T	SA 106 GR. B	2+2	D–SS–167B–032/10743
13	TOP ENTRY BAT TYPE BAFFLE	#168.3 X 10.97T	SA 106 GR. B	1	D–SS–167B–025/10743
12A	EARTHING BOSS	M16 X 25L	C.S.	1	D–SS–XXXX–042/E
12	SIDE BRACKET	AS PER DRG.	SA 516M GR. 380	4	D–SS–167B–016/B/10743
11	C–CLAMP WIRE CLEAT	6T	C.S.	7+4	D–SS–167B–040/A/10743
10	NAME PLATE	189 X 165 X 3T	SA 240M GR 304	1	D–SS–167B–074/B/10743
9	NAME PLATE BRACKET	330 DEVL X 170 X 5T	C.S.	1	D–SS–167B–074/A/10743
8	LIFTING LUG (TOP/BTM. DISHED END)	28T	SA 516M GR. 415	4+4	D–SS–167B–018/E/10743
7	IMPINGEMENT PLATE	5T	C.S.	12	D–SS–167B–008/A/10743
6A	JACKET EXTENSION RING	980 DEVL X 55 X 12T	SA 516M GR. 380	1	D–SS–167B–007/10743
6	JACKET DIAPHRAGM RING	6T	SA 516M GR. 380	1	D–SS–167B–007/10743
5	JACKET CLOSER RING	14T	SA 516M GR. 380	1	D–SS–167B–006/A/10743
4	JACKET SHELL	8181 DEVL X 2743 X 14T	SA 516M GR. 380	1	–
3	MAIN SHELL	7760 DEVL X 2589 X 28T	SA 516M GR. 380	1	–
2	JACKET DISHED END	3114 BD X 16T	SA 516M GR. 380	1	D–SS–167B–001/J/10743
1	MAIN DISHED END (TOP/BTM.)	2980 BD X 32T	SA 516M GR. 380	2	D–SS–167B–001/M/10743
PART	DESCRIPTION	MATERIALS	QTY.	REMARKS/REF.DRG. NO.	

BILL OF MATERIAL

RADIOGRAPHY AND JOINT EFFICIENCY			
COMPONENT	JOINT CAT.	RADIOGRAPHY	JOINT EFFI.
INNER SHELL (L/S)	A	SPOT	0.85
INNER SHELL (C/S)	B	SPOT	0.85
TOP D'END (L/S)	A	FULL	1.00
TOP D'END TO SHELL (C/S)	B	SPOT	0.85
BOTTOM D'END (L/S)	A	FULL	1.00
BOTTOM D'END TO SHELL (C/S)	B	SPOT	0.85
JACKET SHELL (L/S) & TOP CLOUSER	A	SPOT	0.85
EXTENSION RING	A	SPOT	0.85
JACKET SHELL (C/S)	B	SPOT	0.85
JACKET SHELL TO CLOSURE RING(C/S)	B	NIL	0.65
JACKET D'END (L/S)	A	FULL	1.00
JACKET D'END TO SHELL (C/S)	B	SPOT	0.85

APPLICABLE MATERIAL TECHNICAL SPECIFICATION [MTS] DETAILS

SR. NO.	MATERIALS	MTS. No.	MTS. REV.
1	SA 51oM GR 380	001	09
2	SA 105M	002/1A	08
		002/1B	09
3	SA 836M	002	09
4	SA 106 GR B	003	08
5	SA 193M GR B7	005	08
6	SA 307 GR B	005/1A	08
7	SA 194M GR 2H	006	08
8	SA 516M GR. 485	001B	08

PRE ALLOCATED SPACE FOR DCN NO.

DCN NO.	1	2	3	4	5
RECEIVED BY					
RECEIVED ON					

NOZZLE LOAD ⚠1

NOZZLE	DN	FORCE [N] FR	FL	FC	MOMENTS [N–m] MT	ML	MC
A	250	9905	0.00	0.00	2000.8	0.00	0.00

FR=RADIAL LOAD MT=TORSION MOMENT; FL=LONG. SHEAR LOAD ML=LONG. OVERTURNING MOMENT; FC=CIRC. SHEAR LOAD MC=CIRC. OVERTURNING MOMENT

TH'D COUPLING WITH PLUG	J1 & J2 [B16.11, CL 3000]	100 DN x 12S	SA 105M	2+2	D–SS–167B–008/A/10743
	J8 & J10 [B16.11, CL 3000]	80 DN x 10S	SA 105M	2+2	
	J3,J4,J5,J6,J7,J9,J11,J12 [B16.11, CL 3000]	50 DN x 10S	SA 105M	8+8	
	J13 & J14 [B16.11, CL 3000]	15 DN x 5S	SA 105M	2+2	
	AGITATING NOZZLE (J3,J5 & J9)	50 DN x 19S	SA 105M	3	D–SS–XXXX–014/A
B	STUD WITH NUT	M30 x 320L	SA307 GR.B/SA194M GR.2H	2+6	D–SS–167B–032/10743
	STUD WITH NUT	M30 X 200L	SA307 GR.B/SA194M GR.2H	2+6	
	BOLT WITH NUT	M20 X 12 MOL X 170L	SA307 GR.B/SA194M GR.2H	12+12	–
	BAFFLE SQUARE FLANGE	516 X 516 X 32T	SA 516M GR. 380	1	D–SS–167B–027/D/10743
	GASKET FOR 300 DN NOZZLE	370 OD X 323 ID X 7T #		1	D–SS–167B–010/A/10743
	BOLT WITH NUT FOR SPLIT FLANGE	M12 X 55L	SA307 GR.B/SA194M GR.2H	2+2	–
	SPLITE FLANGE (ASA–150)	445 OD X 349 ID X 44T	SA 516M GR. 380	1	D–SS–167A–013/A/10743
	300 DN NOZZLE STUB END	AS PER DRG.	SA 836M CLASS I	1	D–SS–167B–005/A/10743
A	STUD WITH NUT	M20 X 12 MOL X 125L	SA307 GR.B/SA194M GR.2H	12+12	–
	PAD PLATE	FOR #140 SHAFT	SA 516M GR. 380	1	D–SS–167B–065/10743
	GASKET FOR 250 DN NOZZLE	320 OD X 273 ID X 7T #		1	D–SS–167B–010/A/10743
	BOLT WITH NUT FOR SPLIT FLANGE	M12 X 55L	SA307 GR.B/SA194M GR.2H	2+2	–
	SPLITE FLANGE (ASA–150)	385 OD X 300 ID X 44T	SA 516M GR. 380	1	D–SS–167A–013/A/10743
	250 DN NOZZLE STUB END	AS PER DRG.	SA 836M CLASS I	1	D–SS–167B–005/A/10743
PR	BOLT WITH NUT	M20 X 8 MOL X 125L	SA307 GR.B/SA194M GR.2H	16+16	–
	BLIND FLANGE (ASA–150)	343 OD X 28T	SA 516M GR. 380	1	D–SS–167B–012/10743
	GASKET FOR 200 DN NOZZLE	288 OD X 216 ID X 7T #		2	D–SS–167B–010/A/10743
	BOLT WITH NUT FOR SPLIT FLANGE	M12 X 50L	SA307 GR.B/SA194M GR.2H	4+4	–
	SPLITE FLANGE (ASA–150)	343 OD X 265 ID X 32S	SA 516M GR. 380	2	D–SS–167A–013/A/10743
	200 DN NOZZLE STUB END	AS PER DRG.	SA 836M CLASS I	2	D–SS–167B–005/A/10743
L	BLIND FLANGE (ASA–150)	279 OD X 24T	SA 516M GR. 380	1	D–SS–167B–012/10743
	GASKET FOR 150 DN NOZZLE	212 OD X 166 ID X 7T #		1	D–SS–167B–010/A/10743
	BOLT WITH NUT	M20 X 8 MOL X 115L	SA307 GR.B/SA194M GR.2H	8+8	–
	BOLT WITH NUT FOR SPLIT FLANGE	M12 x 45L	SA307 GR.B/SA194M GR.2H	2+2	–
	SPLITE FLANGE (ASA–150)	279 OD X 198 ID X 32S	SA 516M GR. 380	1	D–SS–167B–013/A/10743
	150 DN NOZZLE STUB END	AS PER DRG.	SA 836M CLASS I	1	D–SS–167B–005/A/10743
C1 G	BOLT WITH NUT	⚠1 M16 X 8MOS X 110L	SA307 GR.B/SA194M GR.2H	16+16	–
	TOUGHENED GLASS	150 OD x 28 THK	BOROSILICATE GLASS	2	–
	GASKET	150 OD x 115 ID x 3 THK	ASBESTOS FREE WA437	2	–
	GLASS FLANGE	220 OD X 125 ID X 21.5	SA 516M GR. 380	2	D–SS–167B–011/A/10743
	SPLITE FLANGE (PN–10)	220 OD X 140 ID X 20	SA 516M GR. 380	2	D–SS–167B–013/A/10743
S	BOLT	M16 X 120L	SA307 GR.B	8	–
	SPLITE FLANGE (ASA–150)–[THREADED]	229 OD X 140 ID X 20	SA 516M GR. 380	1	D–SS–167B–013/A/10743
SKHOFED C1	B