Government of India
Ministry of Commerce & Industry
PETROLEUM & EXPLOSIVES SAFETY ORGANISATION (PESO)
(Formerly knows as Department of Explosives)
Nagpur

No. P.6(5)Reliance/ 2019
Nagpur, dated 16/03/2021

To,

M/s. Reliance Industries Ltd.,
Reliance Composites Solutions,
Village Asoj, Vadodara – Halol Expressway,
Taluk Vaghodia Baroda – 391 510
GUJARAT

Sub.: Manufacturer of 54 KL. Partitioned and Un-partitioned double wall FRP underground storage tanks confirming to EN 13121-3:2016 specification, type testing as per UL 1316 for use in petroleum retail outlet at your workshop at Village Asoj, Vadodara Halol Expressway, Taluk Vaghodiya Dist. Vadodara (Gujarat) - Inspection thereof.

Dear Sirs,

Please refer to your letter no. RIL/VCD/PESO/11-20/01 dated 07.12.2020 and inspection of premises by O/o. Dy. Chief Controller of Explosives, Baroda on 08.01.2021 & 11.01.2021

In continuation to this office letter no. P.6(5)Reliance/2019 dated 30/31.12.2020, the design drawing nos. RIL-20-RTL-DWUST-54KL-1, RTL_20_RTL_DWUST_FAB_54KL_0001 Sh. 1 of 7, RTL_20_RTL_DWUST_FAB_54KL_0002 Sh. 2 of 7, RTL_20_RTL_DWUST_FAB_54KL_0003 Sh. 3 of 7, RTL_20_RTL_DWUST_FAB_54KL_0004 Sh. 4 of 7, RTL_20_RTL_DWUST_FAB_54KL_0005 Sh. 5 of 7, RTL_20_RTL_DWUST_FAB_54KL_0006 Sh. 6 of 7 & RTL_20_RTL_DWUST_FAB_54KL_0007 Sh. 7 of 7 for manufacturer of 54 KL. un-partitioned and RIL-20-RTL-DWUST-54KL_PART_1, RTL_20_RTL_DWUST_FAB_54KL_PART_0001 Sh. 1 of 8 , RTL_20_RTL_DWUST_FAB_54KL_ PART_0002 Sh. 2 of 8, RTL_20_RTL_DWUST_FAB_54KL_ PART_0003 Sh. 3 of 8, RTL_20_RTL_DWUST_FAB_54KL_ PART_0004 Sh. 4 of 8, RTL_20_RTL_DWUST_FAB_54KL_ PART_0005 Sh. 5 of 8, RTL_20_RTL_DWUST_FAB_54KL_ PART_0006 Sh. 6 of 8, RTL_20_RTL_DWUST_FAB_54KL_ PART_0007 Sh. 7 of 8 & RTL_20_RTL_DWUST_FAB_54KL_ PART_0008 Sh. 8 of 8 for 54 KL. partitioned double wall FRP underground storage tanks conforming to EN 13121-3:2016 under stage inspection of M/s. TUV India Pvt. Ltd., for M/s. Reliance BP Mobility Limited are approved and one set of drawings is sent herewith duly endorsed in token of approval

The approval as above is issued subject to the conditions as mentioned below :-

1. The quality of raw material of the tanks and its components, manufacturing and testing shall meet the requirements of prescribed under BS EN 1312103:2016 and UL 1316.
2. The tank shall meet the requirements of thickness of shell, dish ends and other components as per design calculations endorsed by third party inspecting agency done as per BS EN 13121-3:2016 and UL 1316.
3. Each tank shall be accompanied by a report of Third Party Inspection agency conforming that it has passes quality control prescribed under BS EN 13121-3:2016 & UL 1316.
4. Each tanks shall be provided with a distinctive marking to identify:
   (d) Size of the tank (b) Maximum test pressure (c) Caution regarding the risk or damage of the tank from filling prior to back filling
5. Copies of the installation procedure shall be provided to the customer which shall also clearly indicate the method of intended lifting.

6. Details of type of back filling to be used and method of compacting shall be provided to each of the customer.
7. The record of procedures and tests involved in the testing of the tanks shall be recorded and preserved for at least 5 years.

This permission is valid for one year form the date of issue of this letter.

Yours faithfully,

(S. D. Mishra)
Controller of Explosives
for Chief Controller of Explosives

Copy to

1. The Jt. Chief Controller of Explosives, West Circle, Mumbai.
2. The Jt. Chief Controller of Explosives, South Circle, Chennai..
3. The Jt. Chief Controller of Explosives, North Circle, Faridabad
4. The Jt. Chief Controller of Explosives, East Circle, Kolkatta
5. The Jt. Chief Controller of Explosives, Central Circle, Agra
6. The Dy. Chief Controller of Explosives, Baroda with reference to his memo of even no. dated 09.02.2021

for Chief Controller of Explosives

EP. NO.	
WR. NO.	
REF. NO.	
MAT. SPEC.	
WEIGHT	7363 KG
PROJECTION ANGLE	

DESIGN DATA

STATUTORY REQTS.	PESO APPROVAL	TESTING CODE	UL 1316 3RD EDITION, EN 13121-3:2016
DESIGN CODE	EN 13121-3:2016, 82111-M002-SS-MV-28022_R1 11-03-2020	CODE STAMP: NO	

SERVICE		ETHANOL BLENDED GASOLINE / BIODIESEL / MS / HSD / HIGH OCTANE MS
TANK TYPE		DOUBLE WALL FRP BURIED TANK
DESIGN LIQUID HT. OF THE TANK	mm	2260
TANK-1 CAPACITY(WORKING/MAX.)	m3	30/30 + 5% (MIN.) VAPOUR SPACE
TANK-2 CAPACITY(WORKING/MAX.)	m3	24/24 + 5% (MIN.) VAPOUR SPACE
DESIGN PRESSURE		REFER NOTE 10
DESIGN TEMPERATURE (MAX/MIN)	°C	55/-5
OPERATING PRESSURE	kPa (Kg/cm2g)	ATMOSPHERIC + 1200mm (±100mm) EARTH COVER
OPERATING TEMPERATURE	°C	AMBIENT
TEST PRESSURE	kPa (Kg/cm2g)	AS PER CODE SPECIFICARON (REFER NOTE 15)
DESIGN SPECIFIC GRAVITY		0.754-0.84
VAPOUR PRESSURE	kPa (Kg/cm2g)	N/A
INSPECTION		TPIA
EMPTY WEIGHT/ERECTION	kg	7363
OPERATION WEIGHT	kg	54937
FULL OF WATER WEIGHT	kg	61363

Reliance Industries Limited Vadodara Composites Division Vadodara - 391 510.

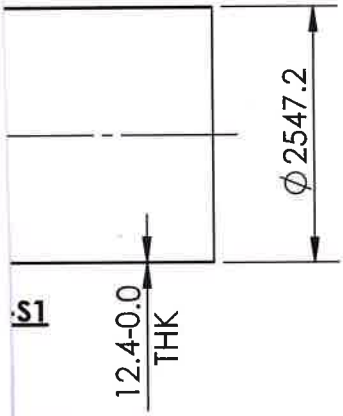
Technical Inspection Services TUV 61 TUV India

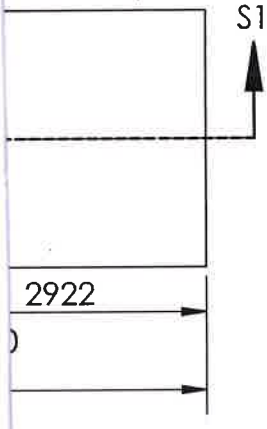
VERIFIED & APPROVED
FOR TUV INDIA PVT. LTD.
03/12/2020
INSPECTOR / COMPETENT PERSON
PV(R) 112 / CPS 56467-1
KARUKALA VIJAYAPAL REDDY

MATERIAL OF CONSTRUCTION

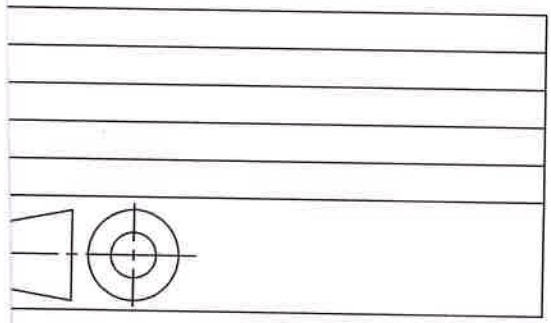
SHELL/END CAP/RIBS	FRP
MANHOLE FLANGE/ TANK COLLAR	FRP
MANHOLE COVER	IS 2062 GR A/B (GALVANIZED)

DR.	KSJ	24 NOV 2020	TITLE: GENERAL ARRANGEMENT DRAWING- UNDERGROUND DOUBLE WALL FRP STORAGE TANK (54KL PARTITIONED)
CHK.	PN	24 NOV 2020	
APPRN.	AK	24 NOV 2020	
	NAME	DATE	
SCALE	NTS	DRG. NO.: RIL_20_RTL_DWUST_54KL_PART_1	SHEET: 1 OF 1 / REV: P
REV	01		





OUTER SHELL (24 KL
MATERIAL - FRP



m, UNLESS OTHERWISE STATED.

UNLESS OTHERWISE SPECIFIED)
mm (UNLESS OTHERWISE SPECIFIED)
.5 mm (UNLESS OTHERWISE SPECIFIED)
ESS OTHERWISE SPECIFIED)

S	LAYUP SEQUENCE	% MATERIAL CONTRIBUTION	
		GLASS	RESIN
	V + C_300 × 2 + C_450	30	70
	(H × 7 + C_450) × 2 + H'	68	32
	V	20	80
		57	43

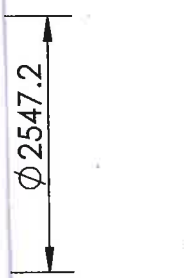
NTRIBUTION VARIATION FOR ALL LAYERS ALLOWABLE

	LAYUP SEQUENCE	% MATERIAL CONTRIBUTION	
		GLASS	RESIN
	V	20	80
	(C_450 + H × 6) × 4 + H'	68	32
	V	20	80
		67	33

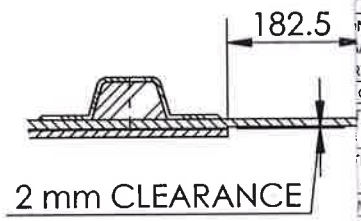
TRIBUTION VARIATION FOR ALL LAYERS ALLOWABLE

NAL LAYER TO ATE THICKNESS RTCOMING
GSM / 450 GSM
EX / 2 × 1200 TEX) - 450 GSM 01
EX / 2 × 1200 TEX) - 450 GSM 01
M / WR - 610 GSM
M / WR - 610 GSM
D - 555 01
ER TO BE APPLIED

ORING
G



DETAIL G



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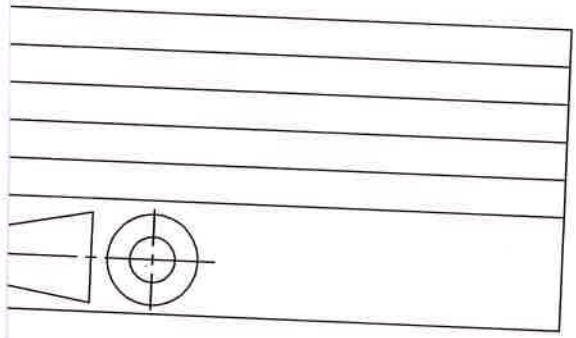
S5

TLE: FABRICATION DRAWING FOR
RP UNDERGROUND STORAGE
ANK (54KL-PARTITION)

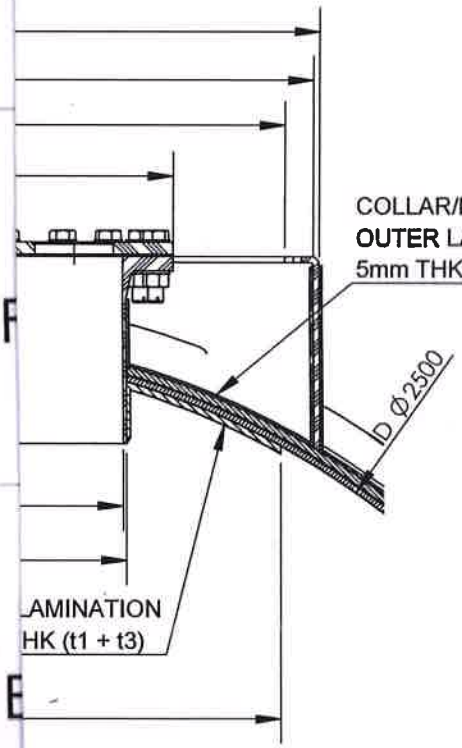
	SHEET	REV
VUST_FAB_54KL_PART_0001	1 OF 8	B

R PLATE
- S.S-304



mm, UNLESS OTHERWISE STATED.
ON FOR HAND LAYUP : 30%- 35%

(UNLESS OTHERWISE SPECIFIED)
.5 mm (UNLESS OTHERWISE SPECIFIED)
1.5 mm (UNLESS OTHERWISE SPECIFIED)
LESS OTHERWISE SPECIFIED)



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For Chief Controller of Explosives

N DETAILS
2

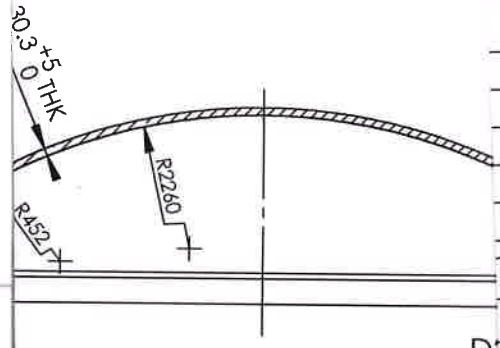
5-S5

MANHOLE AN
LAMINATON DET

MANHOLE AND
LAMINATON DETAI
(FOR 24KL TANK)

FRP UNDERGROUND STORAGE TANK (54KL-PARTITION)

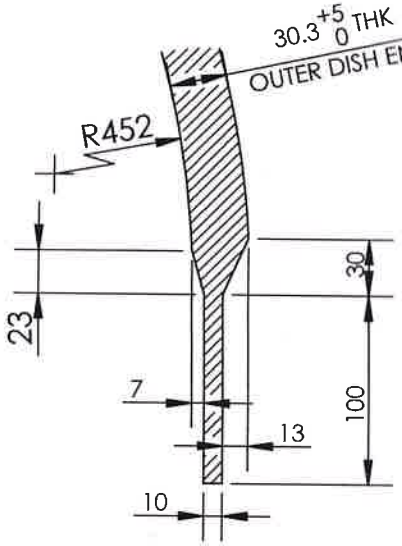
	SHEET	REV
DWUST_FAB_54KL_PART_0002	2 OF 8	B



SECTION S2-S2

UNLESS OTHERWISE STATED.

m (UNLESS OTHERWISE SPECIFIED)
±1.5 mm (UNLESS OTHERWISE SPECIFIED)
+1.5 mm (UNLESS OTHERWISE SPECIFIED)
NLESS OTHERWISE SPECIFIED)



DETAIL D2

LAYUP SEQUENCE	% MATERIAL CONTRIBUTION	
	GLASS	RESIN
/ + C_300 × 2 + C_450	25	75
(WR_610 + C_300) × 2 + (C_300 + WR_610 + C_300 + WR_610 + C_300) × 6 + (C_300 + WR_610 + C_300)	38	62
/	20	80
	37	63

RIBUTION VARIATION FOR ALL LAYERS ALLOWABLE

LAYUP SEQUENCE	% MATERIAL CONTRIBUTION	
	GLASS	RESIN
	25	75
C_300 + WR_610 + C_300 + WR_610 + C_300) × 8	38	62
	20	80
	38	62

IBUTION VARIATION FOR ALL LAYERS ALLOWABLE

LAYUP SEQUENCE	% MATERIAL CONTRIBUTION	
	GLASS	RESIN
+ C_300 × 2 + C_450	25	75
VR_610 + C_300) × 2 + (C_300 + WR_610 + C_300 + R_610 + C_300) × 7 + (C_300 + WR_610 + C_300)	38	62
	20	80
	37	63

IBUTION VARIATION FOR ALL LAYERS ALLOWABLE

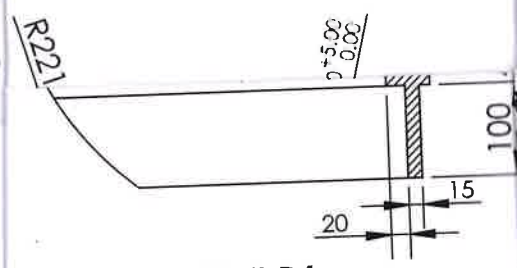
LAYUP SEQUENCE	% MATERIAL CONTRIBUTION	
	GLASS	RESIN
C_300 × 2 + C_450	25	75
1_610 + C_300) × 2 + (C_300 + WR_610 + 00 + WR_610 + C_300) × 6 + (C_300 + _610 + C_300)	38	62
	20	80
	37	63

TION VARIATION FOR ALL LAYERS ALLOWABLE

AL LAYER TO

VERIFIED & APPROVED
FOR TUV INDIA PVT. LTD.
03/12/2020
INSPECTOR / COMPETENT PERSON
PV(R) 112 / CPS 56467-1
KARUKALA VIJAYAPAL REDDY

OUTER ELLIPSOIDAL HEAD
MATERIAL - FRP



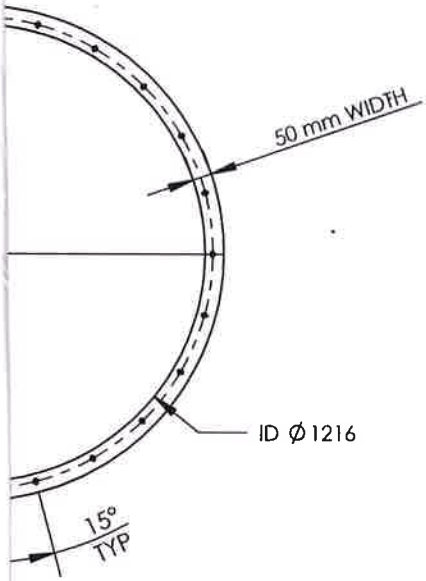
DETAIL D4

RP UNDERGROUND STORAGE
ANK (54KL-PARTITION)

	SHEET	REV
UST_FAB_54KL_PART_0003	3 OF 8	B

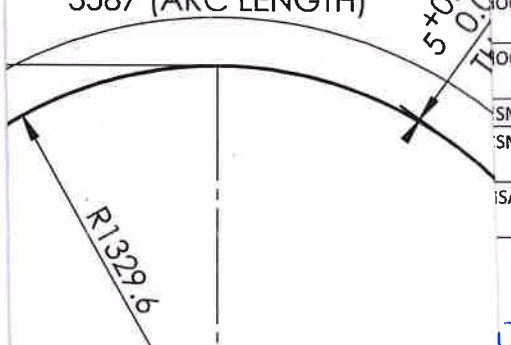
5 2 1

EW

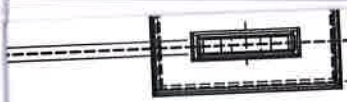


W

BACKING RING
MATERIAL - IS 2062 Grade A/

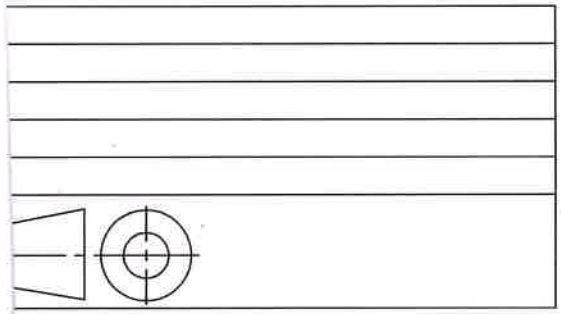


2965



840
900

2062 Gr 250 :BR (GALVANIZED) ⚠



m, UNLESS OTHERWISE STATED.
N FOR HAND LAYUP : 35% ± 5%
S PER ASTM A153.

.8 mm (UNLESS OTHERWISE SPECIFIED)
CD: ±1.5 mm (UNLESS OTHERWISE SPECIFIED)
mm +1.5 mm (UNLESS OTHERWISE SPECIFIED)
n (UNLESS OTHERWISE SPECIFIED)

CE VEIL - 30 GSM
M - 300 GSM
M - 450 GSM
EN ROVING - 610 GSM
NG (2400 TEX / 2 × 1200 TEX)
NDING (2400 TEX / 2 × 1200 TEX)

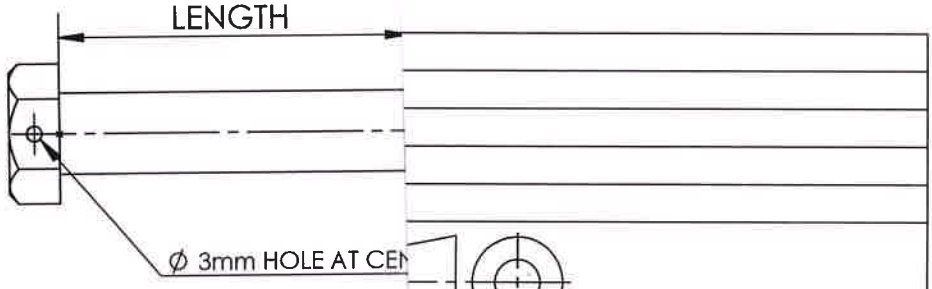
ADDITIONAL LAYER TO COMPENSATE THICKNESS SHORTCOMING
CSM - 300 GSM / 450 GSM
OOP (2400 TEX / 2 × 1200 TEX) / CSM - 450 GSM ⚠
OOP (2400 TEX / 2 × 1200 TEX) / CSM - 450 GSM ⚠
SM - 450 GSM / WR - 610 GSM
SM - 450 GSM / WR - 610 GSM / UD - 555 ⚠
SATION LAYER TO BE APPLIED

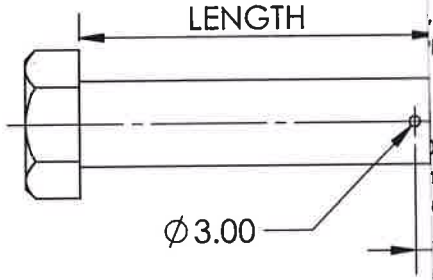
FRP UNDERGROUND STORAGE TANK (54KL-PARTITION)

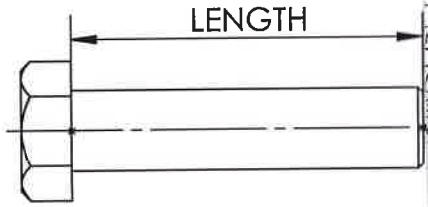
	SHEET	REV
DWUST_FAB_54KL_PART_0004	4 OF 8	B

5 4 2 1

H G F E A







, UNLESS OTHERWISE STATED.
ER ASTM A153.

mm (UNLESS OTHERWISE SPECIFIED)
): ±1.5 mm (UNLESS OTHERWISE SPECIFIED)
m +1.5 mm (UNLESS OTHERWISE SPECIFIED)
(UNLESS OTHERWISE SPECIFIED)

	LAYUP SEQUENCE	% MATERIAL CONTRIBUTION	
		GLASS	RESIN
	V + C_300 × 3 + C_450	30	70
	NTRIBUTION VARIATION FOR ALL LAYERS ALLOWABLE		

EIL - 30 GSM
300 GSM
450 GSM

PE	SIZE	LE
	M24 BOLT	
	M12 BOLT	
	M16 BOLT	
	M12 BOLT	
	M12 BOLT (DIP PIPE)	
PTIONAL)	M16 BOLT (FILL & SUCTION PIPE)	
	M24 WASHER	
	M12 WASHER	
STNERS	M16 WASHER	
	M24 NUT	
	M12 NUT	

67 Gr 4.6/4.0 (HOT DIP GALVANIZED AS PER ASTM
% EXTRA FOR EACH TYPE AND SIZE. MINIMUM 4 NO

APPROVED
Letter No.

IERS

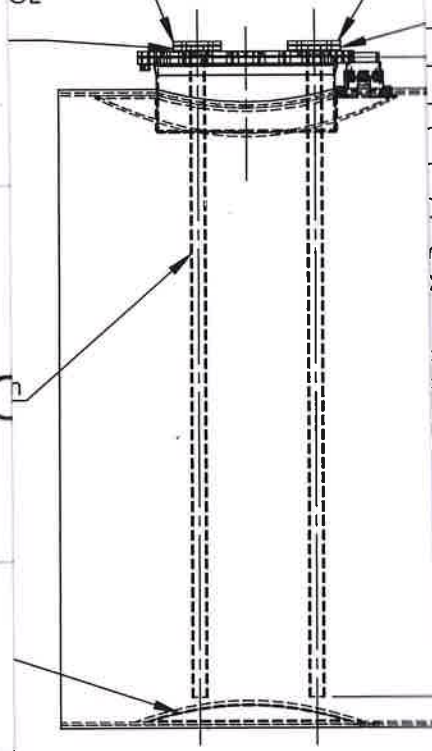
RP UNDERGROUND STORAGE
ANK (54KL-PARTITION)

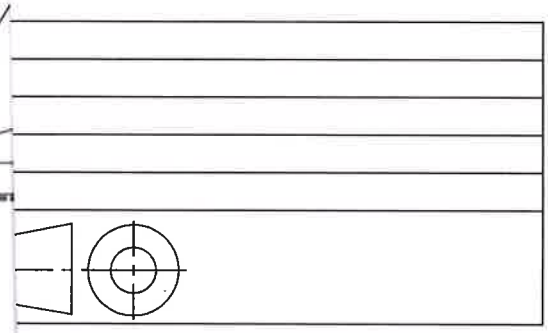
	SHEET	REV
UST_FAB_54KL_PART_0005	5 OF 8	B

5 2 1

) FLANGE
THK

GE



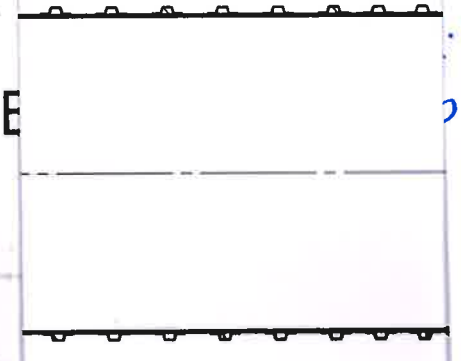


n, UNLESS OTHERWISE STATED.
)R HAND LAYUP : 35%±5%.

8 mm (UNLESS OTHERWISE SPECIFIED)
D: ±1.5 mm (UNLESS OTHERWISE SPECIFIED)
mm +1.5 mm (UNLESS OTHERWISE SPECIFIED)
(UNLESS OTHERWISE SPECIFIED)

BOLT SIZE WITH SUCTION PIPE M16x
WITHOUT SUCTION PIPE M16x36
FOR NOZZLE N1 & N6 (AS APPLICA

JCTION PIPE ASSEMBLY (



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FRP UNDERGROUND STORAGE
TANK (54KL-PARTITION)

	SHEET	REV
WUST_FAB_54KL_PART_0006	6 OF 8	B

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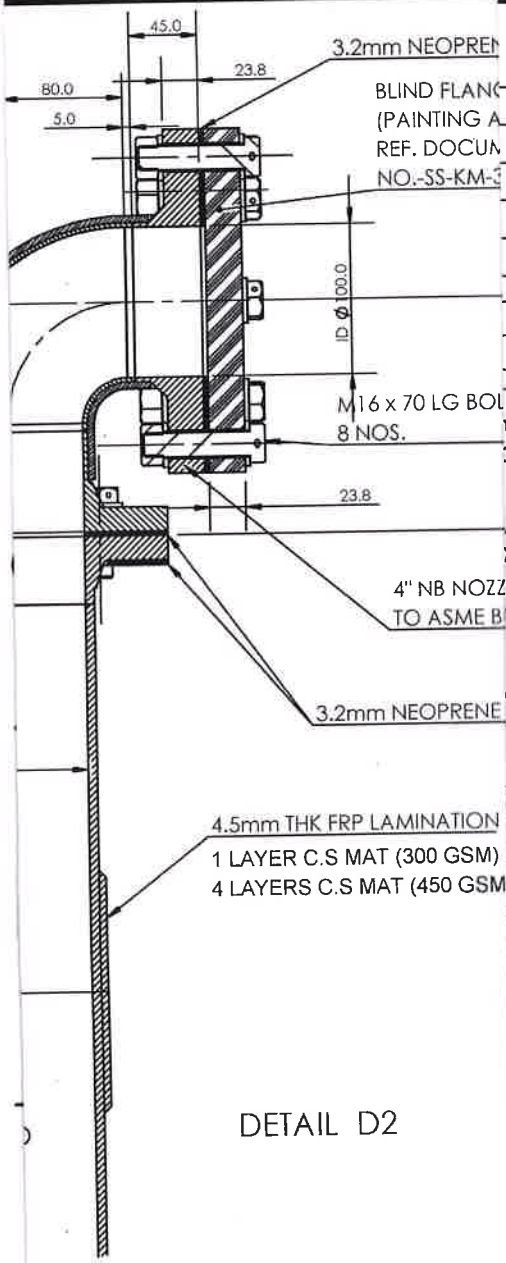
5 2 1



DETAIL D2

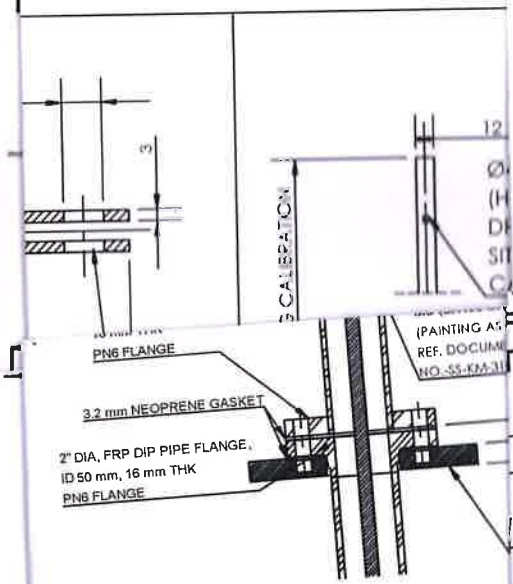
n, UNLESS OTHERWISE STATED.
OR HAND LAYUP : 35% ±5%.

.8 mm (UNLESS OTHERWISE SPECIFIED)
CD: ±1.5 mm (UNLESS OTHERWISE SPECIFIED)
mm +1.5 mm (UNLESS OTHERWISE SPECIFIED)
(UNLESS OTHERWISE SPECIFIED)

TERIAL FOR DIP PIPE ASSLY

	QTY.	SIZE	REMARK
06 Gr. B)	1	2" SCH 40 MS (SA106 GR. B) PIPE x 322LG	
S	2	15X15X3 THK.	
S	1	Ø2.7-3.5 X 30-40LG	
S	2	25 W. X 3 THK.	SEE DETAILS
S	2	25 W X 137 LG. X 3 THK	SEE DETAILS
490 LM6	1	Ø59.5 X 54 H.	SEE DETAILS
490 LM6	1	12 SQ. (NOTE 5)	SEE DETAILS
RENE	1	74 O.D. X 60 I.D. X 3 THK.	
490 LM6	1	Ø91 X 64 LG.	
490 LM6	1	Ø80 X 61 LG.	

NOZZLE N8 (AS APPLICABLE)



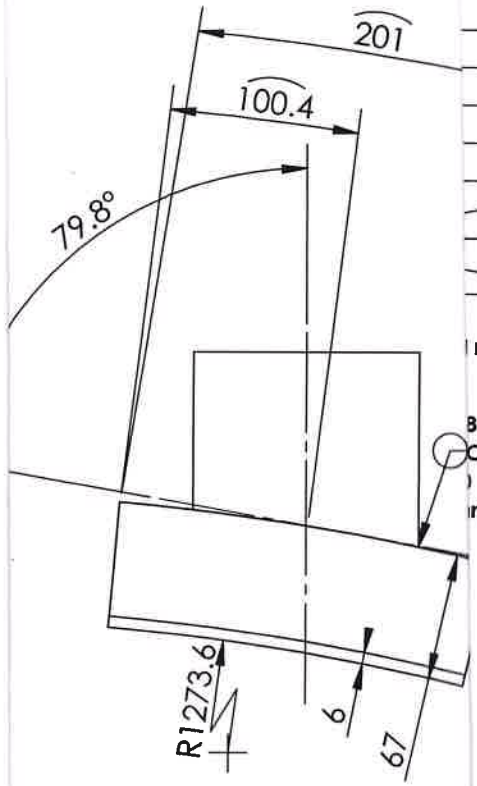
P ROD ASSEMBLY DETAIL (MS AN

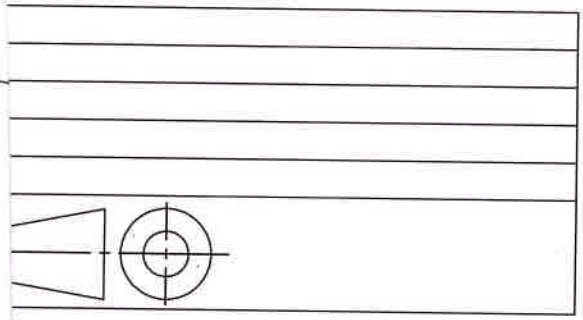
RP UNDERGROUND STORAGE
ANK (54KL-PARTITION)

	SHEET	REV
UST_FAB_54KL_PART_0007	7 OF 8	B

5 4 2 1

VELDING SIZE 10mm ON

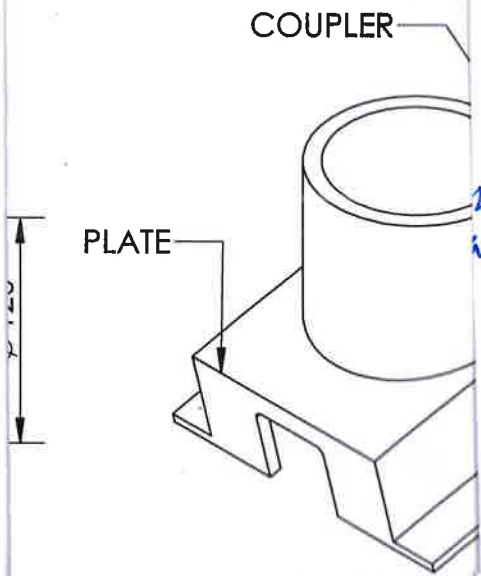




mm, UNLESS OTHERWISE STATED.

3 mm (Unless otherwise specified)
CD: ±1.5 mm (Unless otherwise specified)
mm +1.5 mm (Unless otherwise specified)
m (Unless otherwise specified)

H G F E A



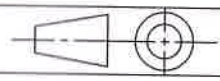
APPROVED

FRP UNDERGROUND STORAGE TANK (54 KL-PARTITION)

	SHEET	REV
WUST_FAB_54KL_PART_0008	8 OF 8	B

EF. No.

5 4 2 1

EP. NO.	
WR. NO.	
REF. NO.	
MAT. SPEC.	
WEIGHT	6200 KG
PROJECTION ANGLE	

DESIGN DATA

STATUTORY REQTS.	PESO APPROVAL	TESTING CODE	UL 1316 3RD EDITION, EN 13121-3:2016
DESIGN CODE	EN 13121-3:2016, 82111-M002-SS-MV-25022_R1 11-03-2020		CODE STAMP: NO
SERVICE		ETHANOL BLENDED GASOLINE / BIODIESEL / MS / HSD / HIGH OCTANE MS	
TANK TYPE		DOUBLE WALL FRP BURIED TANK	
DESIGN LIQUID HT. OF THE TANK	mm	2240	
CAPACITY(WORKING/MAX.)	m3	54/54 + 5% (MIN.) VAPOUR SPACE	
DESIGN PRESSURE		REFER NOTE 10	
DESIGN TEMPERATURE (MAX/MIN)	°C	55/-5	
OPERATING PRESSURE	kPa (Kg/cm2g)	ATMOSPHERIC + 1200mm (±100mm) EARTH COVER	
OPERATING TEMPERATURE	°C	AMBIENT	
TEST PRESSURE	kPa (Kg/cm2g)	AS PER CODE SPECIFICATION (REFER NOTE-11)	
DESIGN SPECIFIC GRAVITY		0.754-0.84	
VAPOUR PRESSURE	kPa (Kg/cm2g)	N/A	
INSPECTION		TPIA	
EMPTY WEIGHT/ERECTION	kg	6200	
OPERATION WEIGHT	kg	53774	
FULL OF WATER WEIGHT	kg	60200	

APPROVED
Vide Letter No.
Date

Reliance Industries Limited - Asoj
Composites Division
391 510.

Technical Inspection Services
TUV 61 TUV India

VERIFIED & APPROVED
FOR TUV INDIA PVT. LTD.
03/12/2020
INSPECTOR / COMPETENT PERSON
PV(R) 112 / CPS 56467-1
KARUKALA VIJAYAPAL REDDY

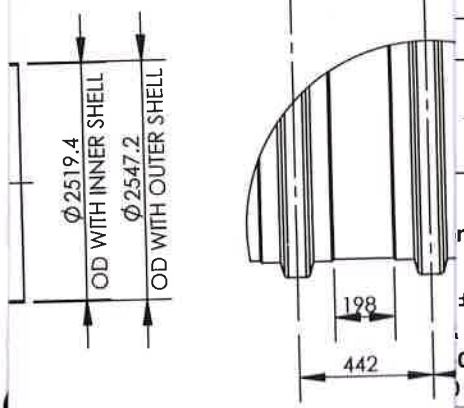
MATERIAL OF CONSTRUCTION

SHELL/END CAP/RIBS		FRP
MANHOLE FLANGE/ TANK COLLAR		FRP
MANHOLE COVER		IS 2062 GR A/B (GALVANIZED)
NOZZLES ON MANHOLE BLIND FLANGE	FLANGE/BLIND FLANGE	CS (SA 105) WITH 3MM FRP LINING
	BOLTING / NUTS -EXTERNAL	IS 1367 Gr 4.6/4.0 (HOT DIP GALVANIZED)
	GASKET	3.2mm (MIN) THK. NEOPRENE RUBBER GASKET
BOLTS/NUTS FOR EXTERNAL		IS 1367 Gr 4.6/4.0 (HOT DIP GALVANIZED)
DIP PIPES/FILL PIPE/SUCTION PIPE ASSEMBLY		FRP
		ALUMINIUM BS1490 LM6

CHK.	PN	24 NOV 2020	UNDERGROUND DOUBLE WALL FRP STORAGE TANK (54KL)	
DRN.	AK	24 NOV 2020		
	NAME	DATE	SHEET	REV
SCALE		DRG. NO.: RIL_20_RTL_DWUST_54KL_1	1 OF 1	P
RIL REV	01			

M L K J H F A

4 3 2 1



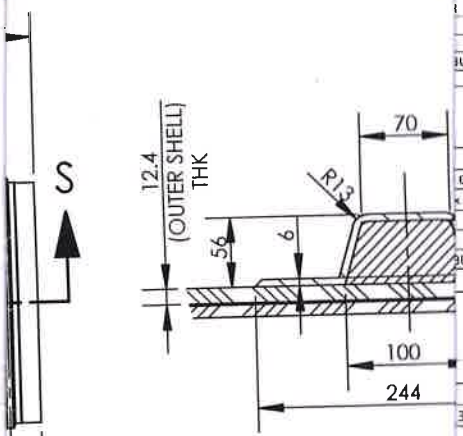
m, UNLESS OTHERWISE STATED.

±0.8 mm (UNLESS OTHERWISE SPECIFIED)
PCD: ±1.5 mm (UNLESS OTHERWISE SPECIFIED)
0.0 mm +1.5 mm (UNLESS OTHERWISE SPECIFIED)
mm (UNLESS OTHERWISE SPECIFIED)

DETAI

LAYUP SEQUENCE	% MATERIAL CONTRIBUTION	
	GLASS	RESIN
C_300 × 2 + C_450	25	75
R_610 + C_300) × 2 + (C_300 + WR_610 + 300 + WR_610 + C_300) × 6 + (C_300 + 610 + C_300)	38	62
	20	80
	37	63

UTION VARIATION FOR ALL LAYERS ALLOWABLE



DETAIL

LAYUP SEQUENCE	% MATERIAL CONTRIBUTION	
	GLASS	RESIN
C_300 × 2 + C_450	30	70
× 7 + C_450) × 2 + H'	68	32
	20	80
	37	63

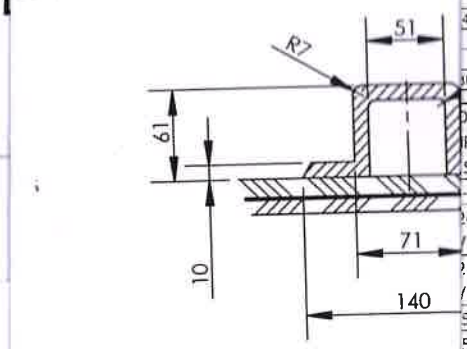
UTION VARIATION FOR ALL LAYERS ALLOWABLE

LAYUP SEQUENCE	% MATERIAL CONTRIBUTION	
	GLASS	RESIN
	25	75
300 + WR_610 + C_300 + WR_610 + C_300) × 8	38	62
	20	80
	38	62

UTION VARIATION FOR ALL LAYERS ALLOWABLE

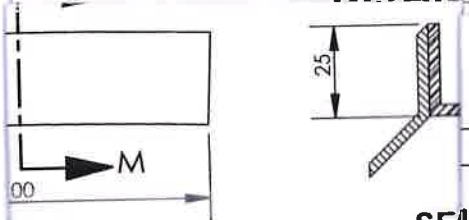
LAYUP SEQUENCE	% MATERIAL CONTRIBUTION	
	GLASS	RESIN
	20	80
450 + H × 6) × 4 + H'	68	32
	20	80
	67	33

UTION VARIATION FOR ALL LAYERS ALLOWABLE



DITIONAL LAYER TO PENSATE THICKNESS SHORTCOMING
300 GSM / 450 GSM
2400 TEX / 2 × 1200 TEX)
/ CSM - 450 GSM ⚠
2400 TEX / 2 × 1200 TEX)
/ CSM - 450 GSM ⚠
50 GSM / WR - 610 GSM
50 GSM / WR - 610 GSM
N LAYER TO BE APPLIED

DETAIL

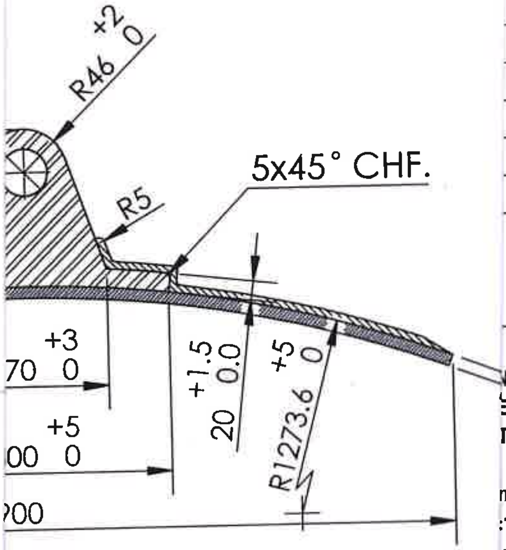


EL DETAIL

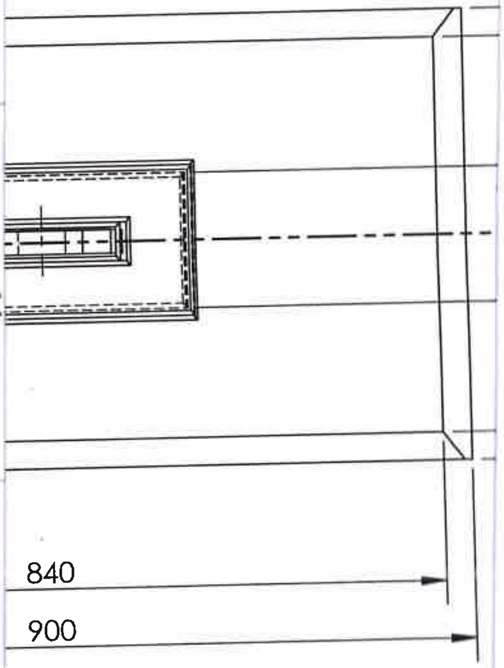
APPROVED

FRP UNDERGROUND STORAGE TANK (54KL)

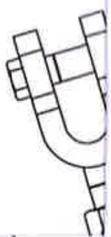
	SHEET	REV
SEL_DWUST_FAB_54KL_0001	1 OF 7	B
SC		



TION E-E



FTING LUG
2 GR 250 :BR (GALVANIZED)



mm, UNLESS OTHERWISE STATED.
ESS AS PER ASTM A153.
TION FOR HAND LAYUP : 35% 5%

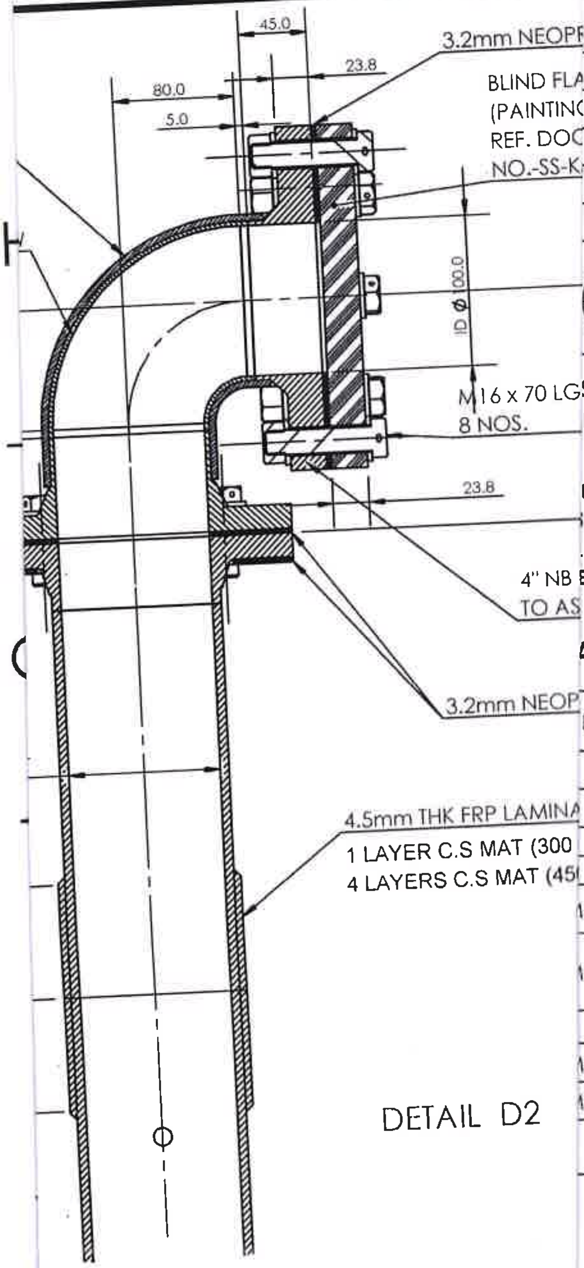
m (UNLESS OTHERWISE SPECIFIED)
:1.5 mm (UNLESS OTHERWISE SPECIFIED)
+1.5 mm (UNLESS OTHERWISE SPECIFIED)
NLESS OTHERWISE SPECIFIED)

अनुमोदित
APPROVED
पत्र सं. P 6 (S) Kerala/1249
Vide Letter No.
दिनांक 18/03/2024
Date
मुख्य विस्फोटक नियंत्रक
For Chief Controller of Explosives

3121-1981

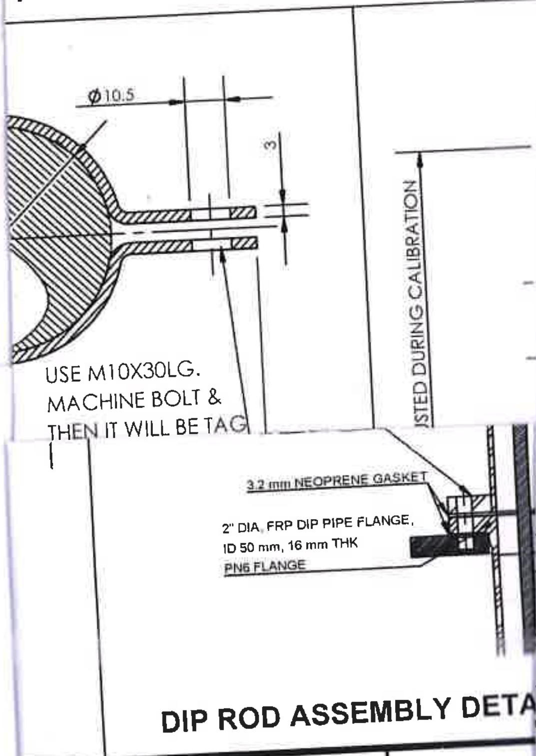
FRP UNDERGROUND STORAGE
TANK (54KL)

	SHEET	REV
TL_DWUST_FAB_54KL_0002	2 OF 7	B



DETAIL D2

) FOR NOZLE N8 (AS APPLICABL



DIP ROD ASSEMBLY DETA

SS OTHERWISE STATED.
D LAYUP : 35% ±5%.

UNLESS OTHERWISE SPECIFIED)
mm (UNLESS OTHERWISE SPECIFIED)
.5 mm (UNLESS OTHERWISE SPECIFIED)
ESS OTHERWISE SPECIFIED)

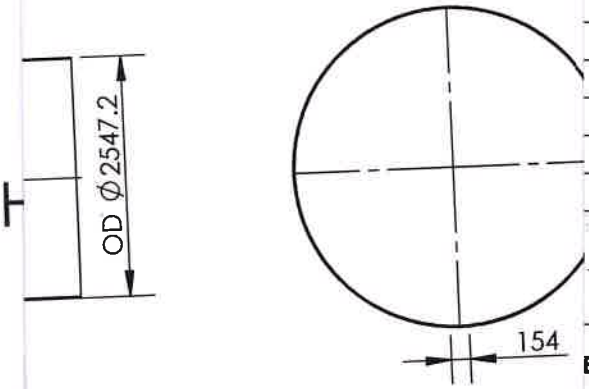
AL FOR DIP PIPE ASSLY

	QTY	SIZE	REMARK
B)	1	2" SCH 40 MS (SA106 GR. B) PIPE x 322LG	
	2	15X15X3 THK.	
	1	Ø2.7-3.5 X 30-40LG	
	2	25 W. X 3 THK.	SEE DETAILS
	2	25 W X 137 LG. X 3 THK	SEE DETAILS
16	1	Ø59.5 X 54 H.	SEE DETAILS
16	1	12 SQ. (NOTE 5)	SEE DETAILS
	1	74 O.D. X 60 I.D. X 3 THK.	
16	1	Ø91 X 64 LG.	
16	1	Ø80 X 61 LG.	

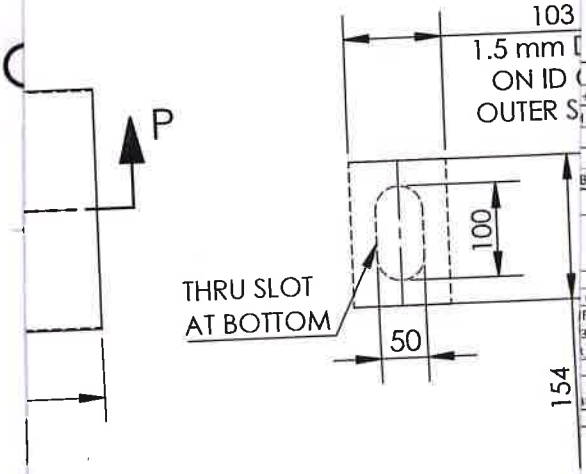
APPROVED

FRP UNDERGROUND STORAGE TANK (54KL)

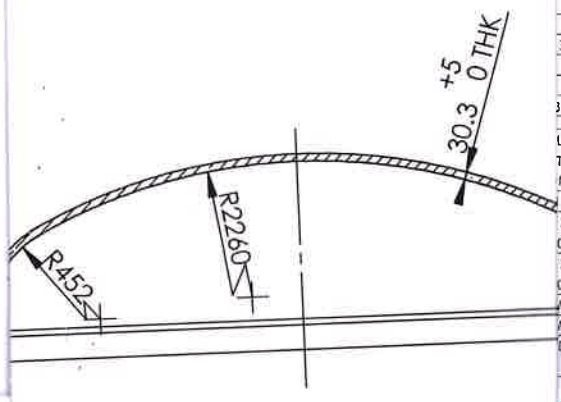
	SHEET	REV
UST_FAB_54KL_0003	3 OF 7	B



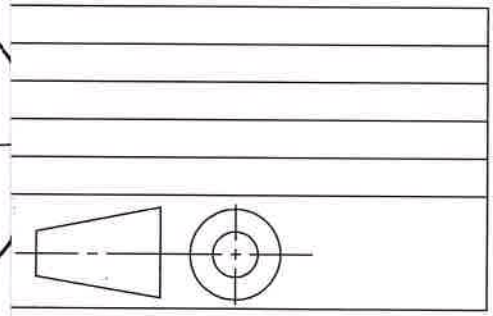
SECTION X-



DETAIL D1



HEAD



E IN mm, UNLESS OTHERWISE STATED.

0.8 mm (UNLESS OTHERWISE SPECIFIED)
CD: ±1.5 mm (UNLESS OTHERWISE SPECIFIED)
0 mm +1.5 mm (UNLESS OTHERWISE SPECIFIED)
nm (UNLESS OTHERWISE SPECIFIED)

LAYUP SEQUENCE	% MATERIAL CONTRIBUTION	
	GLASS	RESIN
+ C_300 × 2 + C_450	30	70
(× 7 + C_450) × 2 + H'	68	32
	20	80
	57	43

BUTION VARIATION FOR ALL LAYERS ALLOWABLE

LAYUP SEQUENCE	% MATERIAL CONTRIBUTION	
	GLASS	RESIN
C_300 × 2 + C_450	25	75
(R_610 + C_300) × 2 + (C_300 + WR_610 + 300 + WR_610 + C_300) × 6 + (C_300 + _610 + C_300)	38	62
	20	80
	37	63

UTION VARIATION FOR ALL LAYERS ALLOWABLE

LAYUP SEQUENCE	% MATERIAL CONTRIBUTION	
	GLASS	RESIN
	20	80
450 + H × 6) × 4 + H'	68	32
	20	80
	67	33

BUTION VARIATION FOR ALL LAYERS ALLOWABLE

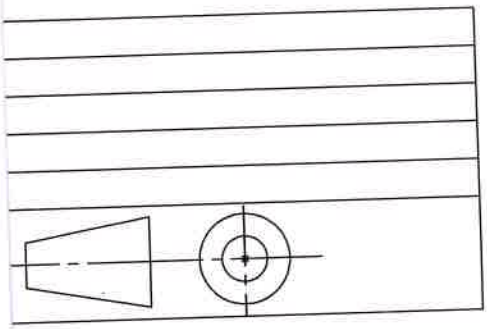
LAYUP SEQUENCE	% MATERIAL CONTRIBUTION	
	GLASS	RESIN
	25	75
300 + WR_610 + C_300 + WR_610 + C_300) × 8	38	62
	20	80
	38	62

BUTION VARIATION FOR ALL LAYERS ALLOWABLE

LAYER TO THICKNESS MING
/ 450 GSM
2 × 1200 TEX)
0 GSM 01
2 × 1200 TEX)
0 GSM 01
WR - 610 GSM
WR - 610 GSM
D BE APPLIED

FRP UNDERGROUND STORAGE TANK (54KL)

	SHEET	REV
DWUST_FAB_54KL_0004	4 OF 7	B



PCD Ø810

24x Ø26mm HOLES EQUALLY SPACED ON PCD 810mm; HOLES ARE ON BOTH MAN-WAY LID AND MAN-WAY FLANGE

OPENINGS Ø70mm AT THE CENTRE. OPENING EQUIPPED WITH 4xBLIND HOLES, 14mm DEEP WITH 12mm FULL THREAD M12, EQUALLY SPACED ON PCD Ø1

4x OPENINGS Ø90.5mm EQUALL SPACED ON PCD 546mm. EACH OPENING EQUIPPED WITH 4x BLIND HOLES, 14mm DEEP WITH 12mm FULL THREAD M16, EQUALLY SPACED ON PCD 150mm.

5° CHAMFER (TYP)

AMFER (TYP) FOR ALL TAPPING

AS PER ASTM A153)

n, UNLESS OTHERWISE STATED
PER ASTM A153

m (UNLESS OTHERWISE SPECIFIED)
1.5 mm (UNLESS OTHERWISE SPECIFIED)
+1.5 mm (UNLESS OTHERWISE SPECIFIED)
NLESS OTHERWISE SPECIFIED)

ACE VEIL - 30 GSM
SM - 300 GSM
SM - 450 GSM

	ADDITIONAL LAYER TO COMPENSATE THICKNESS SHORTCOMING
	CSM - 300 GSM / 450 GSM
URAL)	HOOP (2400 TEX / 2 × 1200 TEX) / CSM - 450 GSM ⚠01
URAL)	HOOP (2400 TEX / 2 × 1200 TEX) / CSM - 450 GSM ⚠01
	CSM - 450 GSM / WR - 610 GSM
	CSM - 450 GSM / WR - 610 GSM
COMPENSATION LAYER TO BE APPLIED CE ⚠01	

P&C(S) Relevant 12019

ANGE

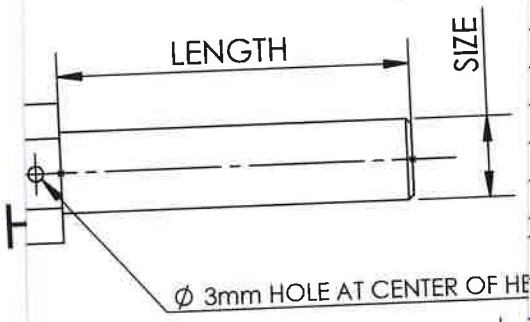
4"BLIND

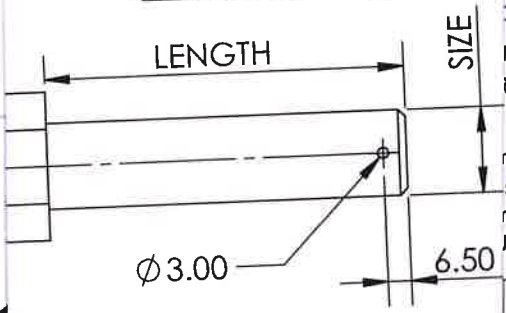
BOLT SIZE WITH SUCTION PIPE M16x
WITHOUT SUCTION PIPE M16x36
FOR NOZZLE N1 & N6 (AS APPLICA

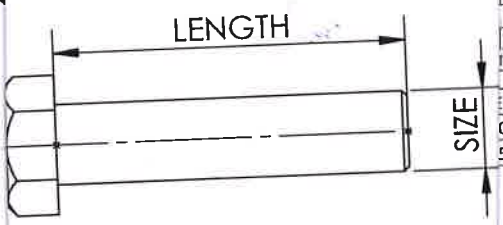
F SUCTION PIPE ASSEMBLY

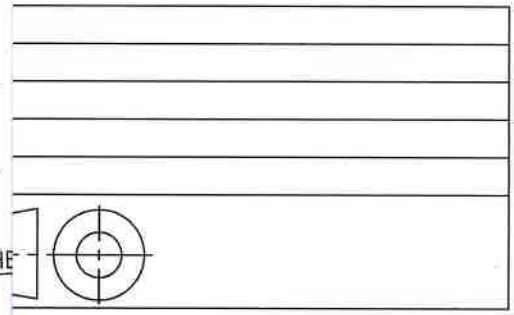
FRP UNDERGROUND STORAGE TANK (54KL)

	SHEET	REV
_DWUST_FAB_54KL_0005	5 OF 7	B









INLESS OTHERWISE STATED.
R ASTM A153.

nm (UNLESS OTHERWISE SPECIFIED)
±1.5 mm (UNLESS OTHERWISE SPECIFIED)
n +1.5 mm (UNLESS OTHERWISE SPECIFIED)
INLESS OTHERWISE SPECIFIED)

LAYUP SEQUENCE	% MATERIAL CONTRIBUTION	
	GLASS	RESIN
V + C_300 × 3 + C_450	30	70
TRIBUTION VARIATION FOR ALL LAYERS ALLOWABLE		

IL - 30 GSM
00 GSM
50 GSM

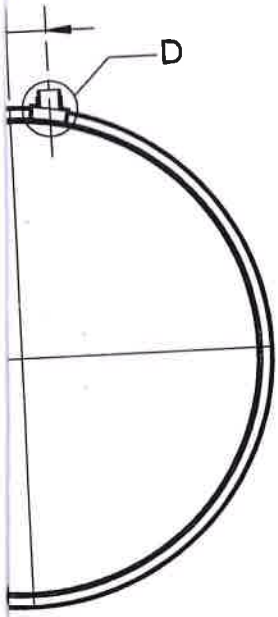
E	SIZE	LE
	M24 BOLT	
	M12 BOLT	
	M16 BOLT	
	M12 BOLT	
	M12 BOLT (DIP PIPE)	
PTIONAL)	M16 BOLT (FILL & SUCTION PIPE)	
	M24 WASHER	
	M12 WASHER	
STNERS	M16 WASHER	
	M24 NUT	
	M12 NUT	

367 Gr 4.6/4.0 (HOT DIP GALVANIZED AS PER A
0% EXTRA FOR EACH TYPE AND SIZE. MINIMUN

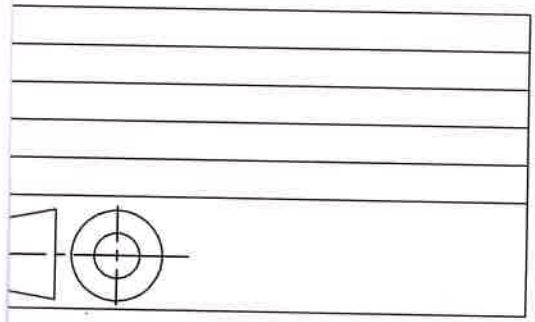
APPROVED
Vide Letter No.
Date
For Chief Controller of Explosives

TANK (54KL)

	SHEET	REV
_DWUST_FAB_54KL_0006	6 OF 7	B



ION A-A
LE 1 : 40

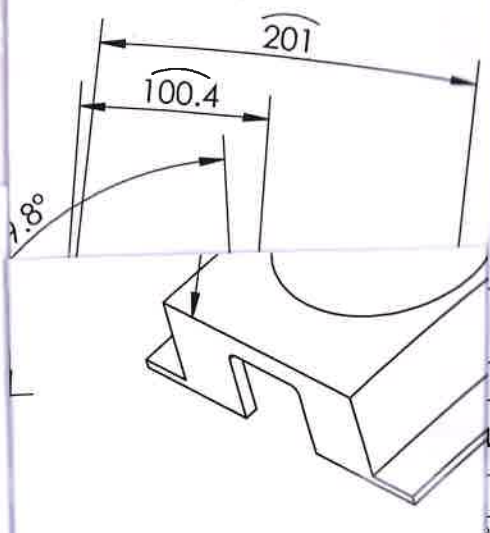


, UNLESS OTHERWISE STATED.

m (Unless otherwise specified)
±1.5 mm (Unless otherwise specified)
n +1.5 mm (Unless otherwise specified)
Unless otherwise specified)

APPROVED
Letter No.
Date

Y WELDING SIZE 10mm ON A



FRP UNDERGROUND STORAGE TANK (54 KL)

	SHEET	REV
L_20_RTL_DWUST_FAB_54KL_0007	7 OF 7	B

REF. No.