

## **FORMIT SERVICES**

## **COMPAC EXPORT SINGLE SKIN TOP LIFT**

## **LIFTING CERTIFICATION**

**5 October 2016**

**Rev No. 0**

J5465-C01.DOCX

Revision	Issue Date	Revision Details
0	05/10/2016	Issued for certification

Author: Zane Rendell BE(Civil)(Hons) GradIEAust  
Graduate Structural / Civil Engineer

Signed:



Reviewed By: Nicholas Diemar BE(Civil)(Hons) MIEAust  
CPEng NPER RPEQ  
Lead Structural / Civil Engineer

Signed:



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## 1. INTRODUCTION

In accordance with your request to provide certification of the Compac Export Single Skin Top Lift during lifting procedures, we submit the following information.

## 2. ENGINEER

Zane Rendell BE(Civil)(Hons) GradIEAust  
 Graduate Structural / Civil Engineer

## 3. SUPERVISING ENGINEER

Nicholas Diemar BE(Civil)(Hons) MIEAust CPEng NPER RPEQ  
 Lead Structural / Civil Engineer

## 4. GENERAL

This document should be read in conjunction with the Formit drawings listed below in Table 1, also attached in Appendix A.

**Table 1: FORMIT Drawings**

Drawing Number	Revision	Title
039 FORM 08 12	-	FORMIT 2012 EXPORT SINGLE ASSEMBLY PROFILE DETAILS
FMT104	A	FMT104 01 LIFTING LUG
004 FORM 05 13	-	FORMIT 2012 EXPORT FRAME CORNER
001 FORM 05 13	-	FORMIT – 2012 LIFT ROD 2.1
012 FORM 08 12	-	FORMIT – 2012 EXPORT WATER TANK / SINGLE
016 FORM 08 12	-	FORMIT – 2012 EXPORT WASTE TANK
002 FORM 05 13	-	FORMIT – 2012 50 X 25 RHS TOP FRAME
003 FORM 05 13	-	FORMIT – 2012 50 X 25 RHS TOP FRAME
005 FORM 06 12	-	FORMIT – 2012 SKID
006 FORM 06 12	-	FORMIT – 2012 RAIL

## 5. DESIGN BASIS

Our office was engaged to provide certification for the Compac Export Single Skin Top Lift during lifting procedures. The lifting frame is primarily steel, with 4 top frame moulded plastic brackets. Due to the difficulty assessing the plastic brackets by analytical methods, Izzat recommended load testing be carried out in accordance with Australian Standard AS1170.0:2002 as part of the certification process.

The Compac Export Single Skin Top Lift is to be lifted by top only, as set out in allowable lifting regimes below:

- Using four lifting lugs and a spreader frame with four vertical slings.
- Using four lifting lugs and a spreader beam with a minimum sling angle 60 degrees from horizontal.

- Using four lifting lugs with 4 slings to a single central lifting point. Minimum sling angle 60 degrees from horizontal.

The adequacy of spreaders, slings and lifting devices are the responsibility of others. When in use the frame is located on firm level ground.

## 6. TEST LOADING

The following ultimate design factors used to determine test loads, based on AS1170.0:2002 are as follows:

- Dead load factor = 1.2
- Live load factor = 1.5
- Dynamic factor = 1.5
- Testing Factor  $k_t = 1.33$  (based on material properties and number of lifts).

Based on the above load factors, and weights measured prior to testing, the following test loads were determined:

- Dry weight of toilet = 116 kg
- Tanks (waste and fresh combined) when full = 334.5 kg
- Additional concrete weights = 414 kg
- Total lifting load = 864.5 kg

The load test testing was carried out in accordance with the Izzat testing procedure J5465 Lifting Load Test Procedure. Zane Rendell from Izzat Consulting Engineering was present during the testing and inspected all the structural components after testing. The Test units were found to be satisfactory.

## 7. DESIGN LOADS

Design loads for the purpose of lifting of the Compac Export toilet are as follows;

- Dry weight of toilet = 116kg
- Tanks (waste and fresh combined) when full = 335kg
- Maximum Lifted Mass = 451kg

## 8. STATEMENTS & DISCLAIMERS

We confirm that the Compac Export Single Skin Top Lift portable toilet as detailed in the drawings noted in Table 1 (above), is structurally satisfactory for the Design Loads noted in Section 7 above, provided the following are adhered to;

- Allowable lifting regimes as follows:
  - Using four lifting lugs and a spreader frame with four vertical slings.
  - Using four lifting lugs and a spreader beam with a minimum sling angle 60 degrees from horizontal.
  - Using four lifting lugs with 4 slings to a single central lifting point. Minimum sling angle 60 degrees from horizontal.
- The frame is located on firm level ground and adequately tied down.
- The structure is inspected every 12 months (maximum), or as otherwise required to ensure no structural damage is evident.
- The certificate is applicable only if the structures are not affected by heat, adverse chemicals, excessive vibrations or other external factors unknown and not noted to the certifying engineer.
- All items constructed are in accordance with the drawings & specifications as referenced by this certificate.
- All construction and materials is in accordance with Australian Standards, particularly AS4100 Clause 2.2.
- All welding is a minimum of 6mm GP continuous fillet welds all around, UNO.
- No modifications shall be made, which would significantly increase the mass, alter the stability or affect the design strength of the structure.

**APPENDIX A      DRAWINGS**

# FEATURES & SPECIFICATIONS

## FEATURES

- New modern look with UV resistant walls
- Formit's unique one-piece bowl and base assembly
- Modern and spacious easy-clean interior
- Heavy duty steel skids
- Improved non-hinge door and handle design
- Range of colours to choose from
- Top quality hand wash and flushing foot pumps
- Top lift available as optional extra
- Can be configured as open closet if required
- No protruding internal fastenings
- Custom graphic imprinted in walls available
- Durable and lightweight design

## SPECIFICATIONS

WASTE TANK: CAPACITY 265 LITRES

FRESH WATER TANK: 90 LITRES (optional)

SKID BASE: STEEL

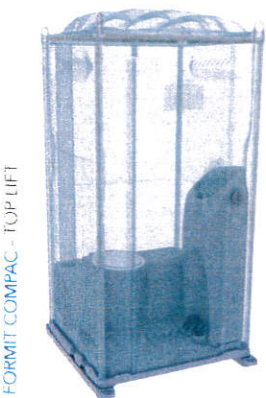
DIMENSIONS: HEIGHT 2193MM, WIDTH 1086MM, DEPTH 1200MM

DOOR OPENING: 594MM

ALL MEASUREMENTS ARE APPROXIMATE ONLY AND ARE SUBJECT TO VARIATION

## OPTIONS

The Formit Compac features a range of optional extras to suit your needs:



FORMIT COMPAC - TOP LIFT

Open Closer option also available



FORMIT COMPAC  
TOP LIFT  
FRESH WATER INTERNAL



### WALL COLOURS



### ROOF COLOUR

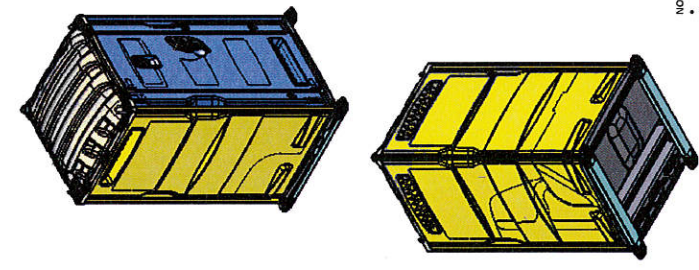
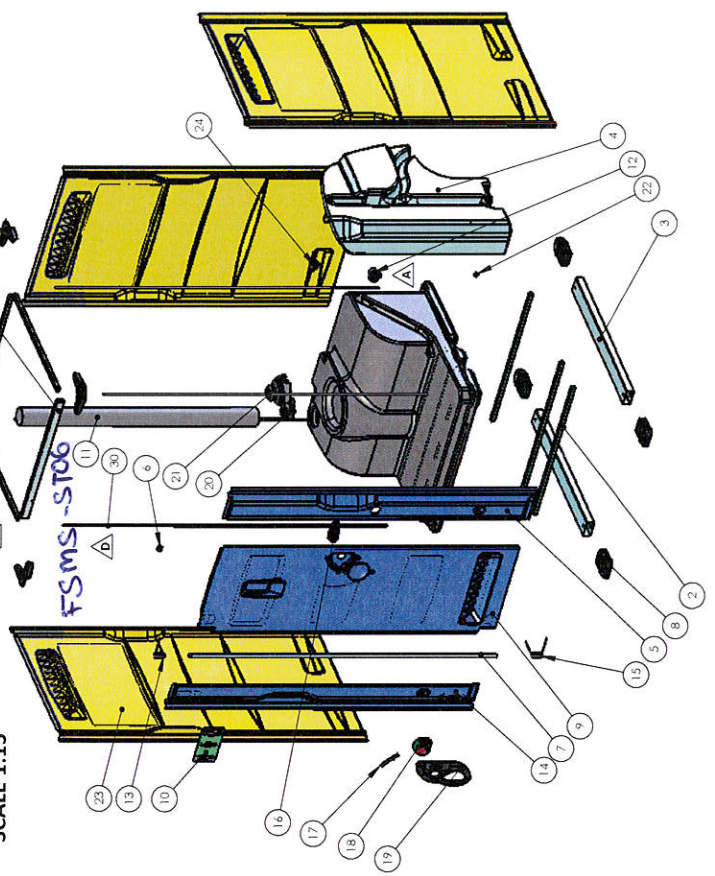
White / Silver

ZONE	REV.	DESCRIPTION	DATE	APPROVED
15-J	A	SPOUT ADDED TO ASSEMBLY	8/05/2013	
12-F	B	INJECTION MOULDED FRAME CORNER AND RIS TO REPLACE BENT TOP FRAMES	8/05/2013	
13-D	C	STD FORMIT LIFT RING IN PLACE OF CUSTOM LIFT ROD	8/05/2013	
12-F	D	Ø8 STAINLESS STEEL LIFT ROD IN PLACE OF GALVANISED - CUSTOM LIFT ROD	8/05/2013	

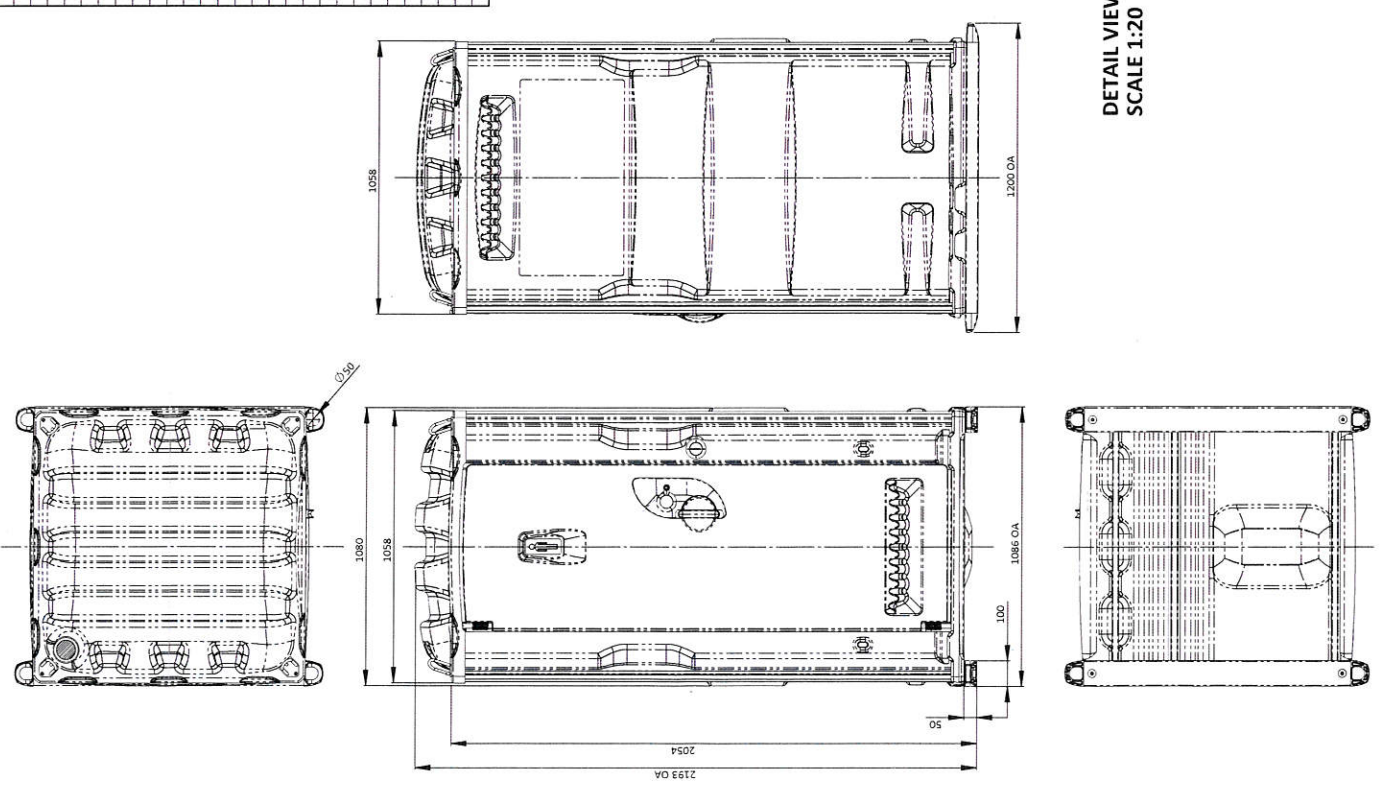
ITEM	PART	DWG	DESCRIPTION	QTY.
1	EXPORT WASTE TANK	017 FORM 08 12	ROTO HDPE	1
2	RAIL	006 FORM 06 12	25 x 25 x 2 GAL TUBE RHS	3
3	SHD	005 FORM 06 12	100 x 50 x 1.6 OR 2 GAL TUBE RHS	2
4	EXPORT WATER SINGLE	013 FORM 08 12	ROTO HDPE	1
5	RH DOOR JAMB	023 FORM 08 12	3mm TWIN THERMO FORMING	1
6	EXPORT HINGE SPACER	036 FORM 08 12	INJECTION MOULDED HDPE	1
7	EXPORT HINGE	35 FORM 08 12	Ø19 x 2 GAL TUBE	1
8	END CAP	004 FORM 06 12	INJECTION MOULDED HDPE	4
9	DOOR	022 FORM 08 12	3mm TWIN THERMO FORMING	1
10	2012 GENDER SIGN	025 FORM 08 12	CNC 3mm HDPE SHEET	1
11	EXPORT VENT PIPE	023 FORM 08 12	Ø100 PVC PIPE	1
12	MDOULS WATER FILLER BLACK	MDOULS		1
13	SPRING TOP	029 FORM 06 12	STAINLESS STEEL SPRING	1
14	LH DOOR JAMB	030 FORM 08 12	3mm TWIN THERMO FORMING	1
15	SPRING BASE	030 FORM 08 12	STAINLESS STEEL SPRING	1
16	LATCH	031 FORM 06 12	INJECTION MOULDED HDPE	1
17	LOCK SPRING	031 FORM 06 12	STAINLESS STEEL SPRING	1
18	ENGAGED SIGN	001 FORM 06 12	INJECTION MOULDED HDPE	1
19	DOOR HANDLE	003 FORM 06 12	INJECTION MOULDED HDPE	1
20	BSIN PUMP	STD		1
21	PUMP ASSEMBLY	001 FORM 10 12	SEE PUMP ASSEMBLY DWG	1
22	PLUG	STD		1
23	SINGLE SKIN WALL	013 FORM 08 12	4mm THERMO FORMING	3
24	SPOUT 2.1	042 FORM 08 12	INJECTION MOULDED HDPE	1
25	EXPORT FRAME CORNER	041 FORM 06 12	INJECTION MOULDED HDPE	4
26	50 x 25 RHS	002 FORM 06 13	50 x 25 x 1.6 GAL TUBE RHS	1
27	25 x 25 RHS	003 FORM 06 13	25 x 25 x 1.6 GAL TUBE RHS	3
28	SINGLE SKIN ROOF	015 FORM 08 12	4mm THERMO FORMING	1
29	LIFT RING	STD - FORMIT		1
30	LIFT ROD 2.1	001 FORM 05 13	Ø8 316 STAINLESS STEEL	4

FS Ultra LLa  
 PWTRNET  
 NMEFFRSD  
 NMEFFRFR  
 NMCBC

EXPLODED VIEW  
 SCALE 1:15

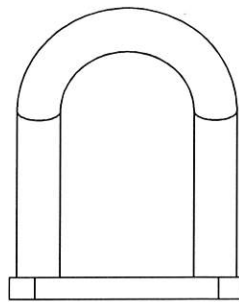
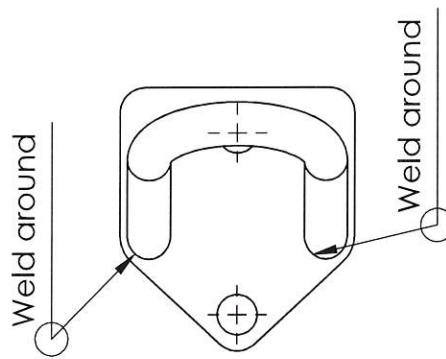
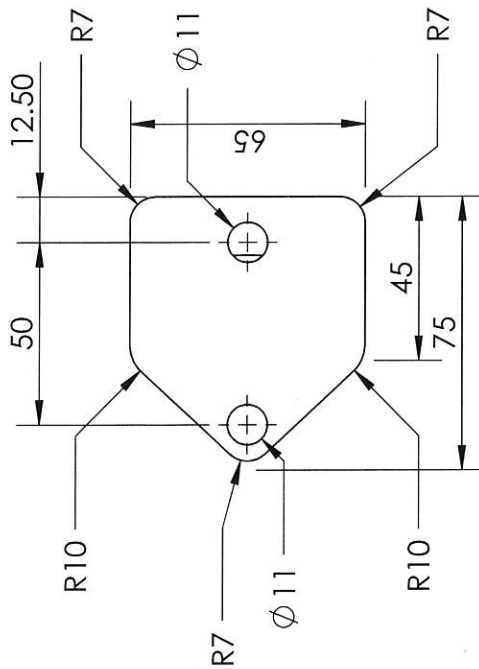
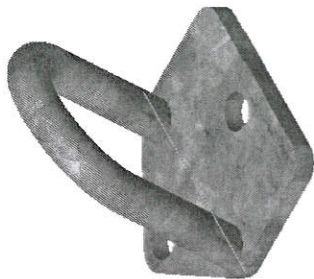
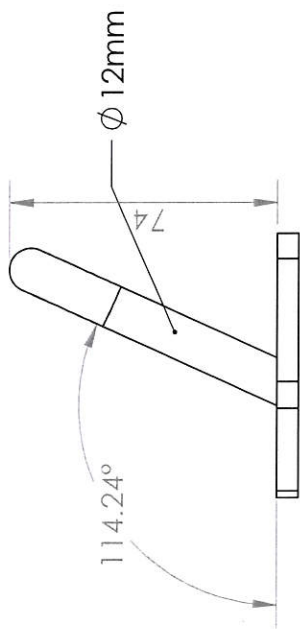


DETAIL VIEW  
 SCALE 1:20



NOTE:  
 • ALL FINISHES AND COLOURS TO BE CONFIRMED WITH CLIENT BEFORE PRODUCTION  
 • PART SAMPLES AND ASSEMBLY TO BE APPROVED BEFORE PRODUCTION

FMT104 01 LIFTING LUG



FSUITyalla

Note: Steel with Galvanised finish. Likely load approx. 500kg

Copyright: FORMIT Services Pty Ltd

MADE FROM: Galvanised Steel

Commercial in confidence

Number of: 1 per Assembly

Reg DO NOT SCALE DRAWING  
PDF UNLESS OTHERWISE SPECIFIED

Issue DATE 27/07/2010 ISSUE DESCRIPTION SPECIFICATION SHEET

BY P.C.

All Drawing  
Project  
Checked

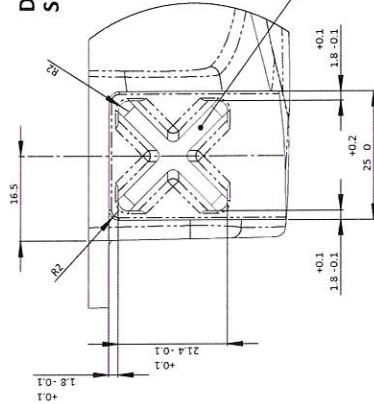
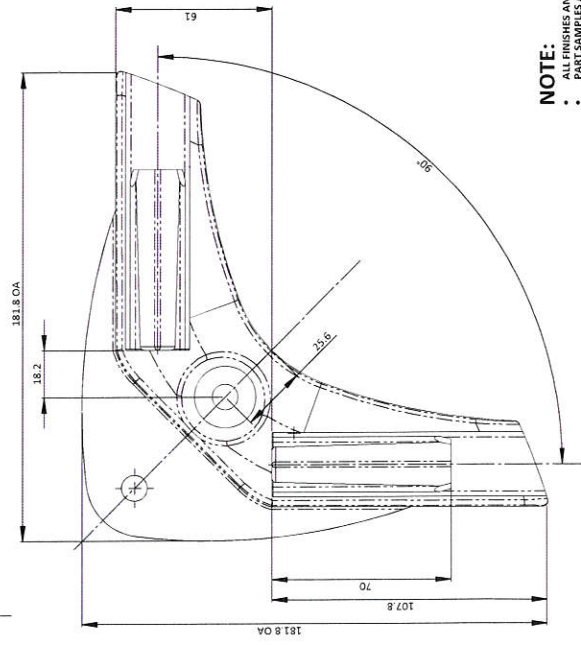
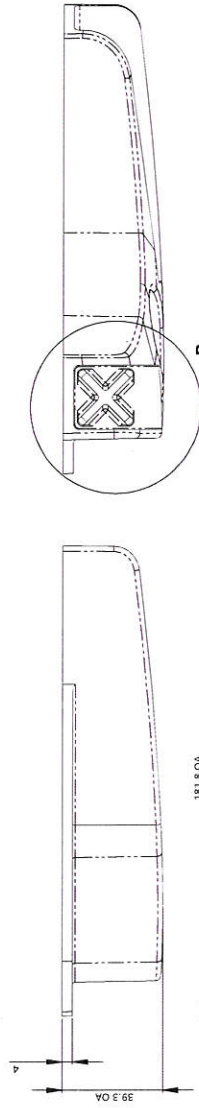
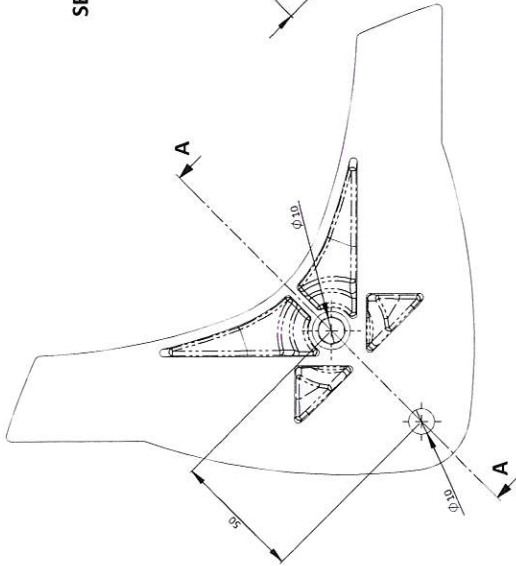
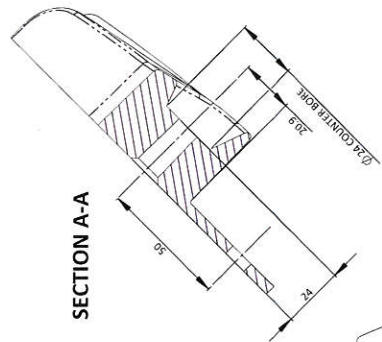


FORMIT SERVICES PL

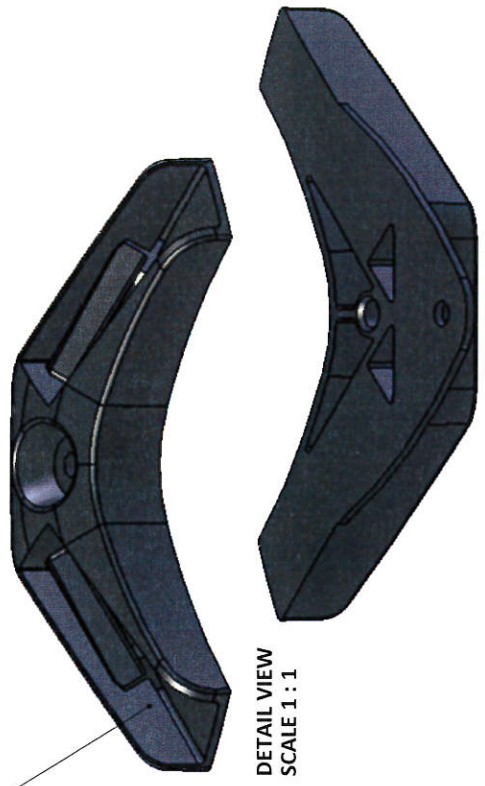
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Part No: FMT104  
Scale: 1:2

A



SPIGGOT AND CHANNEL TO BE CLOSE FIT ON 25 x 25 x 1.6 RHS

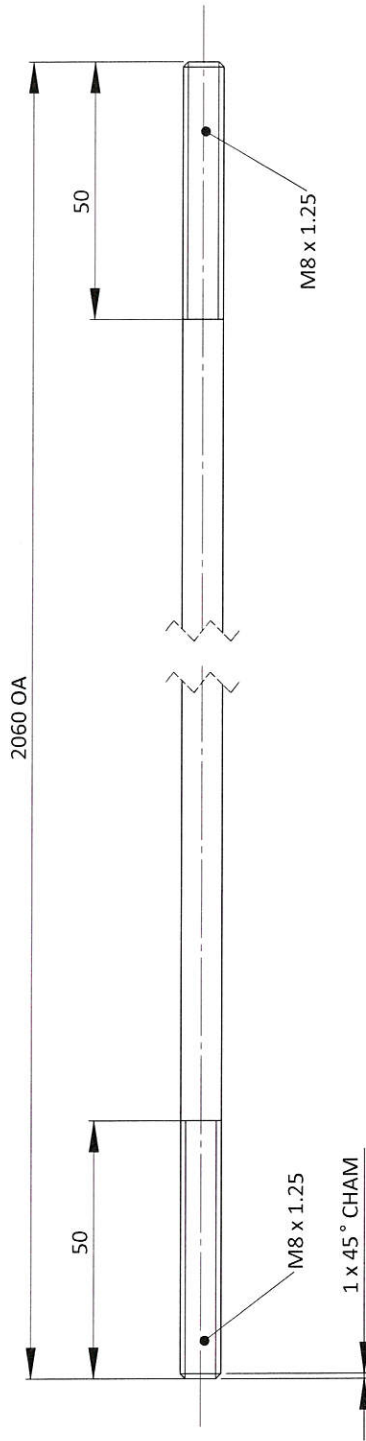


**DETAIL VIEW**  
**SCALE 1 : 1**

NMCBC

**NOTE:**  
 DIMENSIONS AND COLOURS TO BE CONFIRMED WITH CLIENT BEFORE PRODUCTION  
 PART SAMPLES AND ASSEMBLY TO BE APPROVED BEFORE PRODUCTION

**CONFIRM OA LENGTH ON ASSEMBLY PRIOR TO PRODUCTION**



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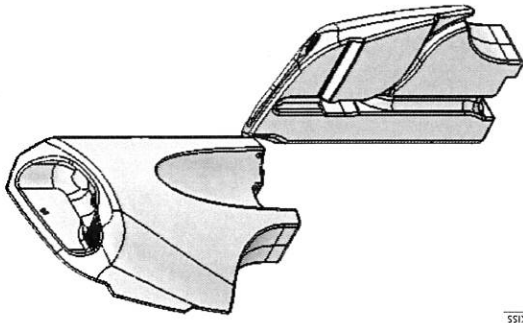
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SURFACE FINISH: TOLERANCES: LINEAR: ANGULAR:		AS MACHINED - DEBURR ENDS	AS MACHINED - DEBURR ENDS
± 2		NAME NEO	SIGNATURE 070513
DRAWN	CHKD	APPRVD	MFG
QA			

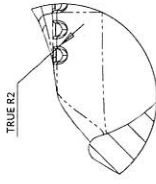
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neoindustrialdesign		
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LIFT ROD 2.1		
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MATERIAL: Ø 8 316 STAINLESS STEEL		
WEIGHT:		

**001 FORM 05 13 A3**

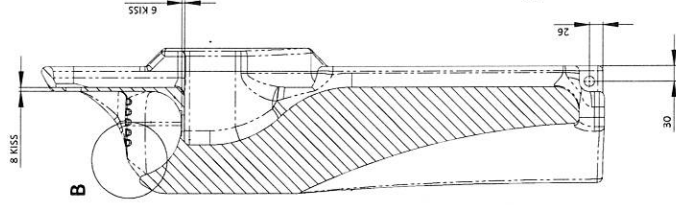
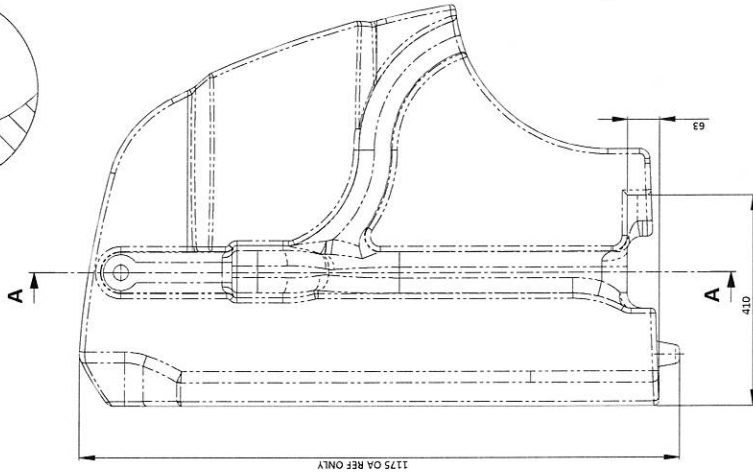
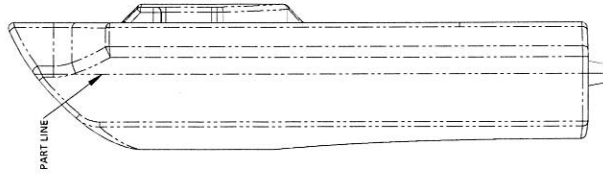
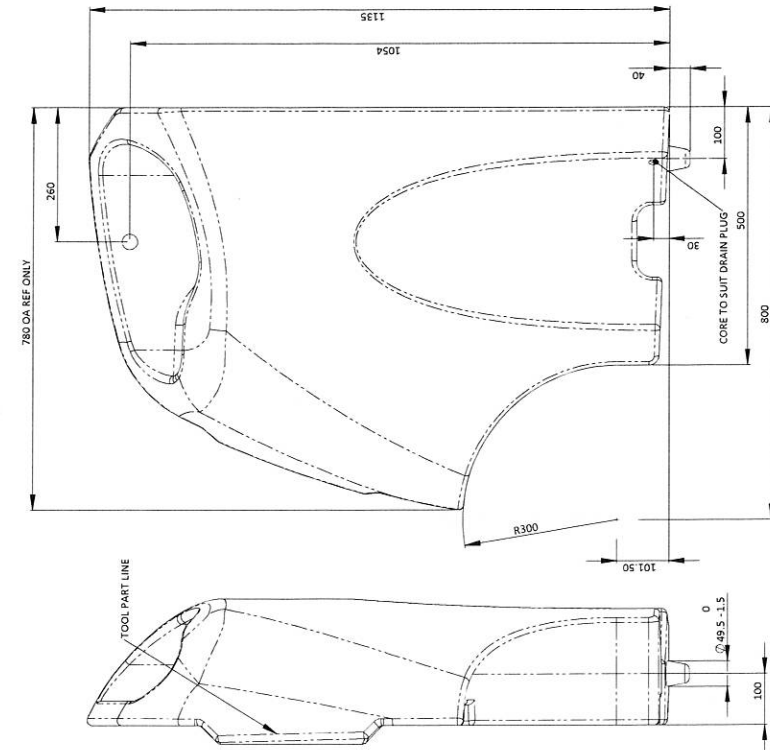
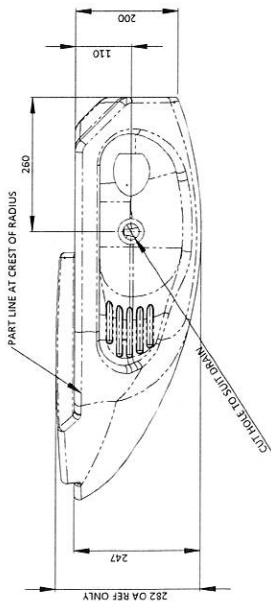
SHEET 01 OF 01



DETAIL VIEW  
SCALE 1 : 10

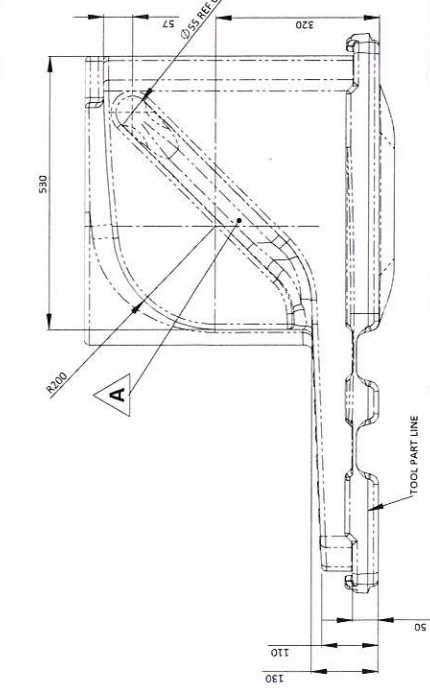
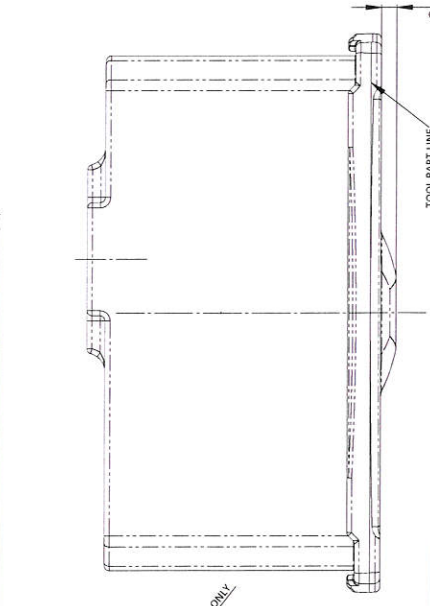
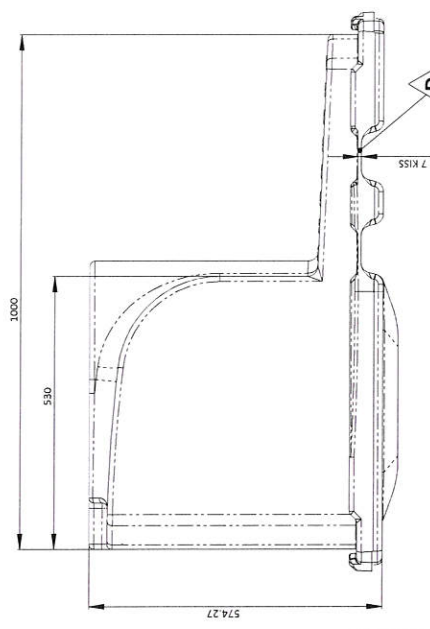
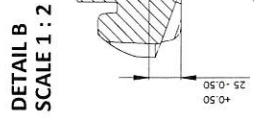
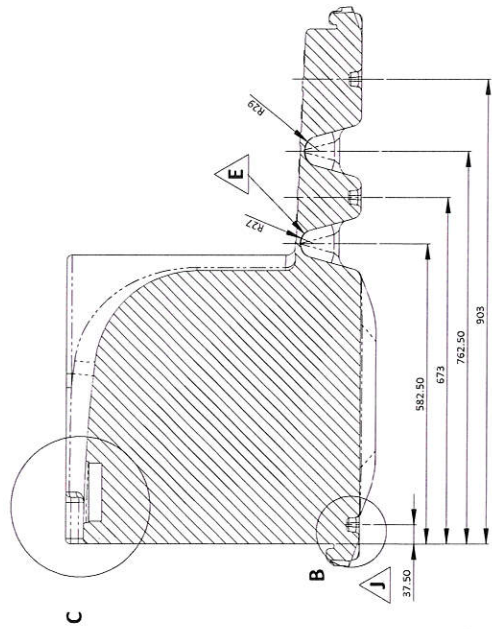
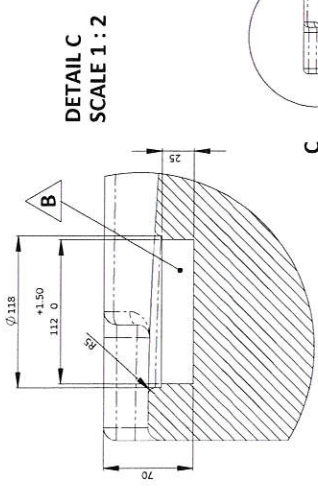
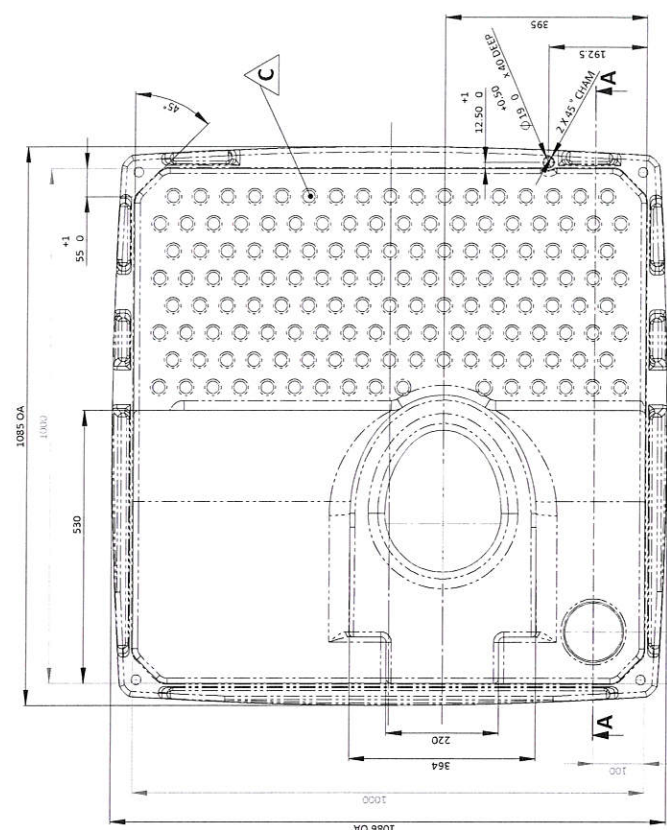


DETAIL B  
SCALE 1 : 2



**NOTE:**

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- PART SAMPLES AND ASSEMBLY TO BE APPROVED BEFORE PRODUCTION



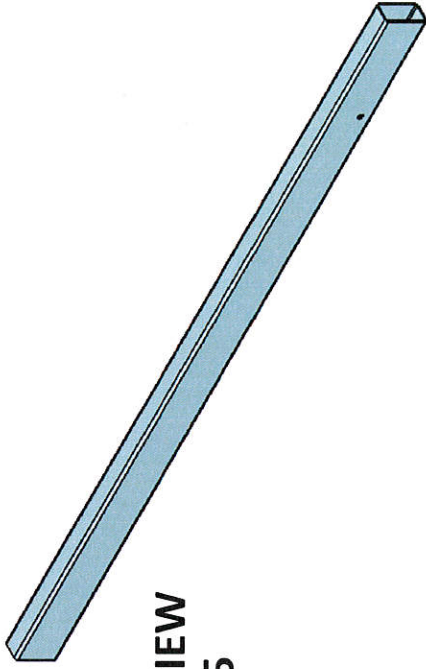
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H / 3	A	CORED FEATURE ADDED TO RUN PLUMBING FOR RECIRCULATING FLUSH OPTION	8/10/2012	
C / 3	B	VENT PIPE HOLE ENLARGED FROM $\phi 110$ TO $\phi 112$	30/06/2013	
D / 15	C	FLGOK TEXTURE ADDED TO MATCH DOMESTIC WASTE TUBER	30/06/2013	
K / 14	D	KISS JOINT REDUCED TO 7mm	30/06/2013	
F / 8	E	KISS JOINT CONTACT AREA FULLY ROUNDED	30/06/2013	
F / 3	H	RHS SLOT WAS 25 WIDE NOW 26	30/06/2013	
F / 5	J	REAR SLOT CENTRE WAS 38 NOW 37.5 FROM DATUM	30/06/2013	

**NOTE:**

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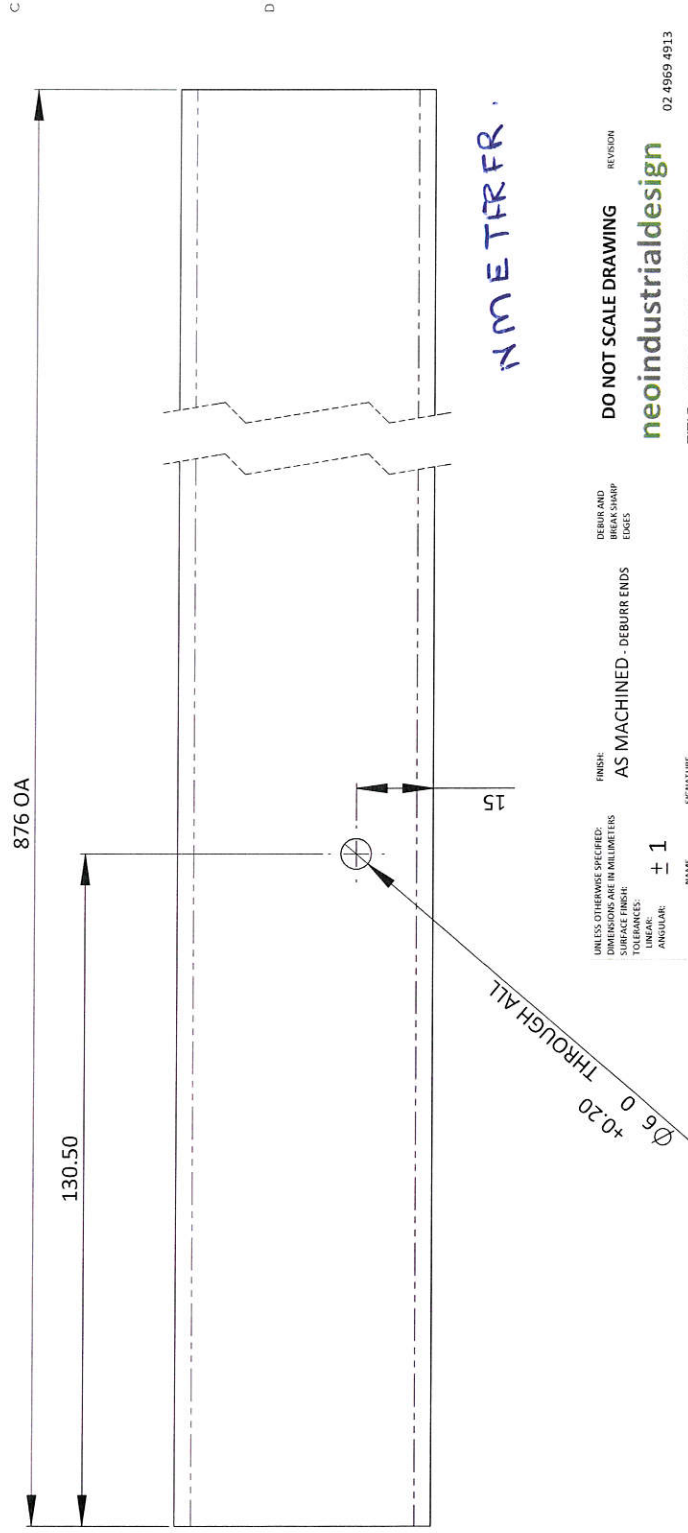
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A B C D E



**DETAIL VIEW  
SCALE 1:5**

**CONFIRM OA LENGTH ON ASSEMBLY PRIOR TO PRODUCTION**



METERFR.

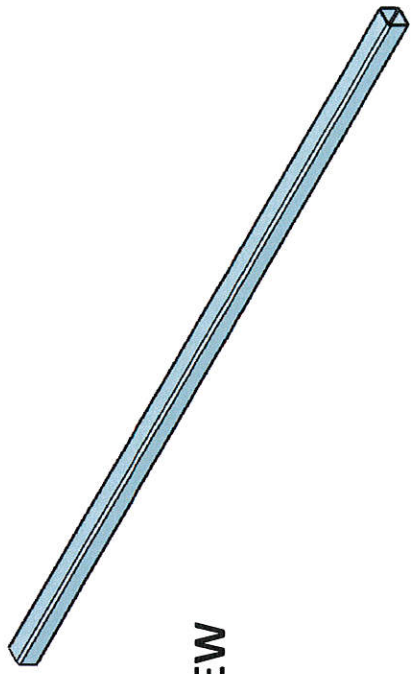
**NOTE:**

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UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS	FINISH: AS MACHINED - DEBURR ENDS	DESIGN AND BREAK SHARP EDGES	DO NOT SCALE DRAWING	REVISION
TOLERANCES: LINEAR: $\pm 1$ ANGULAR: $\pm 1$	NAME: n60	SIGNATURE	neoindustrialdesign	02.4969.4913
DRAWN: n60	NAME: n60	SIGNATURE	TITLE: <b>FORMIT</b>	2012
CHKD:	NAME: n60	SIGNATURE	50 x 25 RHS TOP FRAME	
APPVD:	NAME: n60	SIGNATURE	DWG NO. <b>002 FORM 05 13</b>	<b>A3</b>
MEG:	NAME: n60	SIGNATURE	MATERIAL: 50 x 25 x 1.6 GAL TUBE RHS	
QA:	NAME: n60	SIGNATURE	WEIGHT:	

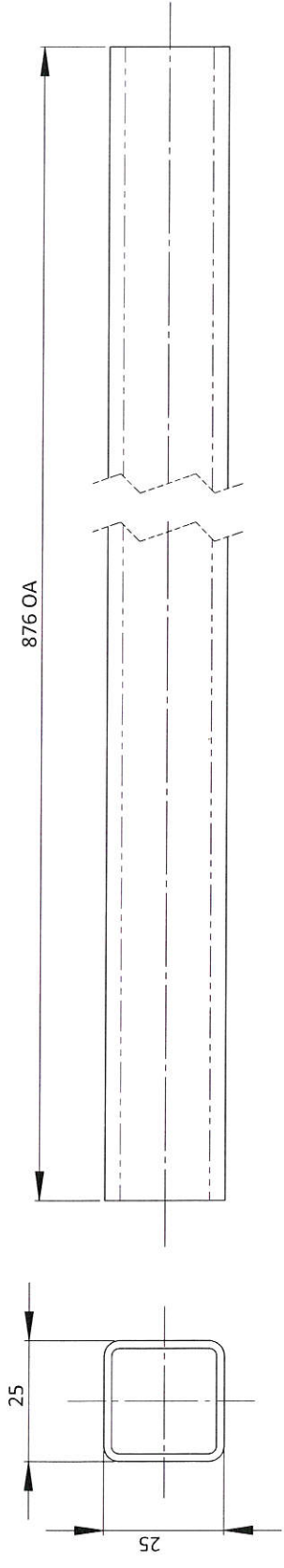
1 2 3 4 5 6 7 8

A B C D



**DETAIL VIEW  
SCALE 1:5**

**CONFIRM OA LENGTH ON ASSEMBLY PRIOR TO PRODUCTION**



*NMETARSD*

**NOTE:**

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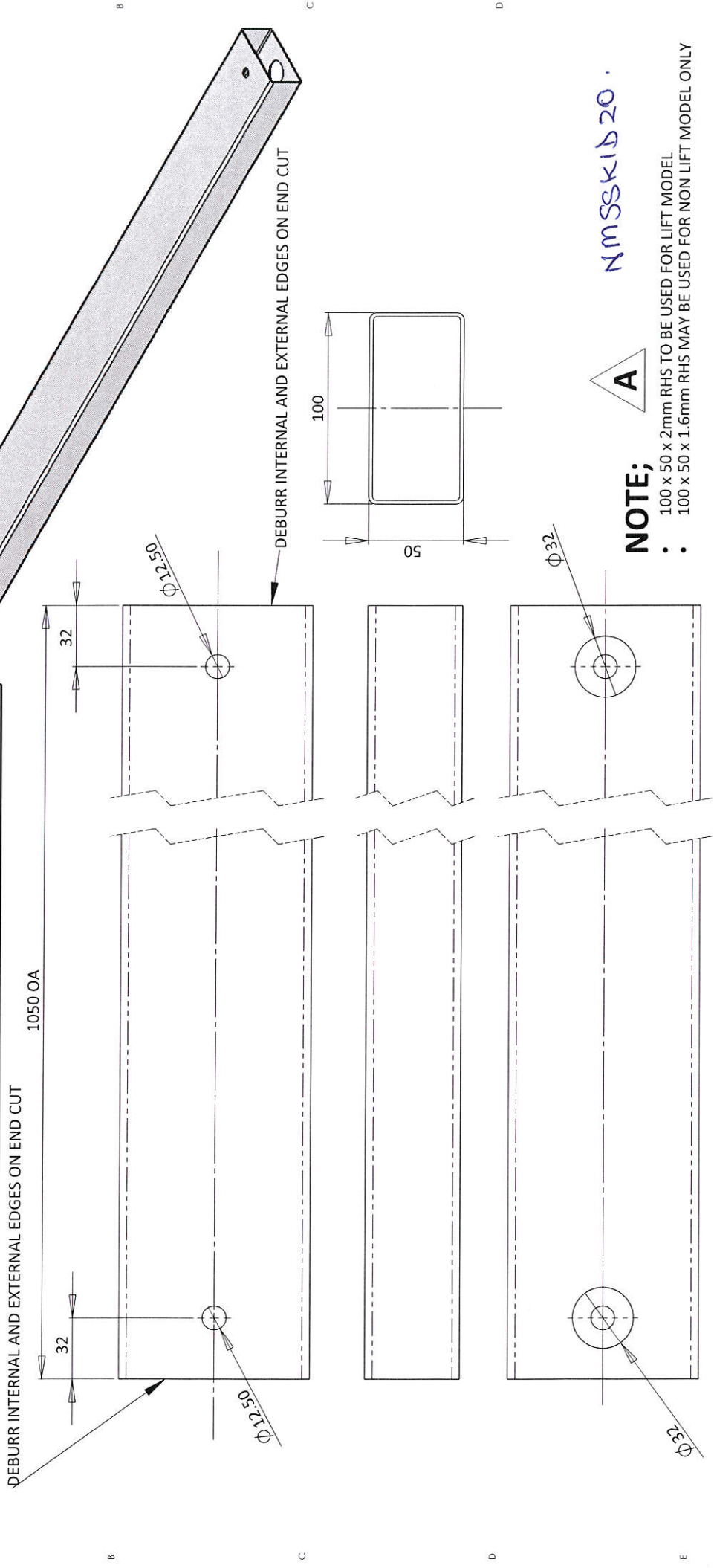
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS	FINISH: AS MACHINED - DEBURR ENDS	DEBUR AND INTERNAL EDGES	REVISION
SURFACE FINISH: TOLERANCES: LINEAR ANGULAR	$\pm 1$		
DRAWN CHKD APPVD MFG QA	NAME PBO	SIGNATURE	TITLE: <b>FORMIT</b> 2012
			DO NOT SCALE DRAWING
			<b>neoindustrialdesign</b>
			02 4969 4913
			<b>25 x 25 RHS TOP FRAME</b>
			DWG NO. <b>003 FORM 05 13</b>
			MATERIAL: 25 x 25 x 1.6 GAL TUBE RHS
			WEIGHT: SCALE:1:1
			SHEET01 OF 01

**A3**

1 2 3 4 5 6 7 8

REVISIONS			
ZONE	REV.	DESCRIPTION	APPROVED
E / 7	A	ONLY 100 x 50 x 2mm WALL RHS TO BE USED ON SKIDS FOR LIFT MODEL	
		DATE	3/10/2013

# DETAIL VIEW OF SKID SCALE 1:5



NMSSKID20



### NOTE;

- 100 x 50 x 2mm RHS TO BE USED FOR LIFT MODEL
- 100 x 50 x 1.6mm RHS MAY BE USED FOR NON LIFT MODEL ONLY

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UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS	FINISH: AS MACHINED	DEBURR AND CHAMFER EDGES	DO NOT SCALE DRAWING
SURFACE FINISH: TOLERANCES: LINEAR: ANGULAR:	NAME: INGO	REVISION	neoindustrialdesign
± 0.5	SIGNATURE		TITLE: <b>FORMIT</b> 2012
DRAWN: INGO	220612		SKID
CHKD:			DWG NO. <b>005 FORM 06 12</b>
APPVD:			SCALE: 1:2
MFG:			MATERIAL: GAL TUBE RHS
QA:			SEE NOTE AND REVISION A
			WEIGHT:

02 4969 4913

SHEET 01 OF 01

