

**TANK CONTAINER**

**OPERATING**

**MANUAL**

**OCI ORDER**

**25 000 LITRE CAPACITY**

ICTU - 250022 - 8	ICTU - 250028 - 0
ICTU - 250029 - 6	ICTU - 250031 - 5
ICTU - 250033 - 6	ICTU - 250036 - 2
ICTU - 250037 - 8	ICTU - 250040 - 2
ICTU - 250047 - 0	ICTU - 250048 - 6

**GEA DESIGN**

PAGE 2 :

## INTRODUCTION

This manual describes the requirements to operate an IMO Type 1 container which has been tested to the requirements of ISO 1496 and ASME VIII Div. 1. The required rail impact tests have been performed.

The container is suitable to transport products of class 3, 6 and 1,8 and 9 (RID/ADR).

This manual is issued to provide a guide to operating a GEA KRUGERSDORP ENGINEERING tank container. No responsibility is taken for the accuracy of the information supplied or for any resulting liability, injury, loss or damage sustained to persons, property or equipment or any other consequences resulting in the following of the procedures described in this manual.

GEA KRUGERSDORP ENGINEERING thanks Fort Vale and Perolo for permission to publish their drawings of tank container equipment.

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4.5	STEAM HEADER PIPING & HEATING CIRCUIT DETAILS

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1.0 GENERAL TECHNICAL INFORMATION

1.1 CAPACITY

The capacity of the container is 25 000 litres in a single compartment (6600 US gallons).

1.2 FRAME DIMENSIONS AND MASS

LENGTH : 6058 mm (20ft)

WIDTH : 2438 mm (8 ft)

HEIGHT : 2591 mm (8,5 ft)

MAXIMUM GROSS WEIGHT : 36000 kg. (79365 lbs)

FRAME TEST : 36000 kg (79366 lbs)

1.3 SHELL AND HEADS

MATERIAL : DIN 17740 WERKSTOFF 1.4401 C = 0,03% MAX.

: DIN 17741 WERKSTOFF 1.4401 C = 0.03% MAX.

MINIMUM SHELL THICKNESS : 4,7 mm

MINIMUM HEAD THICKNESS : 6,4 mm

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1.4 PRESSURES

ALLOWABLE WORKING PRESSURE OF CONTAINER : 4 BAR (58 PSI)

TEST PRESSURE OF CONTAINER : 6 BAR (87 PSI)

DESIGN PRESSURE OF CONTAINER : 4 BAR (58 PSI)

ALLOWABLE WORKING PRESSURE OF HEATING CIRCUIT :  
6 BAR (87 PSI)

TEST PRESSURE OF HEATING CIRCUIT : 9 BAR (130,5 PSI)

DESIGN PRESSURE OF HEATING CIRCUIT : 6 BAR (87 PSI)

1.5 DESIGN TEMPERATURES

SHELL : 130 DEG. C (266 DEG. F)

HEADS : 120 DEG. C (248 DEG. F)

1.6 RADIOGRAPHY REQUIREMENTS

SHELL LONGITUDINAL SEAMS 100%

SHELL CIRCUMFERENTIAL SEAMS 25%

DISHED END SEAM 100%

1.7 APPROVALS

AAR 600 U S DOT

RID/ADR U K DOT

CSC TC

TIR

1.8 INSULATION

The tank container is insulated with rock wool over the heating circuit area. The balance of the container is insulated with a combination of polyisocyanurate panels.

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2.0 DESCRIPTION OF CONTAINER COMPONENTS

2.1 CENTRAL SPILL BOX

The central spill box contains the manway opening as well as provision for two safety valves and calibration plate.

2.2 THE MANWAY EQUIPMENT

Fort Vale or Perolo manway equipment is supplied as detailed on drawing supplied with this manual.

2.3 SAFETY RELIEF VALVE

One Fort Vale or Perolo relief valves are used as detailed on drawings supplied with this manual. Rupture discs are provided on request.

2.4 CALIBRATION PLATE

A calibration plate is supplied with information in US gallons, UK gallons and litres. Filling level capacity and capacity per cm are also supplied.

2.5 DIP STICK

The dip stick is captive and is fitted in a bracket in the manway neck ring. The dip stick is graduated in cm and litres.

2.6 REAR SPILL BOX

The rear spill box contains an inlet valve and provision for a top discharge valve. The spill box is drained by two PVC drain tubes.

2.7 AIR INLET VALVE

A Fort Vale or Perolo Air Inlet Valve is fitted as detailed on drawings supplied with the manual.

2.8 TOP DISCHARGE FLANGE AND BLANK

A blanked top discharge opening is provided as detailed on drawings supplied with this manual.

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2.9 LADDER AND WALKWAYS

One ladder is provided at the rear of the container frame. On request an additional ladder is provided at the front of the container frame.

A walkway is fitted along the length of the tank container. Two walkways are provided to supply access to spill boxes. The material used for walkways is marine grade aluminium.

2.10 DOCUMENT BOX

A document box with a captive lid is fitted in the rear end of the frame.

2.11 STEAM HEATING CIRCUIT

The steam heating circuit area is 8m<sup>2</sup> and has a steam inlet and steam outlet fitting with diameter ½" BSP respectively.

Captive protective caps are fitted.

2.12 THERMOMETER

A 100 diameter contact analogue thermometer is fitted to the rear end of the container.

2.13 TIR SEALING POINTS

All removable and openable fittings are provided with sealing facilities.

2.14 BOTTOM DISCHARGE VALVE

A Fort Vale or Perolo bottom discharge valve is fitted as detailed on drawing supplied with this manual.

2.15 REMOTE CONTROL CABLE FOR BOTTOM DISCHARGE VALVE

A remote control cable is fitted on the side adjacent to the ladder to close the bottom discharge valve in case of an emergency.

2.16 DIP TUBE FOR TOP DISCHARGE

A dip tube will be fitted on request. A dip tube location plate is fitted as standard on all tank containers.

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3.0 CONTAINER OPERATING INSTRUCTIONS

3.1 LOADING THROUGH MANHOLE

- 3.1.1 Connect the earth wire to the terminal
- 3.1.2 Close all bottom valves.
- 3.1.3 Open manhole and insert hose into tank.
- 3.1.4 Secure hose to stop possible whiplash.
- 3.1.5 Fill tank to the required level.
- 3.1.6 Drain hose and remove from tank.
- 3.1.7 Close manlid and tighten down.  
Remove earth connection.

3.2 LOADING THROUGH BOTTOM DISCHARGE

- 3.2.1 Connect the earth wire to the terminal.
- 3.2.2 Open the manhole or the air inlet.
- 3.2.3 Remove the bottom discharge end cap, connect hose ensuring connection is correct and tight. Open valves.
- 3.2.4 Fill tank to the required level.
- 3.2.5 Close footvalve.
- 3.2.6 Drain hose.
- 3.2.7 Close external valve.
- 3.2.8 Disconnect hose and replace end cap.
- 3.2.9 Close manlid or air inlet flange and tighten down.
- 3.2.10 Remove earth connection



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3.3 UNLOADING - PRESSURE DISCHARGE THROUGH BOTTOM DISCHARGE

- 3.3.1 Connect the earth wire to the terminal.
- 3.3.2 Remove bottom discharge end cap connect hose ensuring connection is correct and tight.
- 3.3.3 Open footvalve and external valve.
- 3.3.4 Connect air line and open air inlet valve.
- 3.3.5 Apply pressure until discharge is completed.
- 3.3.6 When discharge is complete, and the hose line is empty, close air inlet valve, disconnect air line and replace flange / cap.
- 3.3.7 Close footvalve.
- 3.3.8 Drain hose.
- 3.3.9 Close external valve and replace bottom discharge end cap.
- 3.3.10 Remove earth connection.

3.4 LOADING THROUGH TOP DISCHARGE

- 3.4.1 Connect the earth wire to the terminal.
- 3.4.2 Remove top discharge blind flange, connect hose ensuring connection is correct and tight.
- 3.4.3 Close footvalve.
- 3.4.4 Remove air inlet cap. Connect vapour return line to air inlet and open valve to vent tank. to vent to atmosphere.
- 3.4.5 Fill tank to required level.
- 3.4.6 Drain hose, close external valve and remove hose from tank. Replace top discharge blind flange.
- 3.4.7 Close air inlet valve, disconnect vapour return line and replace cap.
- 3.4.8 Remove earth connection.

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3.5 UNLOADING - PUMPED DISCHARGE WITH DIP TUBE FITTED

- 3.5.1 Connect the earth wire to the terminal.
- 3.5.2 Remove top discharge blind flange, connect hose ensuring connection is correct and tight.
- 3.5.3 Open manlid or remove air inlet cap and open air inlet connection to vent tank.
- 3.5.4 Open external valve and commence discharge.
- 3.5.5 When discharge is complete, drain hose, close top external valve and remove hose from tank. Replace top discharge blind flange.
- 3.5.6 Close manlid and tighten down or replace air inlet cap and close air inlet connection.
- 3.5.7 Remove earth connection.

3.6 UNLOADING - PRESSURE DISCHARGE WITH DIP TUBE FITTED

- 3.6.1 Connect the earth wire to the terminal.
- 3.6.2 Remove top discharge blind flange, connect hose ensuring connection is correct and tight.
- 3.6.3 Connect air supply to airline valve.
- 3.6.4 Open top discharge valve.
- 3.6.5 Open airline valve.
- 3.6.6 Apply pressure until discharge is completed. When discharge is complete and the hose line is empty, close air inlet valve, disconnect airline and replace cap.
- 3.6.7 Drain hose, close top external valve and remove hose from tank. Replace top discharge blind flange.
- 3.6.8 Remove earth connection.

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3.7 STEAM HEATING

- 3.7.1 Connect the steam supply hose to the steam inlet connection.
- 3.7.2 Connect hose to the steam outlet connection and connect to a suitable disposal point either to drain or return condensate to the system. A steam trap may be fitted to the outlet pipe to allow the latent heat to be fully utilised.
- 3.7.3 Open steam supply slowly.
- 3.7.4 Do not exceed stated operating pressure.

3.8 LIFTING

- 3.8.1 Lifting of the tank container may only be performed by attachment of lifting equipment at the corner castings. No other methods may be employed as this will result in damage to the frame or tank.

**SECTION 4.0**

**DRAWINGS**

4.1

**MAIN DRAWINGS**

**G A**

**TANK**

**FRAME**









4.2

**TOP DISCHARGE**

**G A**

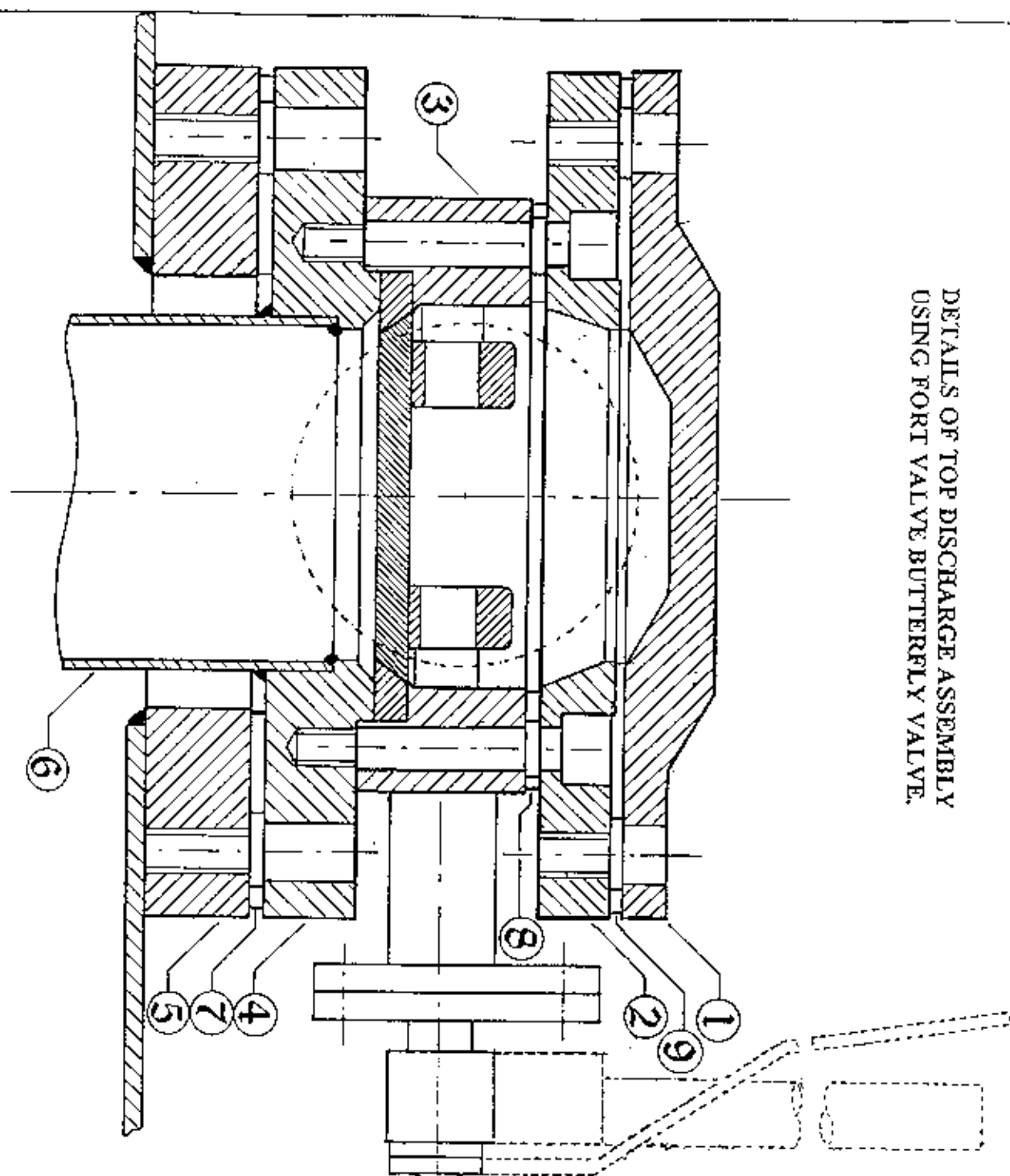
**ADAPTOR FLANGE**

**SHAPED BLANK**

**GASKETS**

**FORT VALE ADAPTOR PIECE**

DETAILS OF TOP DISCHARGE ASSEMBLY  
USING FORT VALVE BUTTERFLY VALVE.

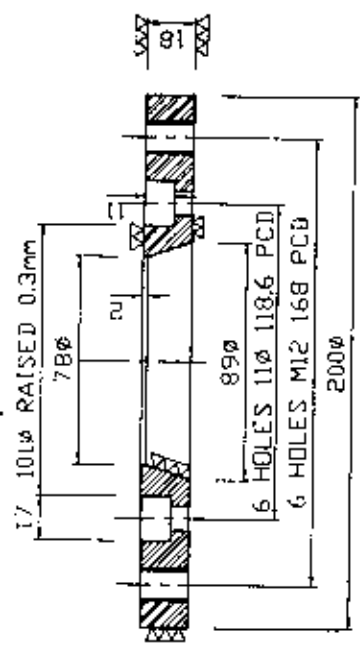


ARTICLE NUMBER	DRG PART NUMBER	DESCRIPTION
37600 112	1	Shaped blank flange 203 O/D x 86 L/D x 10 (316)
37600 110	2	Adaptor flange 200 O/D x 89 L/D x 18 (316)
37600 200	3	Butterfly component of bottom discharge composite valve
37600 111	4	Adaptor flange with stub 200 O/D x 78 L/D x 21 (316)
37600 010	5	Top discharge block flange 200 O/D x 102 L/D x 25 (316)
37600 100	6	Dip tube 85 O/D x 2,0 wall (316)
37600 035	7	Gasket PTFE 200O/D x 102 L/D x 1,5
37600 037	8	Gasket PTFE 107 O/D x 89 L/D x 1,5
37600 036	9	Gasket PTFE 200O/D x 78 L/D x 1,5
37600 070	10	Cap screws 6 - M10 x 60 (316)
37600 080	10	Hex set screws/washer 6 - M12 x 30 (316)
37600 090	10	Stud/Washer/Nut 6 - M12 x 60 (316)

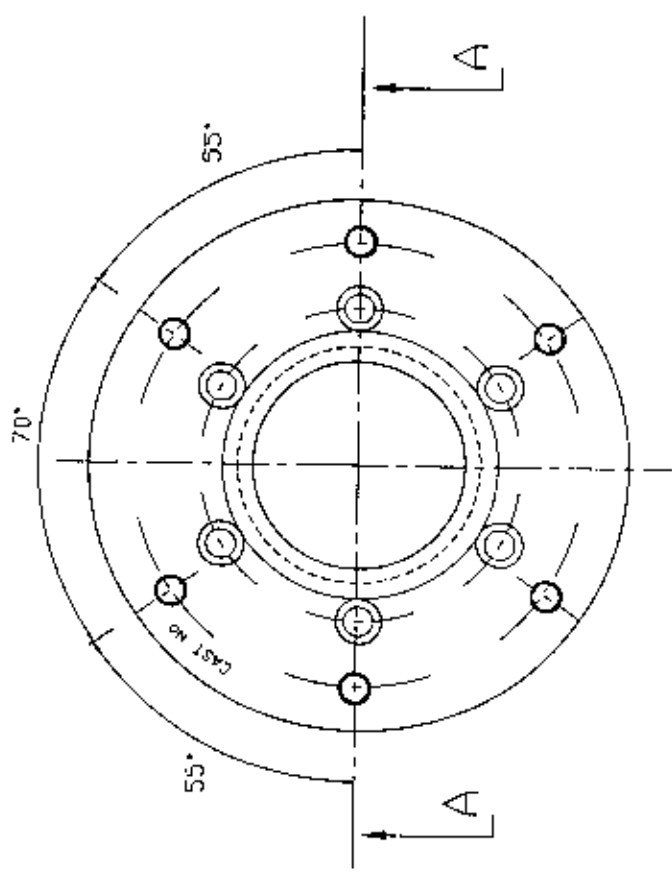
**PARTS LIST**

ITEM NO.	DESCRIPTION	MATERIAL
1	ADAPTOR FLANGE FOR DISCHARGE ASSEMBLY	SA. 240-1164

NOTES: 1 HOLES ON 118.6 PCD ARE EQUALLY SPACED.  
2 HOLES ON 168 PCD ARE AS SHOWN.



SECTION A-A



VIEW X

**FLANGE TOLERANCES TABLE**

OUTSIDE DIAMETER	+1mm -1mm				
INSIDE DIAMETER	+0.5mm -0.5mm				
THICKNESS	-0.5mm -0.5mm				
PITCH CIRCLE DIAMETER	+0.25mm -0.25mm				
BOLT PITCH	+0.25mm -0.25mm				
CLEARANCE HOLE	-0mm +0.5mm				
1.6 $\mu$ m Ra					
12.5 $\mu$ m Ra (GRAPHITIC FINISH)					
NUMBER 1 PLATE FINISH ACCEPTABLE					
REV.	DATE	NAME	REMARKS	CHECK	APP.
1	JUNE 97	E.K.N.			
2	JULY 97	K.C.			
3	JULY 97	K.C.			
AutoCAD ADAPTORIP					
SCALE	1:2	REV	0		



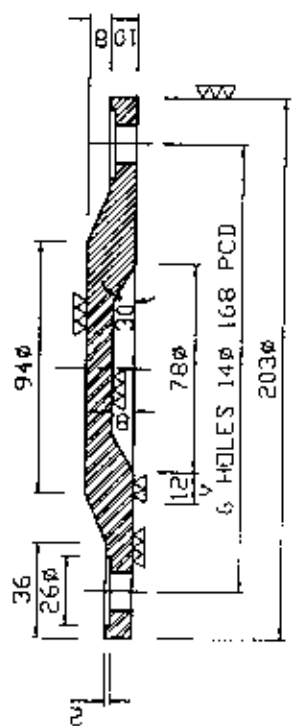
ARTICLE No	376 000	SIZE	A3
TITLE ADAPTOR FLANGE FOR TOP DISCHARGE ASSEMBLY			

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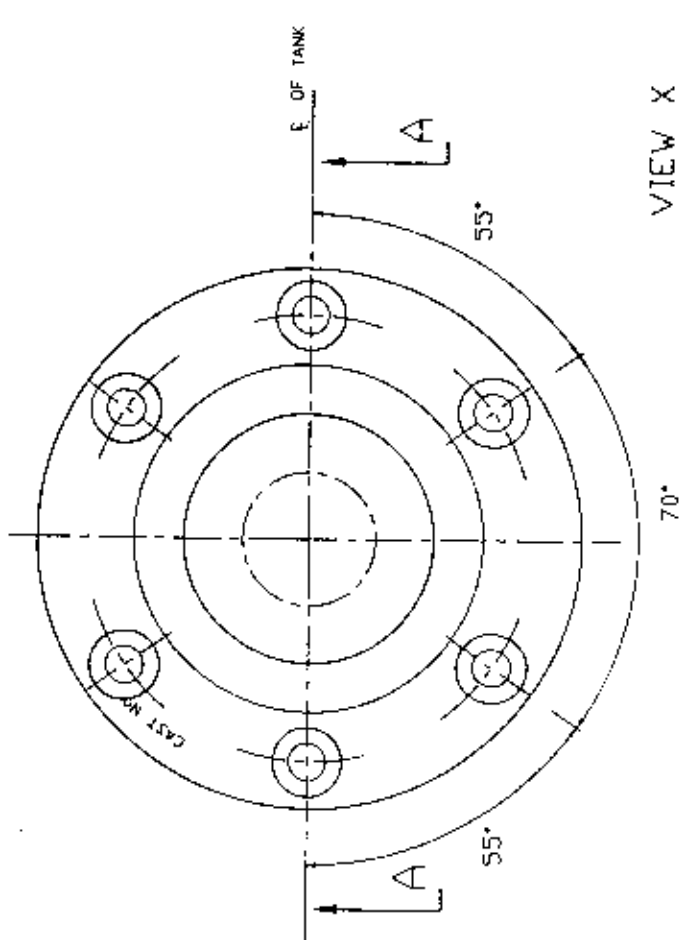
**PARTS LIST**

ITEM QTY	DESCRIPTION	MATERIAL
1	SHAPED BLANK FLANGE FOR TOP DISCHARGE ASS.	SA. 240-316

NOTE: THE GASKET SEALING FACE IS 12mm WIDE AND HAS A FINISH OF 12.5µmRa



SECTION A-A



VIEW X

**FLANGE TOLERANCES TABLE**

OUTSIDE DIAMETER	+1.0mm	-1.0mm
INSIDE DIAMETER	+1.0mm	-1.0mm
THICKNESS	-0.5mm	
PITCH CIRCLE DIAMETER	+0.5mm	-0.5mm
BOLT PITCH	+0.5mm	-0.5mm
CLEARANCE HOLE	-0mm	+0.5mm
1/6 Lm Ra		
12.5 Lm Ra GRANOPHONE FINISH		
NUMBER 1 PLATE FINISH ACCEPTABLE		

REV.	DATE	NAME	REMARKS	CHK.	APP.
1		BRUNJANE 97/EKN			APP.
2		CHK: JULY 97/KC			
3		APP: JULY 97/KC			
		AUTOCAD SHAPETOP			
		SCALE 1:2			
		REV. 0			

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TITLE	ARTICLE No	SIZE
SHAPED BLANK FLANGE FOR TOP DISCHARGE ASSEMBLY	376 00 112	A3

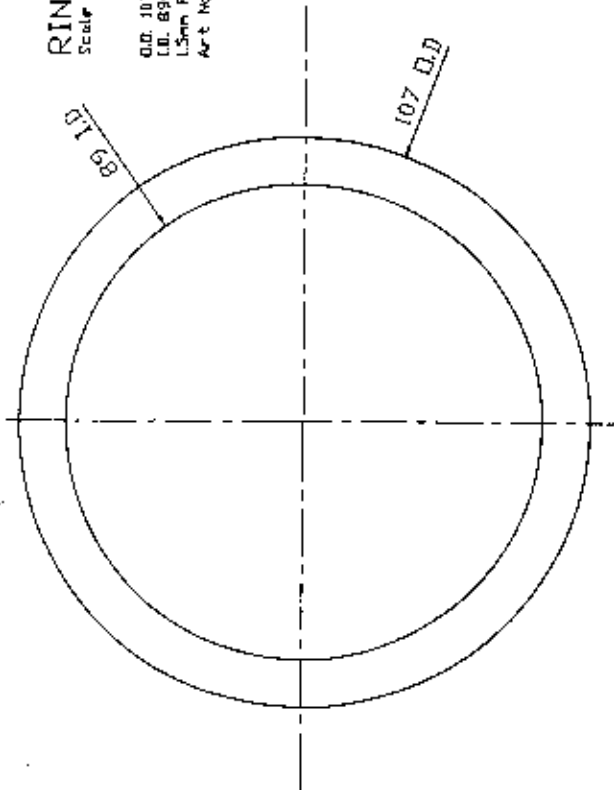
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**PARTS LIST**

ITEM QTY.	DESCRIPTION	MATERIAL
1	1.5mm PTFE GASKET I.D. 78# O.D. 200#	PTFE
2	1.5mm PTFE GASKET I.D. 102# O.D. 200#	PTFE
3	1.5mm PTFE GASKET I.D. 69# O.D. 107#	PTFE

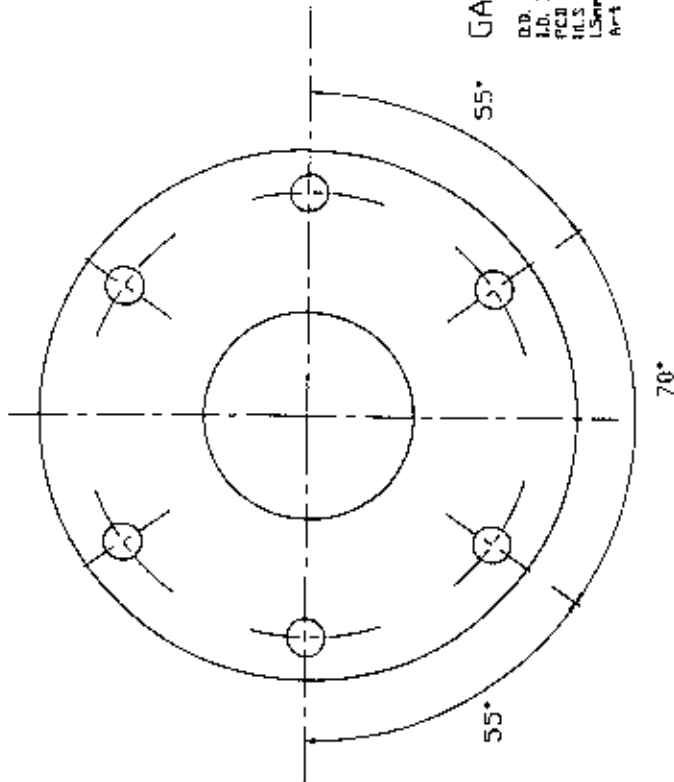
**RING GASKET**  
Scale 1:1

O.D. 107#  
I.D. 69#  
1.5mm PTFE GASKET  
Art No 376 000 37



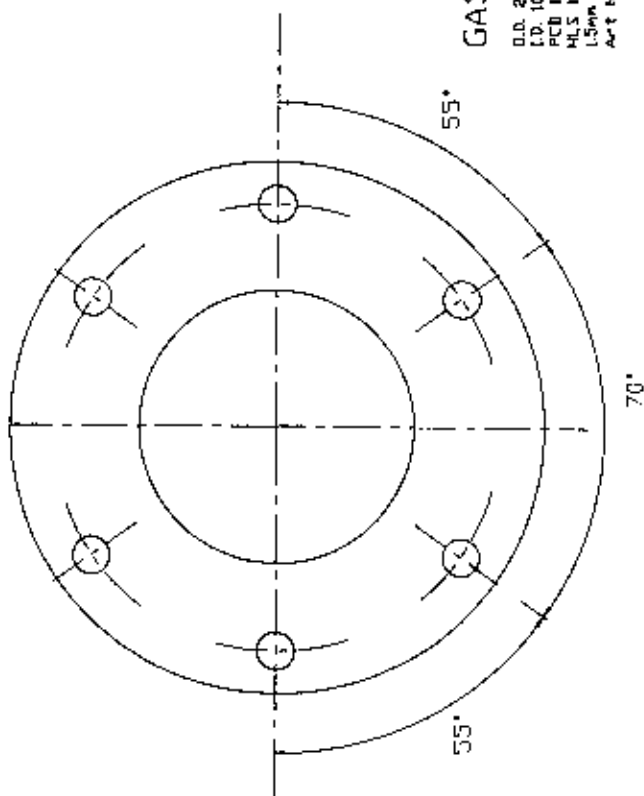
**GASKET 1**

O.D. 200#  
I.D. 78#  
PCB 16B  
HLS 14#  
1.5mm PTFE GASKET  
Art No 376 000 36



**GASKET 2**

O.D. 200#  
I.D. 102#  
PCB 16B  
HLS 14#  
1.5mm PTFE GASKET  
Art No 376 000 35



**GASKET TOLERANCES TABLE**

OUTSIDE DIAMETER	+1mm	-1mm
INSIDE DIAMETER	+1mm	-1mm
THICKNESS	-0.5mm	
PITCH CIRCLE DIAMETER	+0.5mm	-0.5mm
BOLT RUGH	+0.5mm	-0.5mm
CLEARANCE HOLE	-0mm	+0.5mm

REV.	DATE	NAME	REMARKS	CHECK	APP.
1					
2					



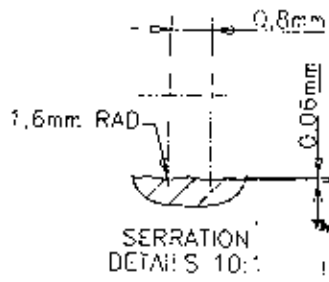
**GEA Krugersdorp Engineering (Pty) Ltd.**  
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ARTICLE NO	SIZE	TITLE
376 000 35	A3	SOLID PTFE GASKETS FOR TOP DISCHARGE ASSEMBLY

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DRAWLIB SECTIONS

DOC. NO. **368/5140**

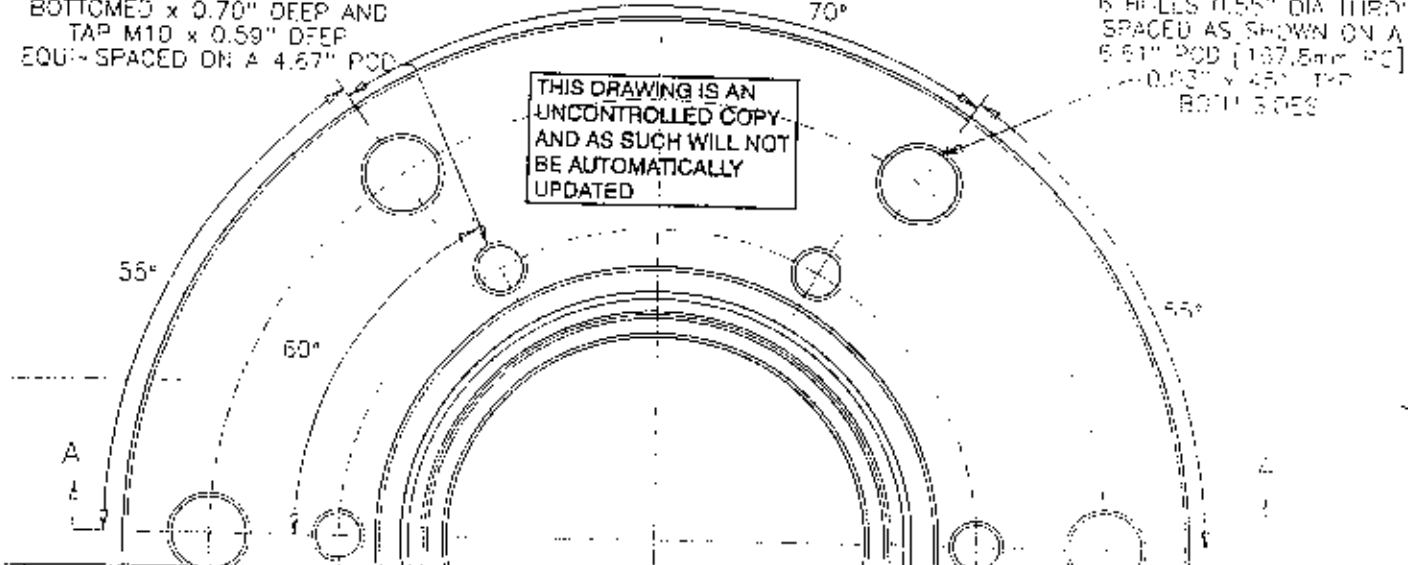


0.06" MACHINE ALLOWANCE  
0.03" MACHINE ALLOWANCE

368/5145 ADAPTOR FLANGE

368/5146 EXTENSION TUBE

6 HOLES DRILL 8.2mm DIA FLAT BOTTOMED x 0.70" DEEP AND TAP M10 x 0.59" DEEP EQUI-SPACED ON A 4.67" PCD



THIS DRAWING IS AN UNCONTROLLED COPY AND AS SUCH WILL NOT BE AUTOMATICALLY UPDATED

<p>368/5140</p> <p>DATE: 24/01/1997</p> <p>BY: [Signature]</p> <p>CHECKED: [Signature]</p>	<p><b>FORT VALE</b></p> <p>ENGINEERING LTD</p> <p>110000</p> <p>110000</p> <p>110000</p>	<p>ADAPTOR FLANGE M30 - WELD ASSY</p> <p>368/5140</p>
--	--	---

**BLOCK FLANGE & MANWAY**

**MANWAY**

**SAFETY RELIEF VALVE**

**BOTTOM DRAIN FLANGE**

**AIR INLET**

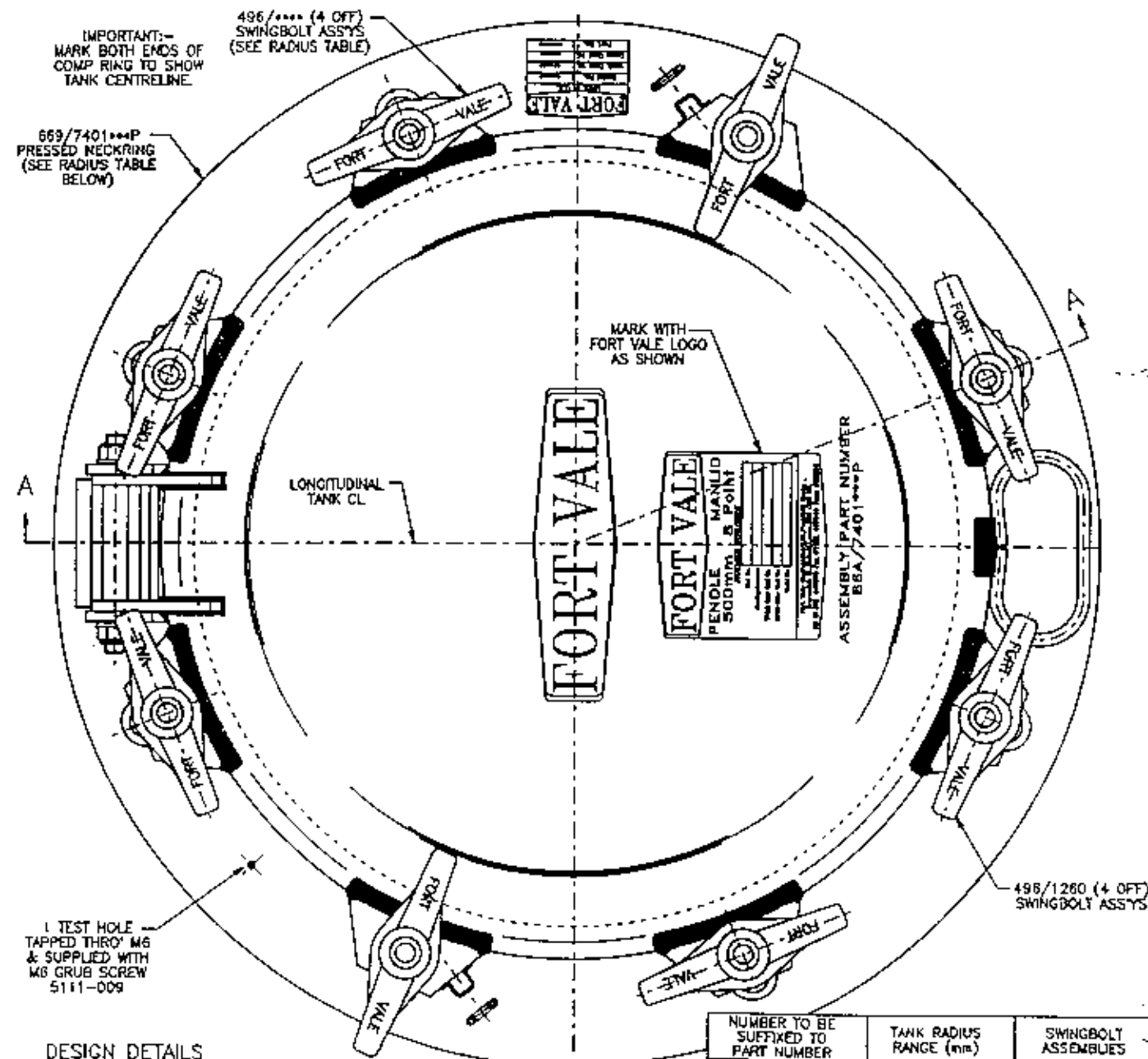
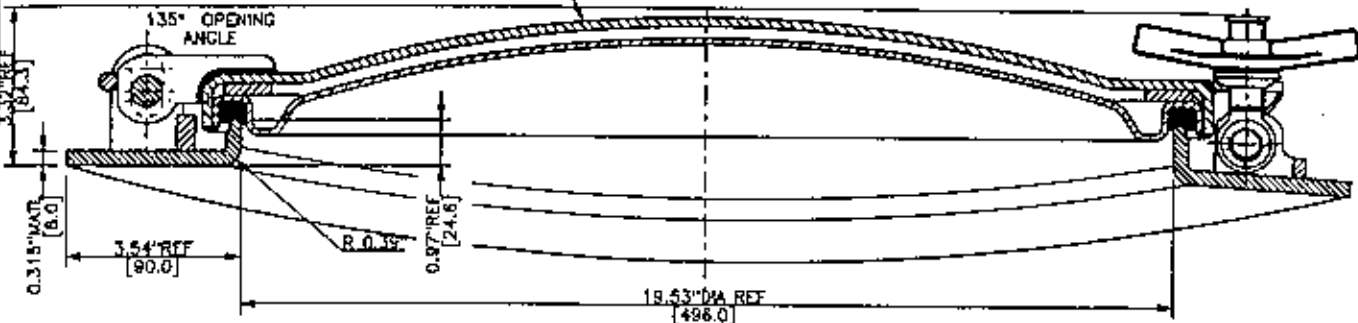
**TOP DISCHARGE**

DRAWLIB SECTIONS

DRG NO **86A/7401\*\*\*P**

736/0000A135  
4 BAR 8 POINT  
PRESSED LID  
ASSEMBLY

SECTION ON AA



DESIGN DETAILS

DESIGN CODE:- ASME VIII DIV 1  
DESIGN PRESSURE (MAWP) :- 4BAR  
DESIGN TEMPERATURE :- 180° C  
SERVICE TEST PRESSURE :- 6BAR

NUMBER TO BE SUFFIXED TO PART NUMBER	TANK RADIUS RANGE (mm)	SWINGBOLT ASSEMBLIES
111P (1110mm)	1080 TO 1145	496/1375
118P (1180mm)	1145 TO 1200	496/1342
122P (1220mm)	1200 TO 1260	496/1342

			316L ST ST
			QHH
			05/08/1998
			NTS
			1

**FORT VALE** ENGLAND USA NETHERLANDS

© FORT VALE DID LTD 1998

REG. PATENTED NUMBER FC 30169

UNLESS OTHERWISE STATED SURFACE FINISH 125 CLA  
CORNER RAD 0.015" CORNER CHAMFER 0.03 x 45°

RECEPTOR **MANLID NECKRING ASSEMBLY**

TYPE 500mm 4BAR 8PT MANLID  
PROF. NECK 8mm COMP. 80 x 8mm

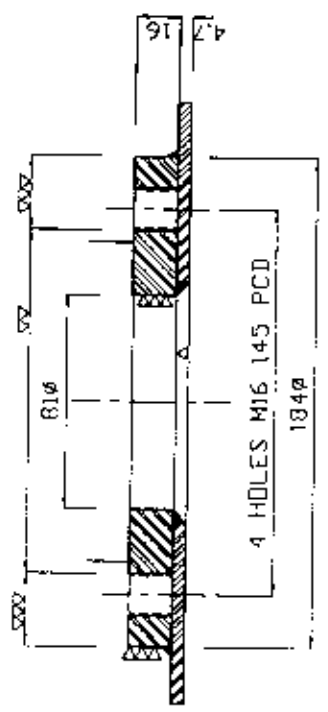
DRG NO **86A/7401\*\*\*P**

1 SWINGBOLT ASSYS ADDED TO RAD TABLE. 1110MM RAD 496/1375 WERE 496/1342

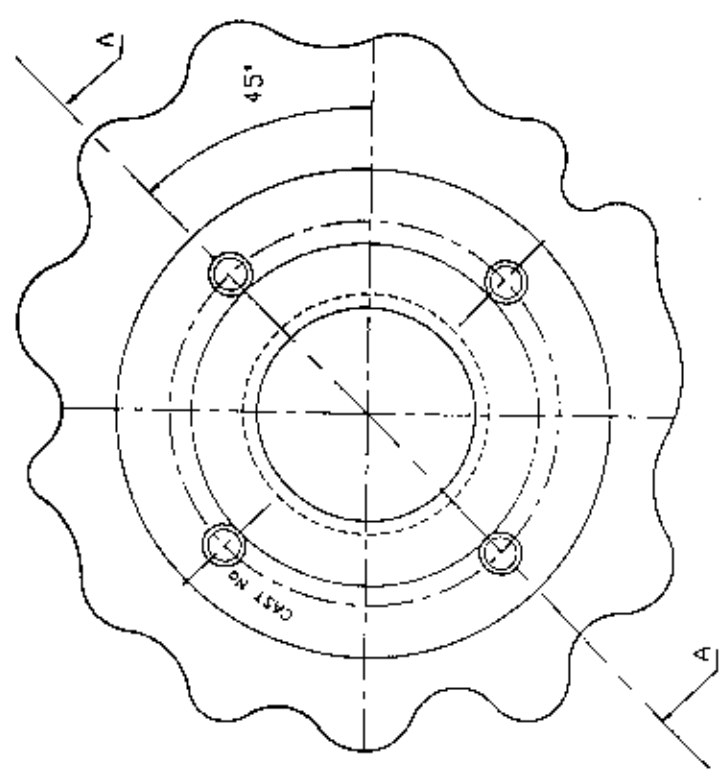


ITEM NO.	DESCRIPTION	MATERIAL
1	SAFETY RELIEF BLOCK FLANGE DN 75	SA 240-316L

X



SECTION A-A



VIEW X

FLANGE TOLERANCES TABLE

OUTSIDE DIAMETER	+1mm -1mm
INSIDE DIAMETER	+1mm -1mm
THICKNESS	-0.2mm
PITCH CIRCLE DIAMETER	+0.2mm -0.2mm
BOLT PITCH	+0.2mm -0.2mm
CLEARANCE HOLE	-0mm +0.2mm
XXX	1.6 um Ra
YY	12.5 um Ra (GRANIPHONIE FINISH)
ZZ	NUMBER 1 PLATE FINISH ACCEPTABLE.
1	REV. DATE NAME REMARKS CHECK APP.
2	DRWN: JUNE 97 E.K.H.
3	CHK: JULY 97 K.C.
	APP: JULY 97 K.C.
	AW: GEAR SAFEBLOCK
	SCALE 1:2 REV 0



GEA Krugersdorf  
Engineering (Pty) Ltd  
77, The Promenade, Durban 4001  
Tel: 031 274 3272  
Fax: 031 274 3273  
E-mail: gsa@gea.co.za

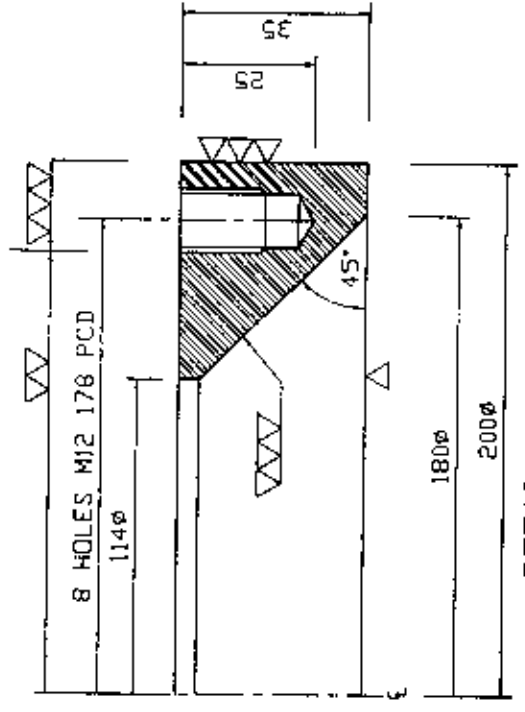
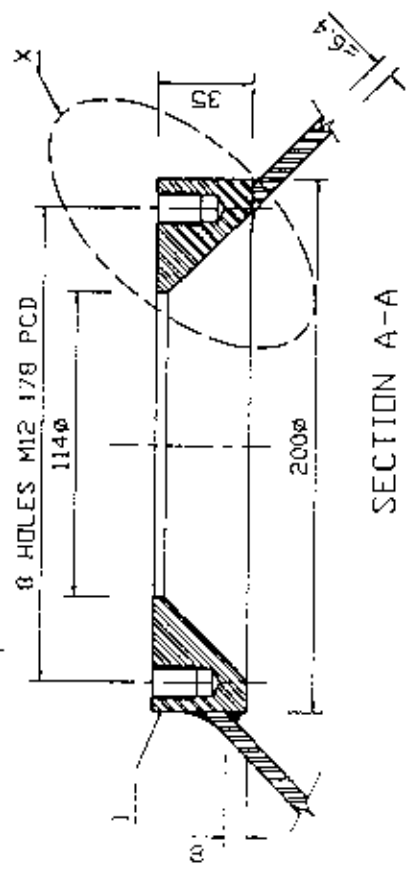
SAFETY RELIEF BLOCK FLANGE DN 75

ARTICLE NO.	SIZE	TITLE
374 000 10	A3	SAFETY RELIEF BLOCK FLANGE DN 75

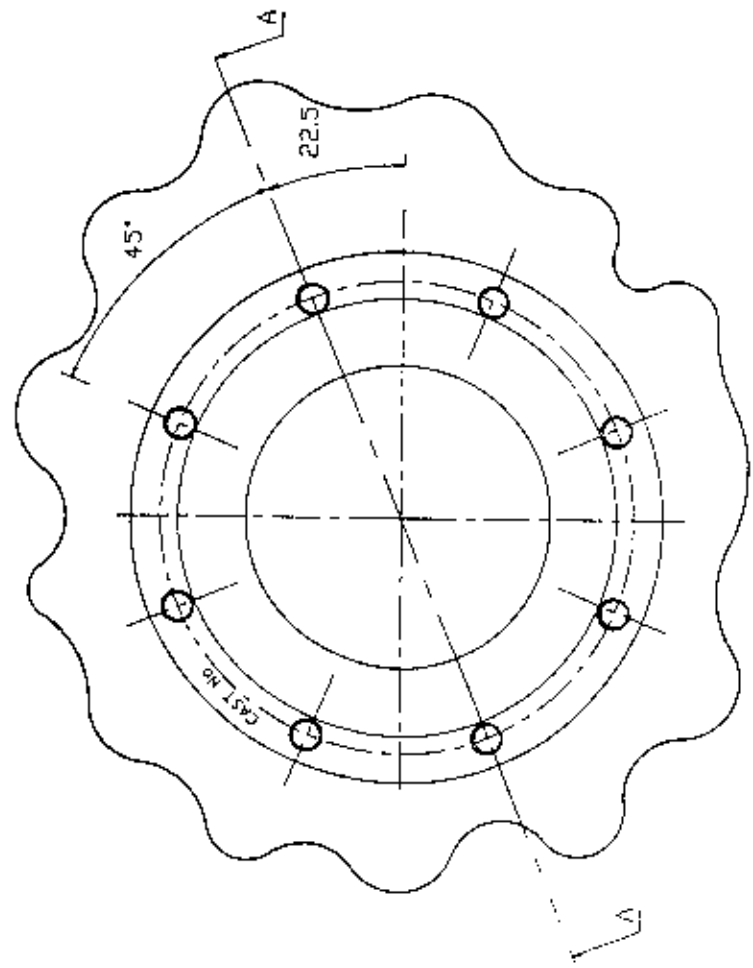
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**PARTS LIST**

ITEM NO.	DESCRIPTION	MATERIAL
1	BOTTOM DRAIN BLOCK FLANGE DN 80	SA. 240-316L



**DETAIL X**  
Scale 1:1



**FLANGE TOLERANCES TABLE**

OUTSIDE DIAMETER	+1mm -1mm				
INSIDE DIAMETER	+1mm -1mm				
THICKNESS	-0.5mm				
FLANGH CIRCLE DIAMETER	+0.5mm -0.5mm				
BOLT PITCH	+0.5mm +0.5mm				
CLEARANCE HOLE	-0mm +0.5mm				
1.6 μm Ra					
12.5 μm Ra	GRAPHOPHONE FINISH				
NUMBER 1 PLATE FINISH ACCEPTABLE					
REV.	DATE	NAME	REMARKS	CHECK	APP.
1	JUNE 97	JKH			
2	JULY 97	KC			
3	JULY 97	KC			



**GEA Krugersdorf Engineering (Pty) Ltd**

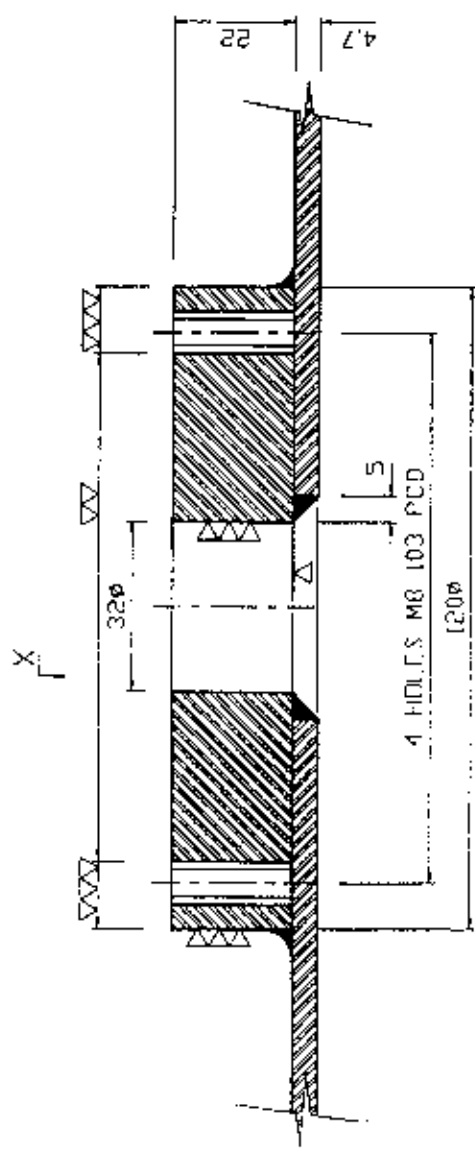
77 Main Street  
P.O. Box 113, Johannesburg 143  
Tel: 011 432-3333 Fax: 011 432-3344

SCALE	REV.	ARTICLE NO.	SIZE	TITLE
1:2	0	377 000 10	A3	BOTTOM DISCHARGE BLOCK FLANGE DN 80

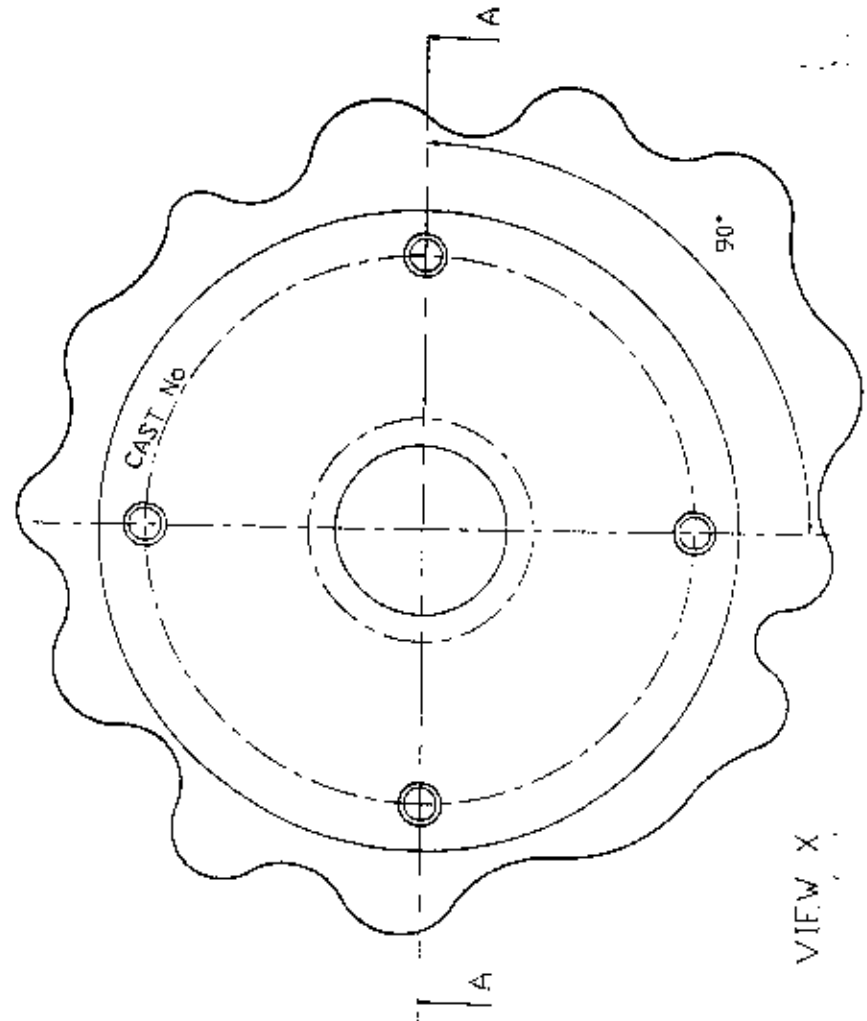
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**PARTS LIST**

ITEM NO.	DESCRIPTION	MATERIAL
1	AIR INLET BLOCK FLANGE DN 50	SA 240-316L



SECTION A-A



VIEW X

**FLANGE TOLERANCES TABLE**

OUTSIDE DIAMETER	+0.10mm -0.10mm
INSIDE DIAMETER	+0.10mm -0.10mm
THICKNESS	+0.10mm
PITCH CIRCULAR DIAMETER	+0.10mm -0.10mm
BOLT PITCH	+0.10mm -0.10mm
CLEARANCE HOLE	+0.10mm -0.10mm
1.6 um Ra	
12.5 um Ra (GRANULAR FINISH)	
NUMBER 1 PLATE FINISH ACCEPTABLE	

REV.	DATE	NAME	REMARKS	CHECK	APP.
1	JUNE 97	E.K.N			
2	JULY 97	K.C.			
3	JULY 97	K.C.			

**GEA**  
 GEA Krugersdorp  
 Engineering (Pty) Ltd  
 77 Main Street, Krugersdorp  
 1713  
 Tel: 011 853 5100  
 Fax: 011 853 5101  
 Email: geadesign@gea.co.za

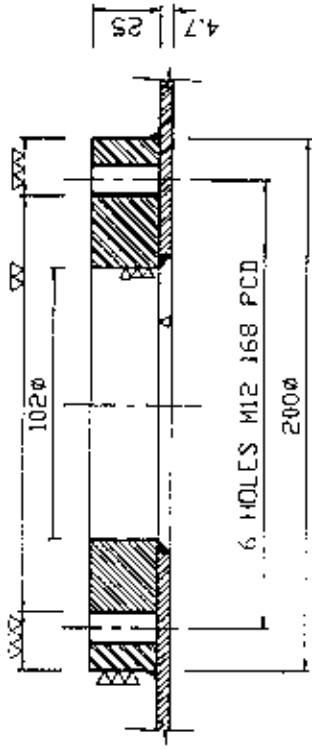
TITLE: AIR INLET BLOCK FLANGE DN 50

ARTICLE No: 375 000 10  
 SIZE: A3

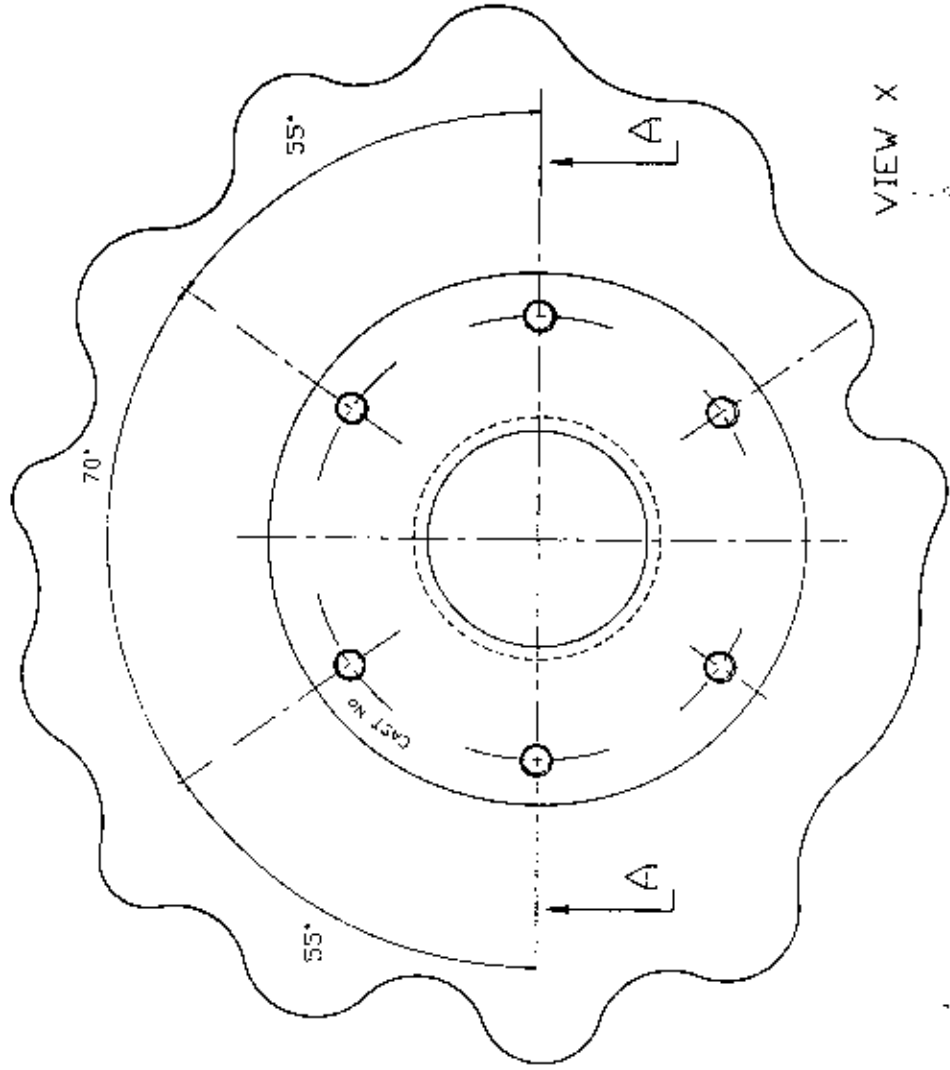
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**PARTS LIST**

ITEM NO.	DESCRIPTION	MATERIAL
1	TOP DISCHARGE BLOCK FLANGE DN 100/80	SA 240-316L



SECTION A-A



VIEW X

**FLANGE TOLERANCES TABLE**

OUTSIDE DIAMETER	+1.0mm -1.0mm
INSIDE DIAMETER	+1.0mm -1.0mm
THICKNESS	+0.5mm
PICTH CIRCLE DIAMETER	+0.5mm -0.5mm
BOLT FLUSH	+0.5mm -0.5mm
CLEARANCE HOLE	-0.0mm +0.5mm
1.6 um Ra	
12.5 um Ra (GRAPHOPHONE FINISH)	
NUMBER 1 PLATE FINISH ACCEPTABLE.	

REV.	DATE	NAME	REMARKS	CHECK	APP.
1					
2					
3					



**GEA Krugersdorp Engineering (Pty) Ltd**  
 77th Avenue  
 P.O. Box 113, Krugersdorp  
 1413, South Africa  
 Tel: 011 461-3771  
 Fax: 011 461-3772  
 E-mail: gkrugers@gea.co.za

ARTICLE NO	SIZE	TITLE
376 000 10	A3	TOP DISCHARGE BLOCK FLANGE DN 100/80

The project number of this drawing is 37600010. All dimensions are in millimeters unless otherwise specified. The drawing is the property of GEA Krugersdorp Engineering (Pty) Ltd. It is to be used only for the project for which it was prepared. It is not to be used for any other project without the written consent of GEA Krugersdorp Engineering (Pty) Ltd. The drawing is to be used in accordance with the specifications of the project for which it was prepared. It is not to be used for any other project without the written consent of GEA Krugersdorp Engineering (Pty) Ltd.

4.4

**FITTINGS AND BLANKS**

**SAFETY VALVE BLANK**

**TOP DISCHARGE BLANK**

**FOOT VALVE**

**AIR LINE BALL VALVE**

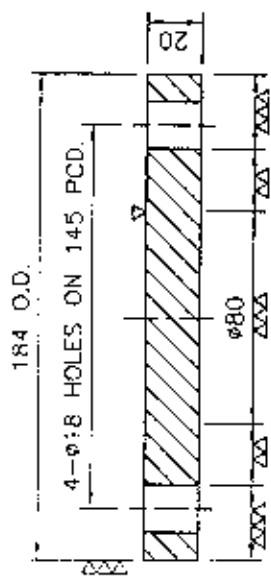
**SAFETY VALVE**

**CALIBRATION PLATE**

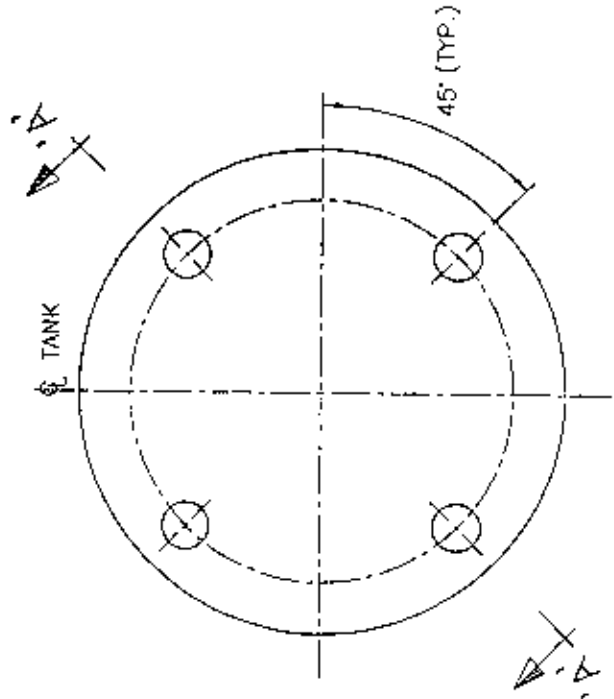
4.5

# PARTS LIST

ITEM QTY.	DESCRIPTION	MATERIAL
1	SAFETY RELIEF BLIND FLANGE DN 75	SA.240-316L



SECTION 'A-A'



FLANGE TOLERANCE TABLE	
OUTSIDE DIAMETER	±1 mm
INSIDE DIAMETER	±1 mm
THICKNESS	-0.5 mm
PITCH CIRCLE DIAMETER	±0.5 mm
BOLT PITCH	±0.5 mm
CLEARANCE HOLE	+0.5 mm
✓✓✓	-0.3 mm
✓✓	1,6 μm Ra
✓	12,5 μm Ra (GRAMOPHONE FINISH)
✓	NUMBER 1 PLATE FINISH ACCEPTABLE.

REV.	DATE	NAME	REMARKS	DATE	CHECK	APPD.
1						
2						
3						

**GEA**

**GEA Krugersdorp Engineering (Pty)Ltd.**

(Reg.No. 90/10688/07)  
 5 Peka Street, Grahamstown  
 P.O.Box 4172, Langa, Cape Town  
 South Africa  
 Tel.(011) 762-5251 Telex(011) 762-1840

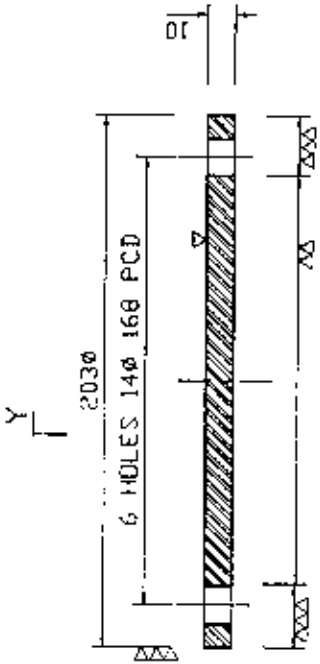
Thermal and Energy Technology Division

ARTICLE No.	SIZE	TITLE
374 000 27 A3		SAFETY RELIEF BLIND FLANGE DN 75

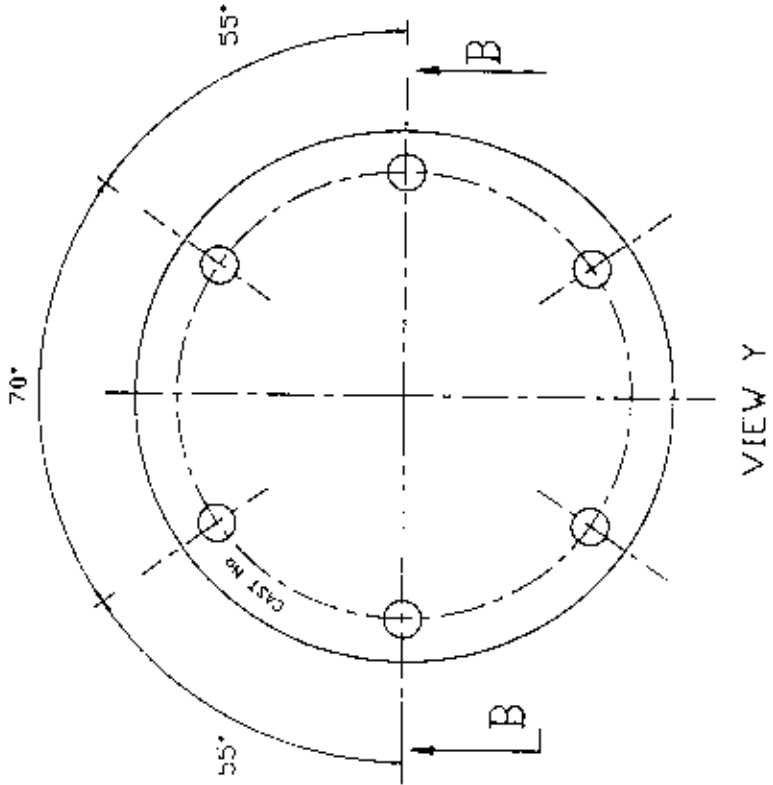
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PARTS LIST

ITEM NO.	DESCRIPTION	MATERIAL
1	TOP DISCHARGE BLIND FLANGE DN 100	SA 240-316L



SECTION B-B



FLANGE TOLERANCES TABLE

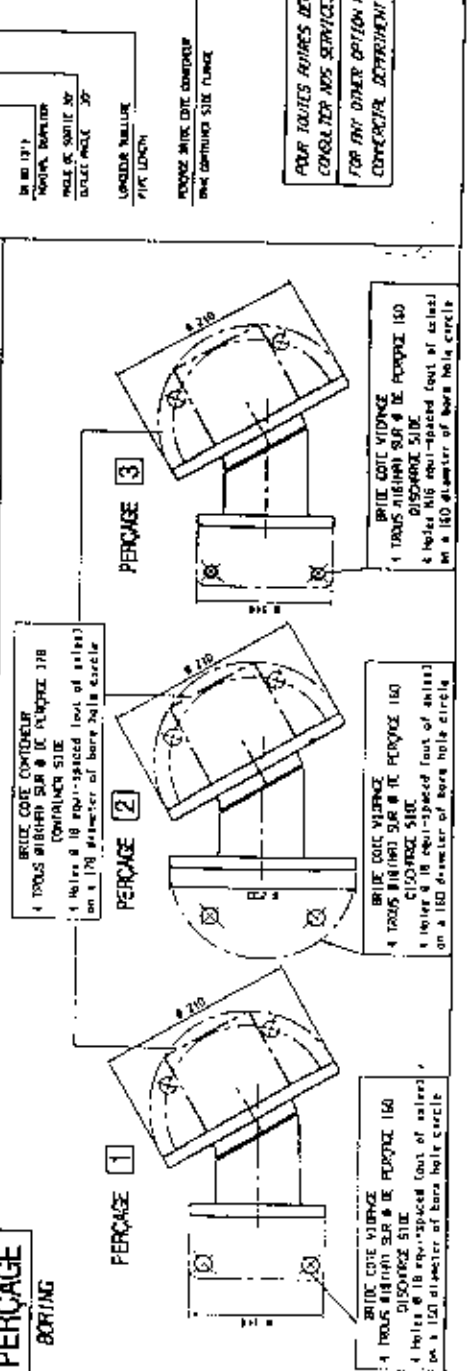
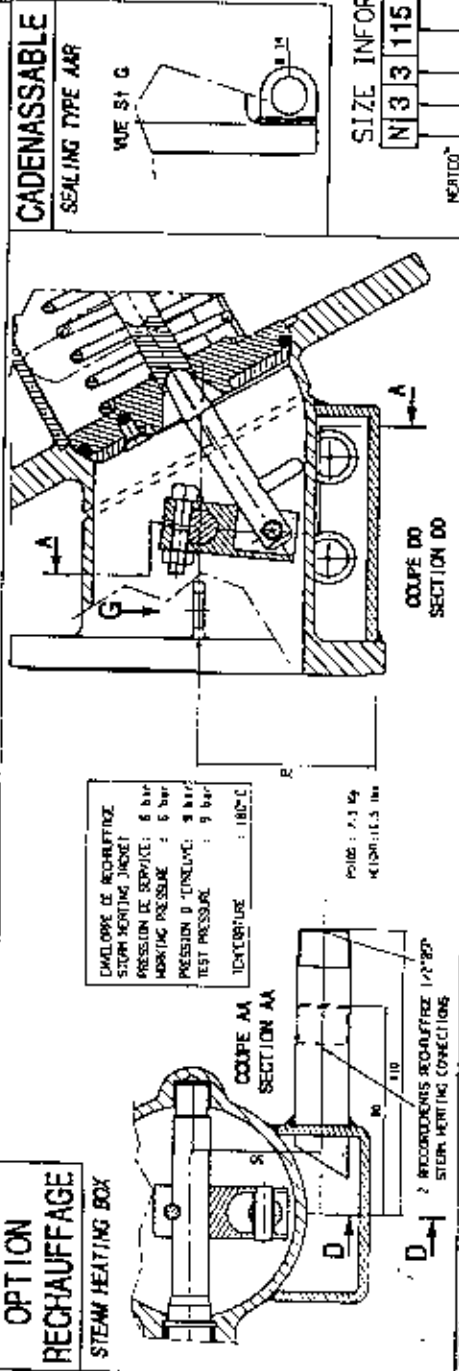
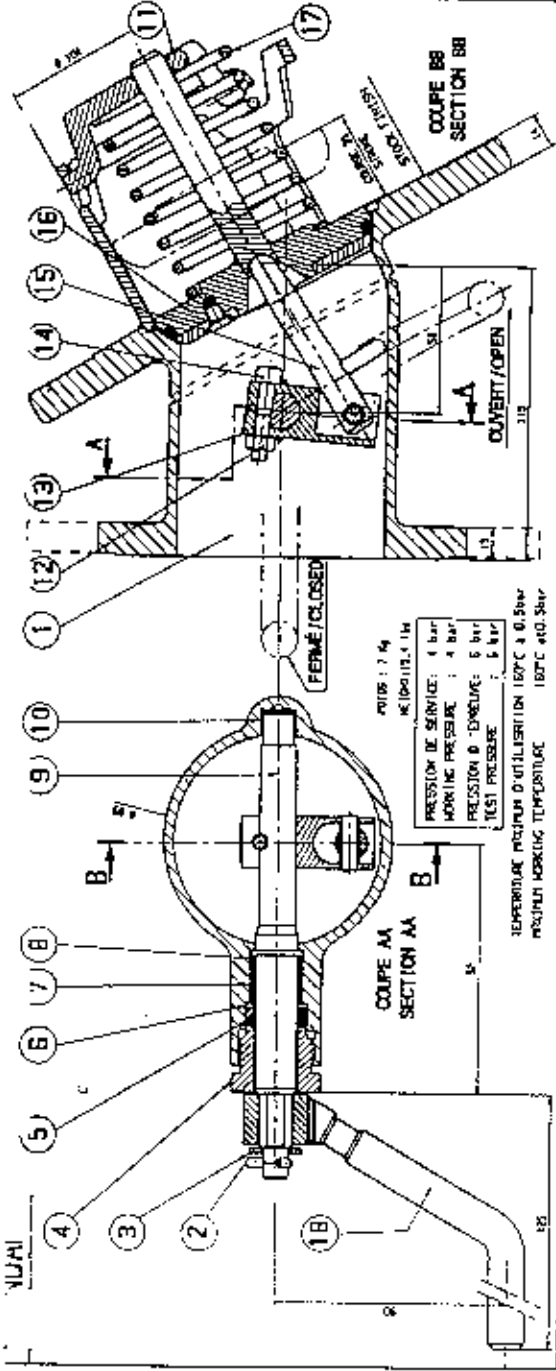
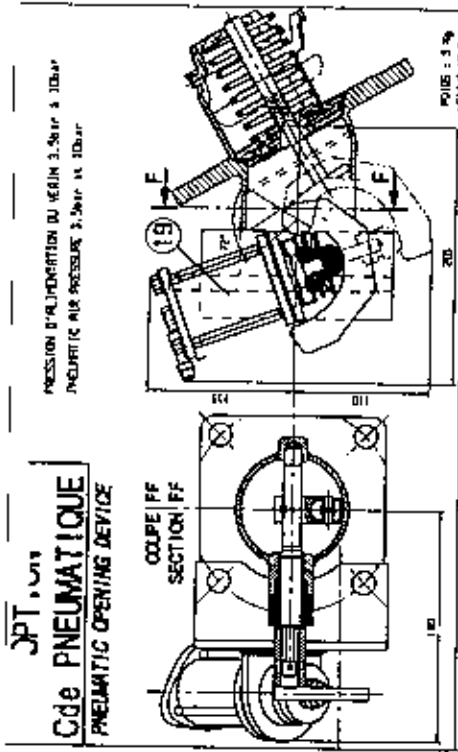
OUTSIDE DIAMETER	+1mm -1mm				
INSIDE DIAMETER	+1mm -1mm				
THICKNESS	-0.5mm				
PITCH-CIRCLE DIAMETER	+0.5mm -0.5mm				
BOLT PITCH	+0.5mm -0.5mm				
CLEARANCE HOLE	-0mm +0.5mm				
1.6 um Ra					
12.5 um Ra (GRAPHITONE FINISH)					
NUMBER 1 PLATE FINISH ACCEPTABLE					
REV.	DATE	NAME	REMARKS	CHECK	APP.
1	JUNE 97	E.K.N.			
2	JULY 97	K.C.			
3	JULY 97	K.C.			
AUTOCAD TOP-BLIND					
SCALE	1:2	REV.	0		
ARTICLE NO.	376 000 20	SIZE	A3		
TITLE				TOP DISCHARGE BLIND FLANGE DN 100	



GEA Krugersdorp  
Engineering (Pty) Ltd

1000  
1.4.2008  
1000 000 000 000

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REF.	QUANTITE	DESIGNATION	PROFIL	REMARQUES
1	1	BOITIER	ALU	
2	1	BOITIER	ALU	
3	1	BOITIER	ALU	
4	1	BOITIER	ALU	
5	1	BOITIER	ALU	
6	1	BOITIER	ALU	
7	1	BOITIER	ALU	
8	1	BOITIER	ALU	
9	1	BOITIER	ALU	
10	1	BOITIER	ALU	
11	1	BOITIER	ALU	
12	1	BOITIER	ALU	
13	1	BOITIER	ALU	
14	1	BOITIER	ALU	
15	1	BOITIER	ALU	
16	1	BOITIER	ALU	
17	1	BOITIER	ALU	
18	1	BOITIER	ALU	
19	1	BOITIER	ALU	

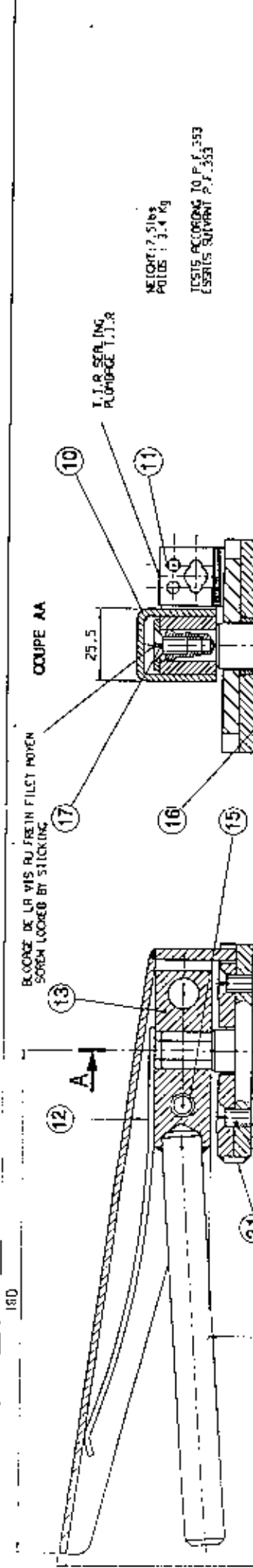
PRODUCTION EN REDUCTION  
 LE PAYS TERRAIN COUPE DE L'ÉQUIPE

POUR TOUS LES SERVICES  
 CONSULTER LE DÉPARTEMENT  
 COMMERCIAL

POUR TOUS LES SERVICES  
 CONSULTER LE DÉPARTEMENT  
 COMMERCIAL

150000





REP.	REFERENCE	DESIGNATION	QTE	REVISIONS
1	12 85 57 10 00	BOYU	1	22 CND 18.32H
2	12 85 57 20 00	S.C. OBTURATEUR	1	25 CND 17.12
3	12 85 57 00 00	JOINT D'OBTURATEUR	1	25 CND 17.12
4	12 85 57 00 00	BRIDE DE SERBAGE	1	22 CND 17.12
5	12 85 57 00 00	SPINELLE	1	PS1
6	12 85 30 00 00	PLATEAU	2	PIRE charge verre 23 %
7	12 85 57 00 00	PLATEAU	1	PIRE charge verre 23 %
8	12 85 57 00 05	JOINT	1	22 CND 18.08
9	12 85 57 00 06	ROULEAU	1	22 CND 17.12
10	12 85 57 30 00	MANIVELLE	1	26 CND 18.09
11	12 85 57 40 00	RESSORT	1	22 CND 17.12
12	12 85 57 00 07	RESSORT PLAT	1	22 CND 17.12
13	12 85 57 50 00	SUPPORT	1	26 CND 18.09
14	20 10 15 00 12	JOINT TORIQUE Ø 15.5x2.52	1	25 CND 18.10
15	20 13 21 37 09	CONVILLE ELASTIQUE Ø8-10	1	25 CND 18.10
16	20 10 01 00 12	JOINT TORIQUE Ø12	1	25 CND 18.10
17	20 13 10 37 10	VIS T.90 M6-10	1	25 CND 18.10
18	20 13 11 37 10	COUSSIN	1	25 CND 18.10
19	20 13 49 37 02	RONDELLE CONTACT Ø6	1	25 CND 18.10
20	20 13 10 37 13	VIS T.90 M6-20	2	25 CND 18.10
21	12 85 57 00 11	PROTECTOR	1	25 CND 18.10
22	12 85 57 00 02	PROTECTOR	1	25 CND 18.10
23	12 85 57 00 03	PROTECTOR	1	25 CND 18.10

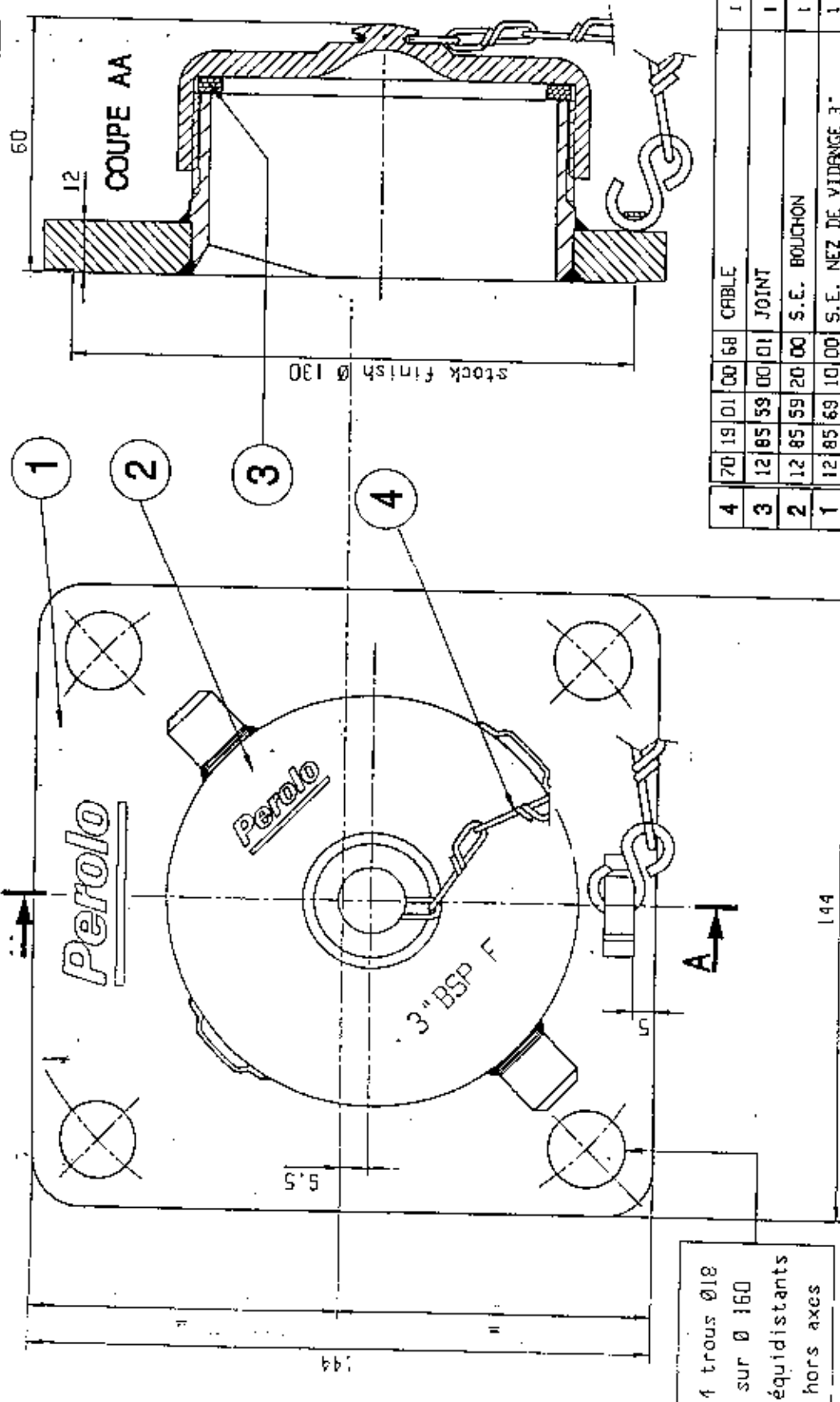
PEROLO

PRESS-TURN  
APPLUYER-TOURNER

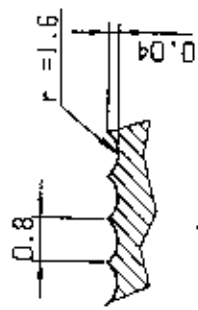
POIGNÉE POSITION OUVERTE  
Handle in open position

PEROLO

1285570000



4 trous Ø18  
sur Ø 160  
équidistants  
hors axes



STOCK FINISH

Rainure continue en spirale  
Ra compris entre 6.3 et 12.5

REP	REFERENCE	DESIGNATION	NBRE	MATIERE	OBSERVATIONS
4	70 19 01 00 68	CABLE	1	INOX	lg= 250 mm
3	12 85 59 00 01	JOINT	1	P.T.F.E.	
2	12 85 59 20 00	S.E. BOUCHON	1	Z2 CND	17-12
1	12 85 69 10 00	S.E. NEZ DE VIDANGE 3"	1	Z2 CND	17-12

REF	REFERENCE	DESIGNATION	NBRE	MATIERE	OBSERVATIONS
A	NI 601.12.119/92	A.P. 15/05/92			DOSSIER N° : A 90 048
B	NI 601.12.069/92	JDR 11/02/93			Tolérances Générales : ± 0.2
C	NI 344.12.060/97	JDR 28/01/97			FORMAT : F3

**ENSEMBLE NEZ DE VIDANGE / BOUCHON**  
**DN 80 - EXCENTRE - A BRIDE CARREE**  
**3" BSP**

**Perolo** 148 AVENUE PAUL VIALANT-COUTURIER  
R.P. 50 - 34251 CENTULLY-CEDX-FRANCE  
TEL 03 40 11 43 41-TELEX 5378-FRAC 33 001 45 12 41 61

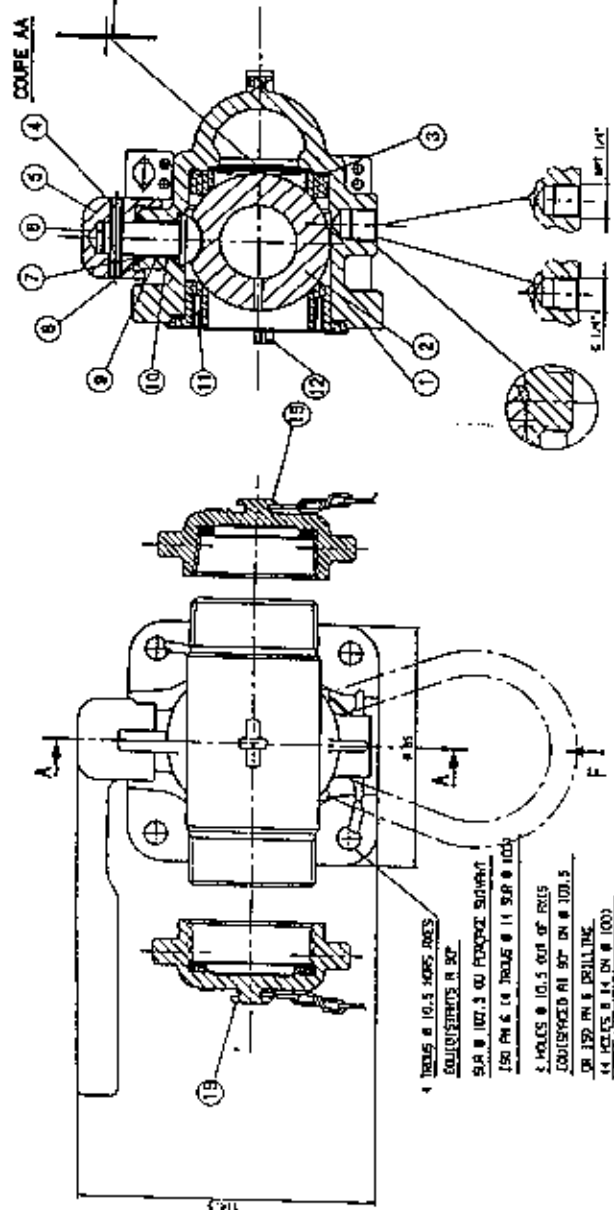
1285690000 R C

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15 JAN. 1956

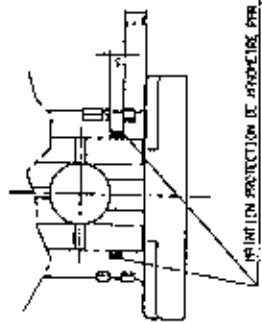
- COMPOSÉS ET ESSAIS SdA PT 1014  
- PNEU: 2.3 Kg

NOTA: PNEUZE ENTRE LE BLOCH (11) ET LE CORPS DU ROUINET



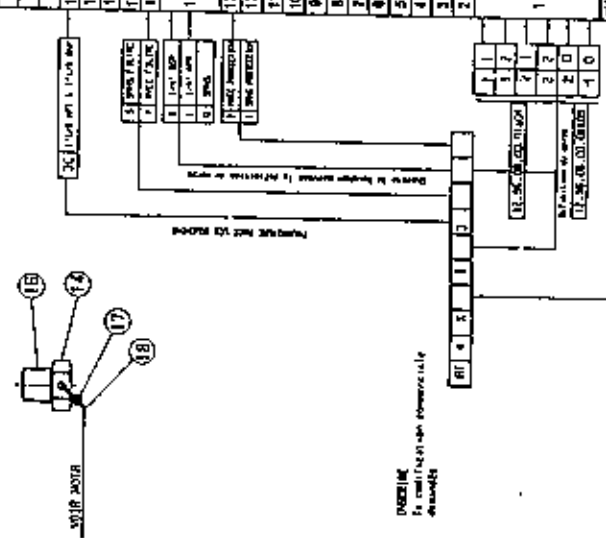
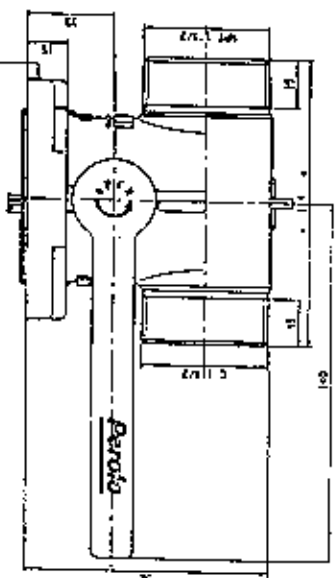
- 4 TROUS Ø 10.5 MMS DES COLONNETTES R 80°
- Ø 10.5 Ø 107.5 OU FONDS SUIVANT
- 150 PM 6 (4 TROUS Ø 11 SUR Ø 100)
- 2 MOLES Ø 10.5 OUT OF RAILS
- COLONNETTES AU Ø 107.5
- Ø 150 PM 6 BRILLING.
- 14 PNEUS Ø 14 DN Ø 100.

VUE F PARTIELLE



PROTECTION DE PROPRETE PER 2 POINTS DE SURETE

AVERTISSEMENT :  
Construction commerciale  
de la Jantennas/Amortisseurs  
pression de l'air (100-150)



PROTECTION DE PROPRETE  
Ø 100 PM 6  
SdA PT 1014

NO	DESIGNATION	QUANTITE	UNITE	REMARQUES
1	BOITIER	1	PIECE	
2	ROUINET	1	PIECE	
3	BOITIER	1	PIECE	
4	BOITIER	1	PIECE	
5	BOITIER	1	PIECE	
6	BOITIER	1	PIECE	
7	BOITIER	1	PIECE	
8	BOITIER	1	PIECE	
9	BOITIER	1	PIECE	
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43	BOITIER	1	PIECE	
44	BOITIER	1	PIECE	
45	BOITIER	1	PIECE	
46	BOITIER	1	PIECE	
47	BOITIER	1	PIECE	
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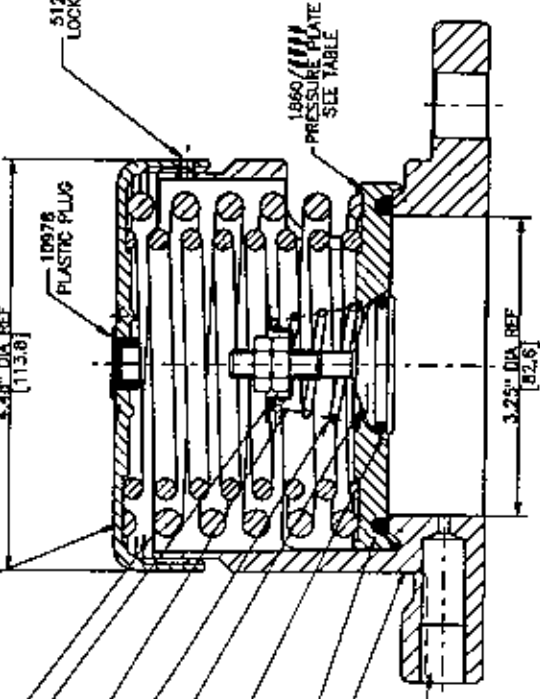
ROUINET PRISE D'AIR 100 Ø 10 (1" 1/2)  
SORTIE Ø 2 FILETEE  
NO 40 11-1/21 AIRLINE BALL VALVE  
7 OUTLET

Perito 129608080

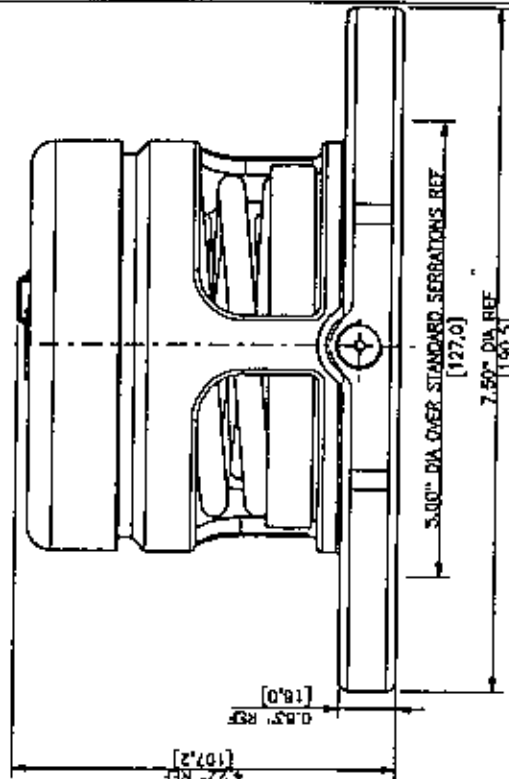
013/1###800  
 THIS DRAWING MUST NOT BE SCALED

- 6104-### PRESSURE SPRING
- 5112-004 MB LOCK NUT (2 OFF)
- 1860/0005 VACUUM SPRING PAD
- 7104-### VACUUM SPRING
- 10993V/3 VACUUM POPPET
- 5005-108H FORTYT 'O' RING
- 5005-104 FORTYT'ORING
- 1860/0800 BODY ASSEMBLY
- 1/4" BSP GAUGE HOLE

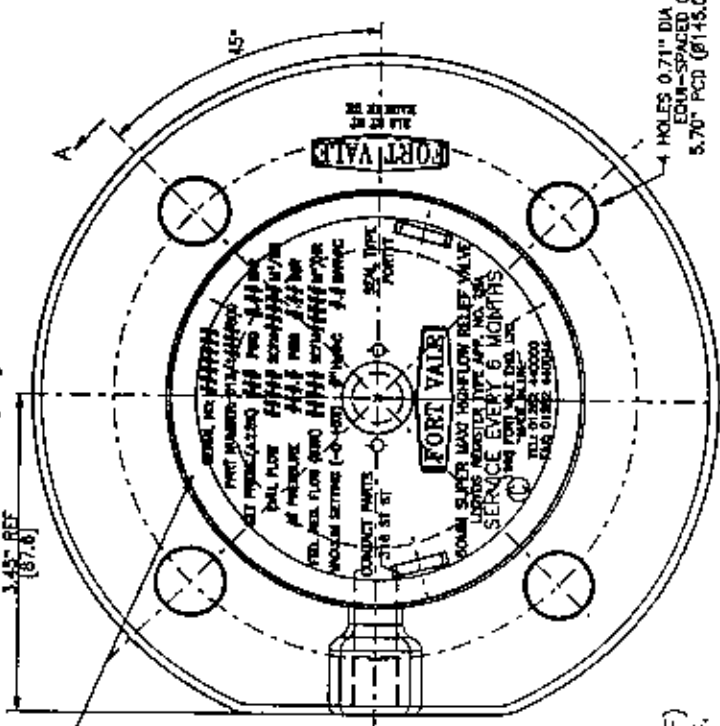
SECTION THRO 'AA'



FIRST ANGLE PROJECTION



CAP TO BE LASER MARKED AS SHOWN WITH 'PS' TO BE FILLED IN WITH CORRECT INFORMATION UPON COMPLETION OF ASSEMBLY



MATERIAL :- 316L ST.ST.  
 ASME SPEC. :- SA351-CF3M  
 DESIGN CONDITIONS  
 DESIGN TEMP :- 200° C (392° F)  
 DESIGN PRESSURE :- 75 P.S.I.G.  
 TEST PRESSURE :- 147 P.S.I.G.

EXAMPLE OF PART NUMBER  
 013/15412800 VALVE DENOTES 80MM DN65 PN10  
 FLANGED MAXI HIGHFLOW RELIEF VALVE  
 PRESSURE VACUUM WITH 54.0 PSIG PRESSURE  
 SETTING & 6"MG VACUUM SETTING USING  
 PRESSURE SPRING PAIR No 6104-0570  
 & VACUUM SPRING No 7104-012 & CAP No  
 1760/0005 & PRESSURE PLATE No 1860/0061

66.00 PSI MAXIMUM SETTING

PART NUMBER	DESCRIPTION	QTY	UNIT
6104-0570	6"MG VACUUM SPRING PAIR	1	PAIR
7104-012	6"MG VACUUM SPRING	2	PCS
1760/0005	VACUUM SPRING	1	PAIR
1860/0061	PRESSURE PLATE	1	PC
5005-104	FORTYT'ORING	1	PC
5005-108H	FORTYT 'O' RING	1	PC
10993V/3	VACUUM POPPET	1	PC
1860/0005	VACUUM SPRING PAD	1	PC
5112-004	MB LOCK NUT	2	PCS
6104-###	PRESSURE SPRING	1	PAIR

**FORT VALE**

REV	DESCRIPTION	DATE	BY	CHK
1	REVISED TO 1860/0005	19/07/07	...	...
2	REVISED TO 1860/0005	27/07/07	...	...
3	REVISED TO 1860/0005	27/07/07	...	...
4	REVISED TO 1860/0005	27/07/07	...	...
5	REVISED TO 1860/0005	27/07/07	...	...
6	REVISED TO 1860/0005	27/07/07	...	...
7	REVISED TO 1860/0005	27/07/07	...	...
8	REVISED TO 1860/0005	27/07/07	...	...

013/1###800

DRAWING SECTIONS

Calibration Chart (25 000 litre)

LEVEL CM	CAPACITY		LEVEL		CAPACITY		LEVEL		CAPACITY		LEVEL		CAPACITY	
	LITRE	US GAL	CM	CM	LITRE	US GAL	CM	CM	LITRE	US GAL	CM	CM	LITRE	US GAL
0	25000	6604	21	21	23920	6319	42	42	22170	5857	63	63	19815	5235
1	24890	6602	22	22	23840	6298	43	43	22070	5830	64	64	19690	5202
2	24970	6596	23	23	23760	6277	44	44	21970	5804	65	65	19565	5169
3	24950	6591	24	24	23680	6256	45	45	21870	5777	66	66	19440	5136
4	24930	6586	25	25	23600	6234	46	46	21770	5751	67	67	19315	5102
5	24910	6581	26	26	23520	6213	47	47	21670	5725	68	68	19185	5068
6	24870	6570	27	27	23440	6192	48	48	21560	5696	69	69	19055	5034
7	24830	6559	28	28	23360	6171	49	49	21450	5668	70	70	18925	4999
8	24790	6549	29	29	23280	6150	50	50	21340	5637	71	71	18795	4965
9	24750	6538	30	30	23200	6129	51	51	21230	5608	72	72	18665	4931
10	24700	6525	31	31	23120	6108	52	52	21120	5579	73	73	18535	4896
11	24640	6509	32	32	23040	6087	53	53	21010	5550	74	74	18405	4862
12	24580	6493	33	33	22960	6065	54	54	20900	5521	75	75	18275	4828
13	24520	6477	34	34	22880	6044	55	55	20790	5492	76	76	18145	4793
14	24460	6462	35	35	22800	6023	56	56	20680	5463	77	77	18015	4759
15	24390	6443	36	36	22720	6002	57	57	20560	5431	78	78	17885	4725
16	24315	6423	37	37	22640	5981	58	58	20440	5400	79	79	17755	4690
17	24240	6404	38	38	22550	5957	59	59	20315	5367	80	80	17625	4656
18	24160	6382	39	39	22460	5933	60	60	20190	5334	81	81	17495	4622
19	24080	6361	40	40	22370	5910	61	61	20065	5301	82	82	17365	4587
20	24000	6340	41	41	22270	5883	62	62	19940	5268	83	83	17235	4553

**STEAM HEADER PIPING**

**AND**

**HEATING CIRCUIT**

**DETAILS**

