

**MTO**

Project No. : 120800-803	Ref. : 120800-803/MTO/SRN-01
Client : Dangote Oil Refining Company	Rev. : 1
Consultant : EIL	Date : 11-04-2017
Eqpt. No. : 133-RB-1001 A/B	

For Dimensions, refer sketch "120800-803-SRN01"

**Notes :**

- 1 Material : SA-105
- 2 The material shall meet all the requirements of ASME Section II Part A Edition 2015.
- 3 The forgings shall be supplied in normalized condition.
- 4 The forgings shall be fully deoxidized (killed) & fine grained.
- 5 The material shall meet the chemical requirements as per ASME Section II Part A Edition 2015 with following additional requirements:  
Carbon Equivalent (CE)=  $C+(Mn/6) + (Cr+Mo+V)/5 + (Ni+Cu)/15 \leq 0.45$  ,  
Vanadium (V) = 0.02 wt % max, Niobium (Nb)=0.02 max and V+Nb = 0.03 wt % max  
Boron shall not be added intentionally.
- 6 Simulation heat treatment of test coupons of the forging shall be carried out according to the cycle given below :

Rate of Heating:	56°C/hr (maximum) above 300°C
Temperature:	610 ± 10 deg. C
Holding Time:	
1.Min PWHT:	135 minutes
2.Max PWHT:	405 minutes
Rate of Cooling:	56°C/hr (maximum) upto 300°C
- 7 All the mechanical tests shall be carried out and reported for the following.
  - 1) As Supplied
  - 2) As Supplied + Minimum PWHT Condition
  - 3) As Supplied + Maximum PWHT Condition
- 8 All forgings shall be impact tested at 0 °C in accordance with ASME Sec VIII Div 1 [Edition 2015].  
Acceptance criteria for energy absorption shall be 24 J minimum average for three specimens and the minimum impact energy for one specimen shall not be less than 16 J.  
Test specimens shall be prepared in accordance with ASME Sec II A SA-350/SA-350M.
- 9 All forgings shall be ultrasonically examined with 100% scanning in accordance with clause 3.3.4 of ASME Sec VIII Div 2 [Edition 2015].
- 10 Maximum hardness of the forgings shall not exceed 180 BHN
- 11 Entire surfaces of forgings including welding edges shall be magnetic particle examined in accordance with para 7.5.6 of ASME Sec VIII Div 2 [Edition 2015] after finish machining.
- 12 Repair by welding is not permitted.
- 13 Forging shall be supplied in fully machined condition. Vendor shall submit forging sketches for Godrej approval.  
Manufacturing activities should start only after approval of sketches by Godrej.
- 14 Forgings shall be legibly stamped or stenciled showing grade no. and item no. with "low stress stamp". Certification and Marking shall be in accordance with SA-105 of ASME Section II Part A Edition 2015
- 15 Inspection: Material shall be certified in accordance with EN 10204 - 3.2. [BV, Lloyds (LRS), TUV Nord]

Rev 1: Sketch Revised

**MASTER COPY****ASME**

*Kd*  
Made By: MK

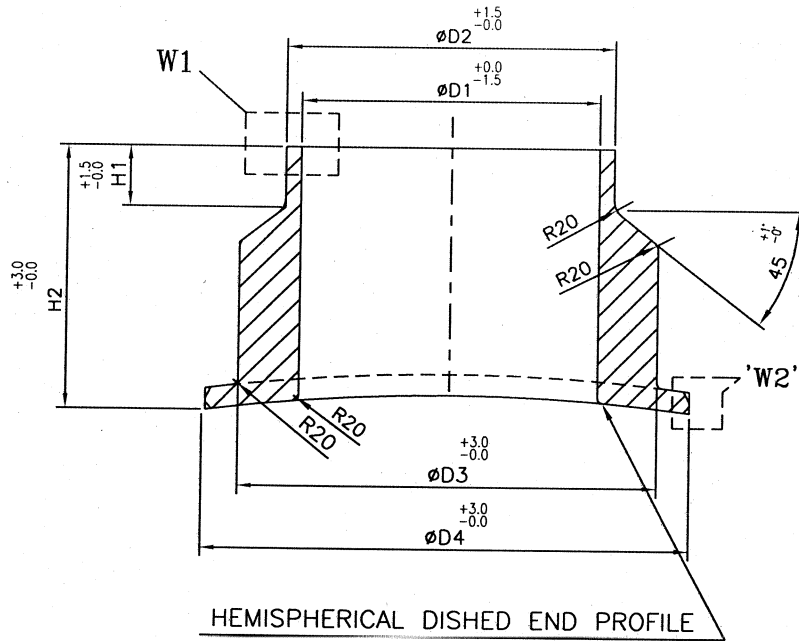
Page no. 1 of 1

*PPK*  
Approved By: PPK

REV.	DATE	DESCRIPTION	ALTD	CHKD.	APPD.	REV.	DATE	DESCRIPTION	ALTD	CHKD.	APPD.
1	11/04/17	SKETCH REVISED AS MARKED $\Delta$	MK	PPK	PPK						

**NOTES: -**

- 1) ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.
- 2) FOR GENERAL NOTES, REFER DOC. 120800-803/MTO/SRN-01



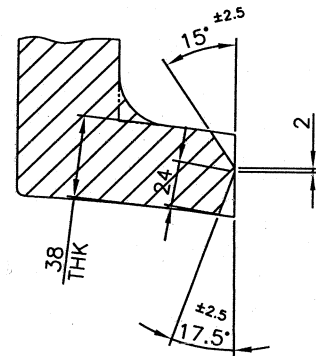
HEMISPHERICAL DISHED END PROFILE  
TO SUIT THE INSIDE PROFILE OF R2063

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$\Delta$

**DETAIL 'W1'**  
AS FOLLOWS

FLANGES	FIG	ASME
<24"	8/9	B 16.5
>24"	1	B 16.47



**DETAIL 'W2'**

3	N4A/B	193.7	219.1	314	414	50	215	SRN03R1	4
2	M1	838	906	1278	1378	50	467	SRN02R1	2
1	N2	283.85	324	584	684	50	321	SRN01R1	2
SR. No.	NOZZLE MARK	D1	D2	D3	D4	H1	H2	ITEM CODE	QTY.

SCALE:  
NTS

TITLE: DETAILS OF SRN  
EQUIPMENT NO: 133-RB-1001 A/B

Material : SA-105

QUANTITY  
REFER  
TABLE

CLIENT: DANGOTE OIL REFINING COMPANY

PROJECT NO.: 120800-801

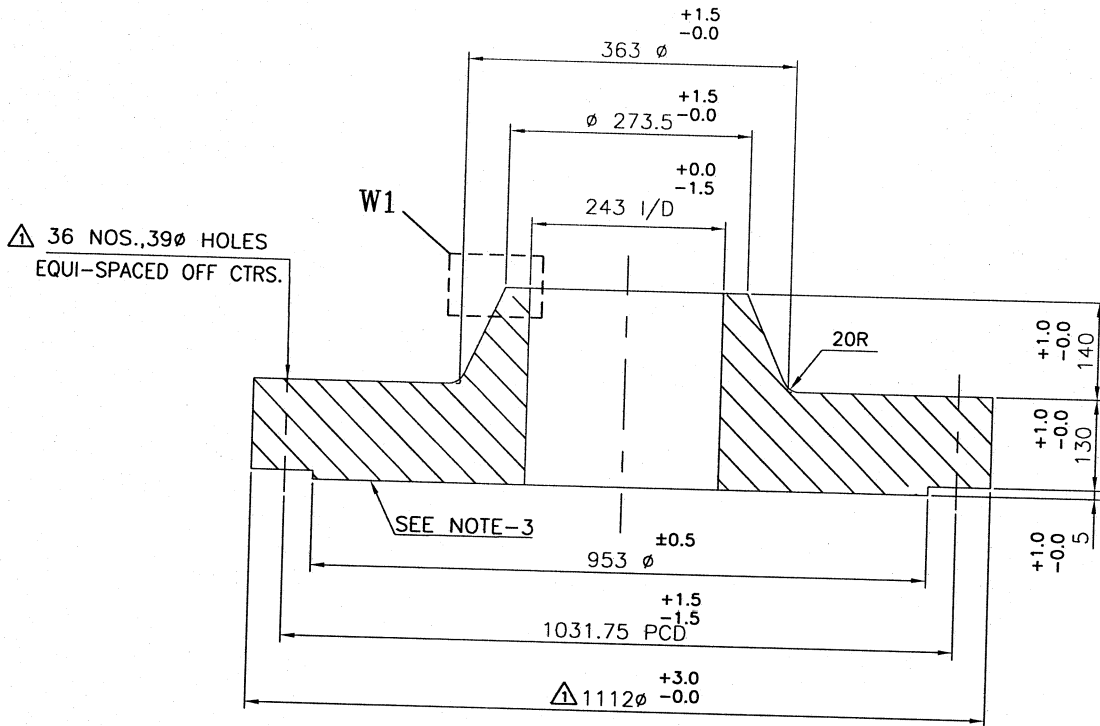
*Godrej*  
Godrej & Boyce Mfg. Co. Ltd.  
Process Equipment Division

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
MK	06/03/17	PPK	06/03/17	MP	06/03/17

DRG. NO.: 120800-803-SRN01      SHT. 1 OF 5      REV.1

REV.	DATE	DESCRIPTION	ALTD	CHKD.	APPD.	REV.	DATE	DESCRIPTION	ALTD	CHKD.	APPD.
1	11/04/17	SKETCH REVISED AS MARKED $\Delta$	MK	PPK	PPK						

- NOTES:**
- 1) ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
  - 2) FOR GENERAL NOTES, REFER 120800-803/MTO/SRN-01.
  - 3) GASKET CONTACT SURFACE SHALL HAVE A FINISH OF 125-250 AARH.



DETAIL OF NOZZLE M1 REDUCING FLANGE

DETAIL 'W1'  
 SHALL BE AS PER  
 FIG 8/9 OF ASME 16.5

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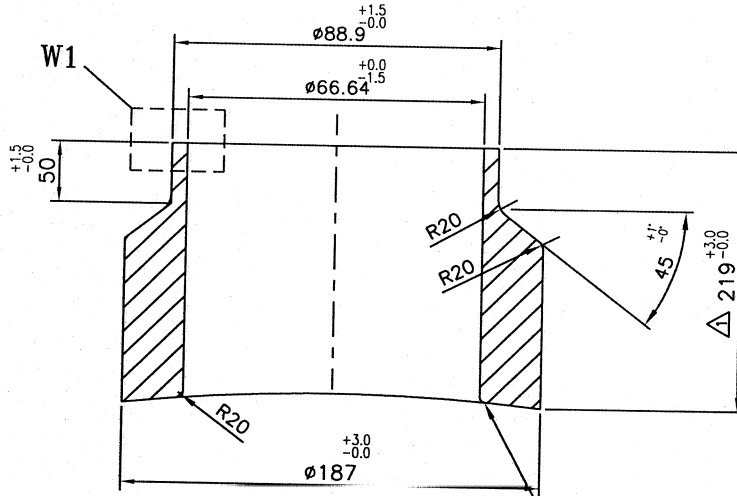
SR NO.: 04  
 ITEM CODE: SRN04R1

SCALE: NTS	TITLE: DETAILS OF REDUCING FLANGE EQUIPMENT NO: 133-RB-1001 A/B	MATERIAL SA105	QUANTITY 02				
CLIENT: DANGOTE OIL REFINING COMPANY		PROJECT NO.: 120800-801					
 <b>Godrej &amp; Boyce Mfg. Co. Ltd.</b> Process Equipment Division		DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
		MK	06/03/17	PPK	06/03/17	MP	06/03/17
		DRG. NO.: 120800-803-SRN01		SHT. 2 OF 5		REV.1	

REV.	DATE	DESCRIPTION	ALTD	CHKD.	APPD.	REV.	DATE	DESCRIPTION	ALTD	CHKD.	APPD.
1	11/04/17	SKETCH REVISED AS MARKED $\Delta$	MK	PPK	PPK						

**NOTES:-**

- 1) ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.
- 2) FOR GENERAL NOTES, REFER DOC. 120800-803/MTO/SRN-01



SHELL INSIDE PROFILE  
TO SUIT THE INSIDE DIAMETER 4100mm

**DETAIL OF NOZZLES N6A/B**

DETAIL 'W1'  
SHALL BE AS PER  
FIG 8/9 OF ASME 16.5

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SR. NO.: 05  
ITEM CODE: SRN05R1

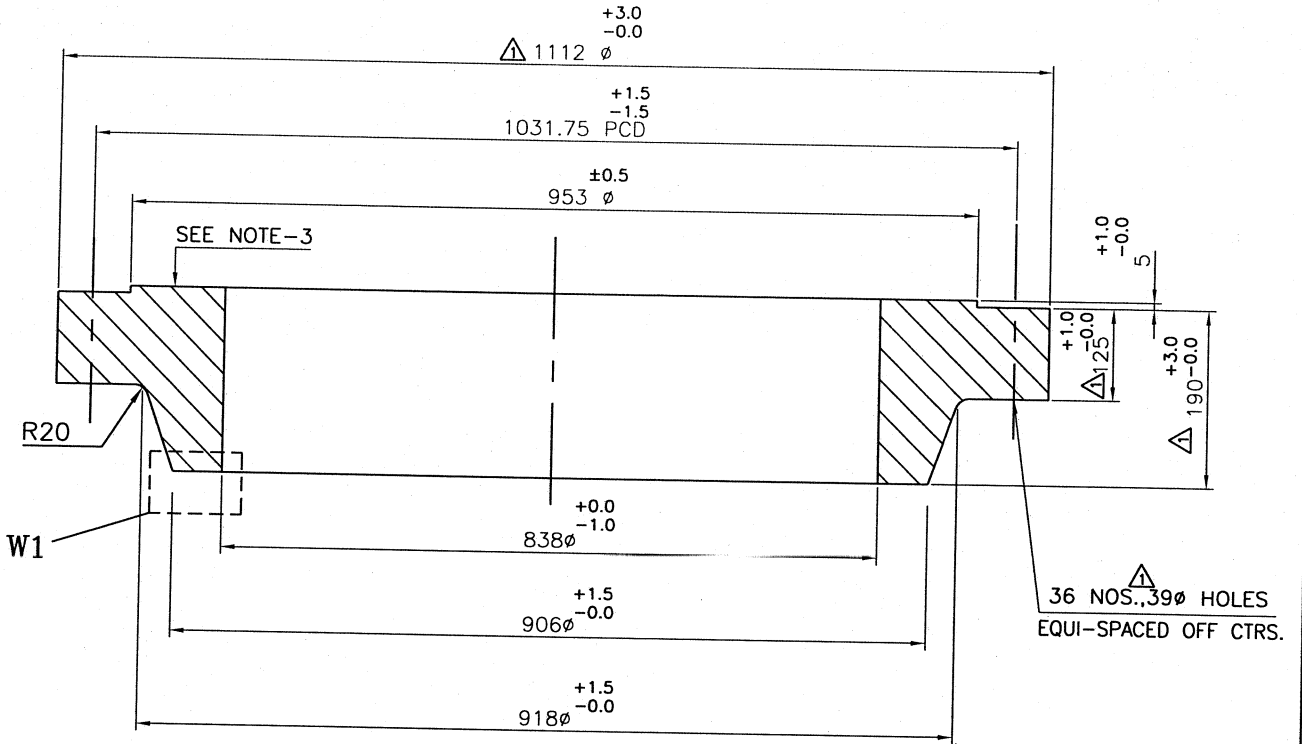
SCALE: NTS	TITLE: DETAILS OF SRN EQUIPMENT NO: 133-RB-1001 A/B	MATERIAL SA105	QUANTITY 4				
CLIENT: DANGOTE OIL REFINING COMPANY		PROJECT NO.: 120800-801					
 Godrej & Boyce Mfg. Co. Ltd. Process Equipment Division		DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
		MK	06/03/17	PPK	06/03/17	MP	06/03/17
DRG. NO.: 120800-803-SRN01		SHT. 3 OF 5		REV.1			



REV.	DATE	DESCRIPTION	ALTD	CHKD.	APPD.	REV.	DATE	DESCRIPTION	ALTD	CHKD.	APPD.
1	11/04/17	SKETCH REVISED AS MARKED $\Delta$	MK	PPK	PPK						

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- 3) GASKET CONTACT SURFACE SHALL HAVE A FINISH OF 125-250 AARH.



**DETAIL OF NOZZLES M1**

**DETAIL 'W1'**  
 SHALL BE AS PER  
 FIG 8/9 OF ASME 16.5

SR NO. : 07  
 ITEM CODE: SRN07R1

SCALE: NTS	TITLE: DETAILS OF SRN EQUIPMENT NO: 133-RB-1001 A/B	MATERIAL SA105	QUANTITY 02				
CLIENT: DANGOTE OIL REFINING COMPANY		PROJECT NO.: 120800-801					
 <b>Godrej &amp; Boyce Mfg. Co. Ltd.</b> Process Equipment Division		DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
		MK	06/03/17	PPK	06/03/17	MP	06/03/17
		DRG. NO.: 120800-803-SRN01		SHT. 5 OF 5		REV.1	

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