


**C D Engineering Company.**

C-199, Bulandshah Road, Industrial Area,  
GHAZIABAD-201 001-(U.P.)  
Phone : 0120-2866315-17 Fax : 0120-2866319  
E-mail: cdec@vsnl.com

**FINAL INSPECTION SHEET**

FORMAT NO-F-OAC:12

Ref. No. : 17638/02	Client : GUJARAT ALKALIES AND CHEMICALS LIMITED	Date : 09/02/2021.
P.O. No : 3100014666 DT.02.01.2021	P.O. Dt.: 09/12/2020.	
W.O. No. : 17638	Inspn. : TUV-NORD	
Dimension Std. : AS PER ASME B16.5.	Order Status : P / C	

We hereby offer that the following items are ready for FINAL INSPECTION for the above Purchase Order.

S No.	P.O. Item No.	Description	Forging Spec.	Qty. (Nos)	Group No.	Cast No.	P/C
1	01/10..	4 " NB 150# BL RF (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PF22ACGN042ZZUR14H / 1399081863	A-105 ✓	4 ✓	C615EE	CHP-17989	C
2	2/20..	6 " NB 150# BL RF (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PF22ACGN062ZZUR14H / 1399081864	A-105 ✓	2 ✓	C615EE	CHP-17989	C
3	03/30	3 " NB 300# BL RF (125-250AARH) ASME B 16.5 , LTCS, ITEM CODE / SAP- PF23F9GN032ZZUR24H / 1399081869	A350 GR LF2 CL1	1 ✓	C615F	CHP-17616(A)	C
4	04/50	6 " NB 300# WN LT SCH 40 (125-250AARH) ASME B 16.5 , LARGE TONGUE, ITEM CODE / SAP- PLC2ACGN062ZZUR4HT / 1399081884	A-105 ✓	16 ✓	C615E	CHP-17989	C
5	05/50.	8 " NB 300# WN LT SCH 20 (125-250AARH) ASME B 16.5 , LARGE TONGUE, ITEM CODE / SAP- PLC2ACGN082ZZUP4HT / 1399081886	A-105 ✓	5 ✓	C615E	CHP-17989	C
6	06/70.	8 " NB 300# WN LT SCH 40 (125-250AARH) ASME B 16.5 , LARGE TONGUE, ITEM CODE / SAP- PLC2ACGN082ZZUR4HT / 1399081887	A-105 ✓	3 ✓	C615E	CHP-17989	C
7	07/80	10 " NB 300# WN LT SCH 20 (125-250AARH) ASME B 16.5 , LARGE TONGUE, ITEM CODE / SAP- PLC2ACGN102ZZUR4HT / 1399081888	A-105 ✓	2 ✓	C615E	CHP-17989	C
8	08/-..90	10 " NB 300# WN LT SCH 40 (125-250AARH) ASME B 16.5 , LARGE TONGUE, ITEM CODE / SAP- PLC2ACGN102ZZUR4HT / 1399081890	A-105 ✓	2 ✓	C615E	CHP-17989	C
9	09/100	3 " NB 300# WN RF SCH 40 (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PFY2ACGN032ZZUR4H / 1399081893	A-105 ✓	13 ✓	C615E	CHP-17989	C
11	11/120	4 " NB 150# WN RF SCH 40 (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PFY2ACGN042ZZU84H / 1399081896	A-105 ✓	26 ✓	C615E	CHP-17989	C
12	12/130	4 " NB 300# WN RF SCH 40 (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PFY2ACGN042ZZUR4H / 1399081897	A-105 ✓	12 ✓	C615E	CHP-17989	C
13	13/140	6 " NB 150# WN RF SCH 40 (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PFY2ACGN062ZZU84H / 1399081899	A-105 ✓	3 ✓	C615E	CHP-17989	C
14	14/150	6 " NB 300# WN RF SCH 40 (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PFY2ACGN062ZZUR4H / 1399081900	A-105 ✓	10 ✓	C615E	CHP-17989	C
15	15/160	8 " NB 150# WN RF SCH 20 (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PFY2ACGN082ZZU64H / 1399081901	A-105 ✓	1 ✓	C615E	CHP-17989	C
16	16/170	3 " NB 150# WN RF SCH 40 (125-250AARH) ASME B 16.5 , LTCS, ITEM CODE / SAP- PFY3F9GN032ZZUR4H / 1399081909	A350 GR LF2 CL1	3 ✓	C615F	CHP-17616(A)	C
17	17/180	3 " NB 300# WN RF SCH 40 (125-250AARH) ASME B 16.5 , LTCS, ITEM CODE / SAP- PFY3F9GN032ZZUR4H / 1399081910	A350 GR LF2 CL1	2 ✓	C615F	CHP-17616(A)	C
		QTY = 104					

REVIEWED / NOTED

.....10 % INTRUSION



Inspection Authority

For C D Engineering Company  
Manager Quality Control



AVINASH SINGH

# WORKS TEST CERTIFICATE

Format No. : F: QAC : 14

AS PER EN10204 TYPE : 3.1

**C D Engineering Company.**  
C-199, Bulandshahr Road, Industrial Area,  
**GHAZIABAD-201 001- (U.P.)**  
Phone : 0120-4557758-760  
e-mail: [cdengg@yahoo.com](mailto:cdengg@yahoo.com)

WTC. No. : 17638/01		DATE: 09/02/2021.
Client : M/S GUJARAT ALKALIES AND CHEMICALS LIMITED, BHARUCH, GUJARAT.		
P.O. No : 3100014666 Date 02.01.2021 .		
W.O. No. : 17638		Inspn. : TUV-NORD

We hereby certify that the material detailed below meets the requirements of purchase order/relevant specification

S.No	Description	Forging Specn.	Qty. Nos	Group No.	H.T. Cond	H.T. Temp.°C	P/C
CS & LTCS Forged Flanges as per ASME B 16.5, Ed -2017 to PO material ASTM A105/ A350 GR LF2 CL1, Ed 2018.							
-	AS PER ANNEXURE - A	ASTM A105	-	C615E	Normalized	900°C	C
		ASTM A105	-	C615EE	Normalized	900°C	C
		A350 GR LF2 CL1	-	C615F	Normalized	900°C	C

### Chemical Composition (In %)

Group No	C	Si	Mn	P	S	Ni	Cr	Mo	V	Cu	Cb	Al	N	Ti	Cast No.	CE%
C615E (LA)	.20	.26	.94	.021	.016	.035	.13	.012	.003	.020	.003	.042	-	-	CHP-17989	.39
C615E (PA)	.20	.27	.95	.022	.015	.032	.11	.010	.001	.022	.001	.039	-	-	-do-	.39
C615EE (PA)	.19	.25	.92	.020	.017	.040	.12	.011	.001	.024	.002	.040	-	-	-do-	.37
C615F (LA)	.18	.28	1.03	.019	.008	.010	.08	.010	.002	.020	.001	.031	-	-	CHP-17616(A)	.37
C615F (PA)	.19	.26	1.01	.018	.009	.011	.04	.012	.001	.024	.001	.030	-	-	-do-	.37

### Mechanical Tests ( ASTM A370 )

Group No	YS M Pa ( 0.2% off set method)	UTS M Pa	EL % on 4D	RA%	Hardness BHN	Bend	Charpy V Notch 10X10X55MM (2mm V Notch)					Temp.°C	Remarks
							1	2	3	Avg			
C615E	332	528	28.40	56.97	152,154	-	-	-	-	-	-	-	-
C615EE	348	546	30.00	58.38	150,152	-	-	-	-	-	-	-	-
C615F	362	582	27.80	59.98	154,156	-	54J	66J	50J	54.67J	Minus(-)46°C	-	-

Supplementary Testing	Test/Acceptance Standard	Remarks
	-	

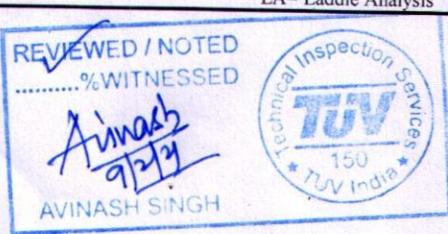
### REMARKS : --- HYDRAZINE-HYDRATE PROJECT AT DAHEJ.

1. Material used fully killed steel and fine grain practice .
2. Hardness measured on flanges and found between 143 to 167 BHN .
3. Material has been manufactured, sampled, tested and inspected in accordance with requirements of the material specification / PO TDC and QAP No : CDE/QAP-GACL-17530 Dated 13/12/2020 approved by L & T, e-mail dated 07/12/2020 , and has been found to meet the requirements.
4. Markings done : S No-Group no-Logo-Size-Specification ( Dual for SS Item ) -N-Dimensional Std.
5. Visual & Dimensional check 100% checked by CD Engg Co and found in acceptable limit as per ASME B16.5 .
6. Colour coding carried out as per PO / Specification : R-E1094-GACL-PD-CC-5225 ( A105 = NIL, A350 GR LF2CL1= Light Orange.
7. Calibration certificates of monitoring & measuring equipment verified and found in order.

<p style="margin: 0;">LA = Laddle Analysis   PA = Product Analysis</p>	<p style="margin: 0;">For C D Engineering Company</p>
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LA = Laddle Analysis   PA = Product Analysis

Manager Quality Assurance



**ANNEXURE "A"**  
**WTC NO : 17638/01 Date 09/02/2021**

S No	PO. No.	Description	Forging Specn	Qty. Nos	Group No.	Cast NO.	P/C
1	01/10	4 " NB 150# BL RF (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PF22ACGN04ZZZR14H / 1399081863	A-105	4	C615EE	CHP-17989	C
2	2/20	6 " NB 150# BL RF (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PF22ACGN06ZZZR14H / 1399081864	A-105	2	C615EE	CHP-17989	C
3	03/30	3 " NB 300# BL RF (125-250AARH) ASME B 16.5 , LTCS, ITEM CODE / SAP- PF23F9GN03ZZR24H / 1399081869	A350 GR LF2 CL1	1	C615F	CHP-17616(A)	C
4	04/50	6 " NB 300# WN LT SCH 40 (125-250AARH) ASME B 16.5 , LARGE TONGUE, ITEM CODE / SAP- PLC2ACGN06ZZZUR4HT / 1399081884	A-105	15	C615E	CHP-17989	C
5	05/50	8 " NB 300# WN LT SCH 20 (125-250AARH) ASME B 16.5 , LARGE TONGUE, ITEM CODE / SAP- PLC2ACGN08ZZZUP4HT / 1399081886	A-105	5	C615E	CHP-17989	C
6	06/70	8 " NB 300# WN LT SCH 40 (125-250AARH) ASME B 16.5 , LARGE TONGUE, ITEM CODE / SAP- PLC2ACGN08ZZZUR4HT 1399081887	A-105	3	C615E	CHP-17989	C
7	07/80	10 " NB 300# WN LT SCH 20 (125-250AARH) ASME B 16.5 , LARGE TONGUE, ITEM CODE / SAP- PLC2ACGN10ZZZUP4HT / 1399081888	A-105	2	C615E	CHP-17989	C
8	08/90	10 " NB 300# WN LT SCH 40 (125-250AARH) ASME B 16.5 , LARGE TONGUE, ITEM CODE / SAP- PLC2ACGN10ZZZUR4HT / 1399081890	A-105	2	C615E	CHP-17989	C
9	09/100	3 " NB 300# WN RF SCH 40 (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PFY2ACGN03ZZZUR4H / 1399081893	A-105	13	C615E	CHP-17989	C
11	11/120	4 " NB 150# WN RF SCH 40 (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PFY2ACGN04ZZZU84H / 1399081896	A-105	26	C615E	CHP-17989	C
12	12/130	4 " NB 300# WN RF SCH 40 (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PFY2ACGN04ZZZUR4H / 1399081897	A-105	12	C615E	CHP-17989	C
13	13/140	6 " NB 150# WN RF SCH 40 (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PFY2ACGN06ZZZU84H / 1399081899	A-105	3	C615E	CHP-17989	C
14	14/150	6 " NB 300# WN RF SCH 40 (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PFY2ACGN06ZZZUR4H / 1399081900	A-105	10	C615E	CHP-17989	C
15	15/160	8 " NB 150# WN RF SCH 20 (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PFY2ACGN08ZZZU64H / 1399081901	A-105	1	C615E	CHP-17989	C
16	16/170	3 " NB 150# WN RF SCH 40 (125-250AARH) ASME B 16.5 , LTCS, ITEM CODE / SAP- PFY3F9GN03ZZZU84H / 1399081909	A350 GR LF2 CL1	3	C615F	CHP-17616(A)	C
17	17/180	3 " NB 300# WN RF SCH 40 (125-250AARH) ASME B 16.5 , LTCS, ITEM CODE / SAP- PFY3F9GN03ZZZUR4H / 1399081910	A350 GR LF2 CL1	2	C615F	CHP-17616(A)	C
			QTY =	104			

REVIEWED / NOTED  
% WITNESSED

AVINASH SINGH



LA= Laddle Analysis PA= Product Analysis



For C D Engineering Company

Manager Quality Assurance

**C D Engineering Company**  
C-199 Buiandshah Road, Industrial Area,  
GHAZIABAD-201 001-(U.P)  
Phone : 0120-2886315-17 Fax : 0120- 2866  
E-mail : cdec@vshl.com



**C D Engineering Company.**  
C-1-99, Bulandshahr Road, Industrial Area,  
GHAZIABAD-201 001 - (U.P.)  
Phone : 0120- 2866315-17 Fax : 0120- 2866319  
E-mail : cdec@vsnl.com

MECHANICAL TESTING REPORT

Date 02.02.2021

INSPECTION -CDEC

ClientGUJARAT  
ALKALIES AND  
CHEMICALS  
LIMITED  
3100014666  
DT.02.01.2021  
WO-17638

Inspection Authority

Manager Quality Control

REVIEWED / NOTED  
..... % WITNESSED

A circular blue stamp with the text "TCS India Services" around the perimeter and "150th Anniversary" in the center.

AVINASH SINGH

REVIEWED / NOTED  
..... % WITNESSED



# BANSAL CALIBRATION SERVICES

An NABL accredited lab, ISO/IEC-17025-2017 in Chemical & Mechanical Testing



TC-6455

ULR No.: TC6455210000001148  
Report No.: 2102090001

## TEST REPORT

Issue Date --- 09-02-2021

Customer Name : C.D. Engineering Company,  
C-199,B.S. Road Industrial Area,  
Ghaziabad(U.P.).

Customer Ref. No. : CDE/17638

Sample Particulars : G.No.C615E, WO No.- 17638, Stamp By CDEC  
Test Requested : Chemical Composition

Sample Receipt Date : 09-02-2021  
Sample Drawn By : By CUSTOMER

## TEST RESULT

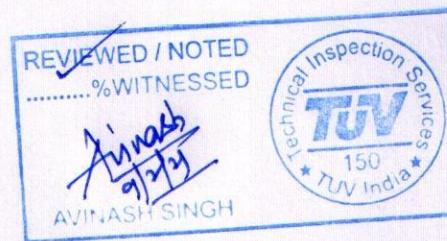
Date of Testing : 09-02-2021  
Protocol Used : ASTM-E-415-17

CHEMICAL COMPOSITION: (Carbon & Alloy Steel)

Element	Results %
C	0.204
Si	0.271
Mn	0.952
P	0.0223
S	0.0157
Cr	0.116
Mo	0.0104
Ni	0.0321
Al	0.0398
Cu	0.0223
Nb	0.0016
Ti	0.0018
V	0.0019
B	<0.00020

\*\*\*End of Report\*\*\*

*R.D.*  
*Surya Pratap*  
CHECKED BY  
Surya Pratap  
(Sr. Engineer Testing)



AUTHORISED BY  
Dharmendra Kumar  
(Technical Manager)

1. Sample will be retained for Tensile Test only for three months.  
 2. Sample will be retained for Chemical Composition only for one month.  
 3. The results listed refer only to the tested sample and applicable parameters.  
 Endorsement of product is neither inferred nor implied.  
 4. This report cannot be used as evidence in a court of law without the written approval of the lab.  
 5. Certificate shall not be reproduced except in full, without the written approval of the laboratory.  
 6. Any complaint about the report should be intimated within 7 days.



# BANSAL CALIBRATION SERVICES

An NABL accredited lab, ISO/IEC-17025-2017 in Chemical & Mechanical Testing



TC-6455

JLR No.: TC6455210000001149

## TEST REPORT

Issue Date --- 09-02-2021

Customer Name : C.D. Engineering Company.  
C-199,B.S. Road Industrial Area,  
Ghaziabad(U.P.).

Customer Ref. No. : CDE/17638

Sample Particulars : G.No.C615EE, WO No.- 17638, Stamp By CDEC  
Test Requested : Chemical Composition

Sample Receipt Date : 09-02-2021  
Sample Drawn By : By CUSTOMER

## TEST RESULT

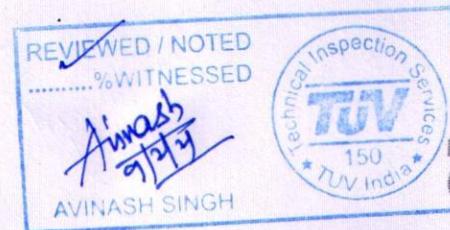
CHEMICAL COMPOSITION: (Carbon & Alloy Steel)

Date of Testing : 09-02-2021  
Protocol Used : ASTM-E-415-17

Element	Results %
C	0.196
Si	0.253
Mn	0.924
P	0.0202
S	0.0171
Cr	0.127
Mo	0.0118
Ni	0.0403
Al	0.0406
Cu	0.0241
Nb	0.0022
Ti	0.0017
V	0.0018
B	<0.00020

\*\*\*End of Report\*\*\*

*Surya Pratap*  
CHECKED BY  
Surya Pratap  
(Sr. Engineer Testing)



AUTHORISED BY  
Dharmendra Kumar  
(Technical Manager)

- 1. Sample will be retained for Tensile Test only for three Months.
- 2. Sample will be retained for Chemical Composition only for one month.
- 3. The results listed refer only to the tested sample and applicable parameters.
- 4. Endorsement of product is neither inferred nor implied.
- 5. The report cannot be used as evidence in a court of law without the written approval of the lab.
- 6. Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- 7. Any complaint about the report should be intimated within 7 days.



# BANSAL CALIBRATION SERVICES

An NABL accredited lab, ISO/IEC-17025-2017 in Chemical & Mechanical Testing



TC-6455

## TEST REPORT

Ref No.: TC6455210000001150

Sample No :-2102090003

Issue Date --- 09-02-2021

Customer Name : C.D. Engineering Company,  
C-199, B.S. Road Industrial Area,  
Ghaziabad(U.P.).

Customer Ref. No. : CDE/17638

Sample Particulars : G.No.C615F, WO No.- 17638, Stamp By CDEC  
Test Requested : Chemical Composition

Sample Receipt Date : 09-02-2021  
Sample Drawn By : By CUSTOMER

## TEST RESULT

Date of Testing : 09-02-2021  
Protocol Used : ASTM-E-415-17

CHEMICAL COMPOSITION: (Carbon & Alloy Steel)

Element	Results %
C	0.191
Si	0.263
Mn	1.01
P	0.0184
S	0.0092
Cr	0.0408
Mo	0.0126
Ni	0.0113
Al	0.0307
Cu	0.0241
Nb	0.0019
Ti	0.0017
V	0.0018
B	<0.00020

\*\*\*End of Report\*\*\*



checked by  
Surya Pratap  
(Sr. Engineer Testing)



AUTHORISED BY  
Dharmendra Kumar  
(Technical Manager)

- 1. Sample will be retained for Tensile Test only for three months.
- 2. Sample will be retained for Chemical Composition only for one month.
- 3. The results listed refer only to the tested sample and applicable parameters.
- 4. Endorsement of product is neither inferred nor implied.
- 5. The report cannot be used as evidence in a court of law without the written approval of the lab.
- 6. Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- 7. Any complaint about the report should be intimated within 7 days.



### **CD Engineering Company.**

C-199, Bulandshahar Road, Industrial Area,  
GHAZIABAD-201 001- (U.P.)  
Phone : 0120-2866315-17 Fax : 0120-2866319  
E-mail: cdec@vsnl.com

### **TEST COUPON MARKING**

FORMAT NO-F.QAC.06

Ref. No. : 17638/02  
 Client : GUJARAT ALKALIES AND CHEMICALS LIMITED  
 P.O. No. : 3100014666 DT.02.01.2021  
 W.O. No. : 17638  
 Dimension Std. : AS PER ASME B16.5.

Date : 01/02/2021.  
 P.O. Dt.: 09/12/2020.  
 Inspn. : TPIA  
 Order Status P / C

We hereby offer that the following items are ready for Test Coupon Markings against the above Purchase Order.

S No.	P.O. Item No.	Description	Forging Spec.	Qty. (Nos)	Group No.	Cast NO.	Heat Treatment	Soaking Time	H.T. Temperature	Cooling Media	P/C
1	01/10..	4 " NB 150# BL RF (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PF22ACGN04ZZZR14H / 1399081863	A-105	4	C615EE	CHP-17989	Normalized	3Hrs	900°C	Air	C
2	2/20..	6 " NB 150# BL RF (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PF22ACGN06ZZZR14H / 1399081864	A-105	2	C615EE	CHP-17989	Normalized	3Hrs	900°C	Air	C
3	03/30	3 " NB 300# BL RF (125-250AARH) ASME B 16.5 , LTCS, ITEM CODE / SAP- PF23F9GN03ZZZR24H / 1399081869	A350 GR LF2 CL1	1	C615F	CHP-17616(A)	Normalized	3Hrs	900°C	Air	C
4	04/50	6 " NB 300# WN LT SCH 40 (125-250AARH) ASME B 16.5 , LARGE TONGUE, ITEM CODE / SAP- PLC2ACGN06ZZZUR4HT / 1399081884	A-105	15	C615E	CHP-17989	Normalized	3Hrs	900°C	Air	C
5	05/50.	8 " NB 300# WN LT SCH 20 (125-250AARH) ASME B 16.5 , LARGE TONGUE, ITEM CODE / SAP- PLC2ACGN08ZZZUP4HT / 1399081886	A-105	5	C615E	CHP-17989	Normalized	3Hrs	900°C	Air	C
6	06/70.	8 " NB 300# WN LT SCH 40 (125-250AARH) ASME B 16.5 , LARGE TONGUE, ITEM CODE / SAP- PLC2ACGN08ZZZUR4HT / 1399081887	A-105	3	C615E	CHP-17989	Normalized	3Hrs	900°C	Air	C
7	07/.80	10 " NB 300# WN LT SCH 20 (125-250AARH) ASME B 16.5 , LARGE TONGUE, ITEM CODE / SAP- PLC2ACGN10ZZZUR4HT / 1399081888	A-105	2	C615E	CHP-17989	Normalized	3Hrs	900°C	Air	C
8	08/-..90	10 " NB 300# WN LT SCH 40 (125-250AARH) ASME B 16.5 , LARGE TONGUE, ITEM CODE / SAP- PLC2ACGN10ZZZUR4HT / 1399081890	A-105	2	C615E	CHP-17989	Normalized	3Hrs	900°C	Air	C
9	09/100	3 " NB 300# WN RF SCH 40 (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PFY2ACGN03ZZZUR4H / 1399081893	A-105	13	C615E	CHP-17989	Normalized	3Hrs	900°C	Air	C
11	11/120	4 " NB 150# WN RF SCH 40 (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PFY2ACGN04ZZZU84H / 1399081896	A-105	26	C615E	CHP-17989	Normalized	3Hrs	900°C	Air	C



REVIEWED / NOTED  
.....% WITNESSED  
*Avinash Singh*



AVINASH SINGH

12	12/130	4" NB 300# WN RF SCH 40 (125-250AARH) ASME B 16.5 ,ITEM CODE / SAP- PFY2ACGN042ZZZUR4H / 1399081897	A-105	12	C615E	CHP-17989	Normalized	3Hrs	900°C	Air	C
13	13/140	6" NB 150# WN RF SCH 40 (125-250AARH) ASME B 16.5 ,ITEM CODE / SAP- PFY2ACGN062ZZU84H / 1399081899	A-105	3	C615E	CHP-17989	Normalized	3Hrs	900°C	Air	C
14	14/150	6" NB 300# WN RF SCH 40 (125-250AARH) ASME B 16.5 ,ITEM CODE / SAP- PFY2ACGN062ZZZUR4H / 1399081900	A-105	10	C615E	CHP-17989	Normalized	3Hrs	900°C	Air	C
15	15/160	8" NB 150# WN RF SCH 20 (125-250AARH) ASME B 16.5 ,ITEM CODE / SAP- PFY2ACGN082ZZU64H / 1399081901	A-105	1	C615E	CHP-17989	Normalized	3Hrs	900°C	Air	C
16	16/170	3" NB 150# WN RF SCH 40 (125-250AARH) ASME B 16.5 ,LTCS, ITEM CODE / SAP- PFY3F9GN032ZZU84H / 1399081909	A350 GR LF2 CL1	3	C615F	CHP-17616(A)	Normalized	3Hrs	900°C	Air	C
17	17/180	3" NB 300# WN RF SCH 40 (125-250AARH) ASME B 16.5 ,LTCS, ITEM CODE / SAP- PFY3F9GN032ZZZUR4H / 1399081910	A350 GR LF2 CL1	2	C615F	CHP-17616(A)	Normalized	3Hrs	900°C	Air	C
			<b>QTY =</b>	<b>104</b>							

**Inspection Authority**

For C D Engineering Company  
Manager Quality Control





M/s. CHAUDHRY STEELS (P) LTD.  
 C - 205, B.S.R.INDL.AREA, GHAZIABAD  
 Phone No.: 0120 4548839- 42  
 Mob. No.: 9818176461 & 8851644771  
 CIN : U27104UP1972PTC003615



### MATERIAL TEST CERTIFICATE

DATE: 22-09-20

BILL NO.: 623

CUSTOMER: C.D. ENGINEERING CO.

INGOT SIZE: 21x25 & 18x22

MATERIAL SPECIFICATION: A-105 / SA350 LF2

QTY.: 4 PCS

HEAT NO.: CHP-17616(A)

PO. NO.: RM/20-21/4

CHEMICAL COMPOSITION:

TC AS PER: EN-10204:3.1

ELEMENT	% Required	% Achieved	ELEMENT	% Required	% Achieved
Carbon	0.20 MAX	0.18	Aluminium	0.06 MAX	0.031
Silicon	0.15/0.30	0.28	Nb / Cb	0.05 MAX	0.001
Manganese	0.90/1.20	1.03	Vanadium	0.08 MAX	0.002
Sulphur	0.010 MAX	0.008	Copper	0.35 MAX	0.020
Phosphorous	0.020 MAX	0.019	Titanium	0.040 MAX	0.003
Chromium	0.10 MAX	0.080	Tin	0.006 MAX	0.005
Nickel	0.10 MAX	0.010	Boron	0.001 MAX	0.0008
Molybdenum	0.10 MAX	0.010	Nitrogen	0.010/0.030	0.018

### REMARKS

- (1) STEEL MELTING PROCESS- INDUCTION FURNACE.
- (2) STEEL IS ARGON PURGED AND FULLY KILLED WITH AI / Si ALLOYS.
- (3) STEEL IS BOTTOM POURED.
- (4) STEEL IS MADE BY FINE GRAIN PRACTICE.
- (5) SURFACE QUALITY OF INGOTS IS ACCEPTABLE AND FREE OF HARMFUL DEFECTS.
- (6) NO MERCURY / LEAD ADDED DURING STEEL MELTING PROCESS.
- (7) WELD REPAIRING IS NOT DONE ON THE RAW MATERIAL.
- (8) MATERIAL IS RADIOACTIVE CONTAMINATION FREE...% WITNESSED

REVIEWED / NOTED

100% WITNESSED

VINASH SINGH

150 TUV India

Technical Inspection Service

TUV

Quality Control Department

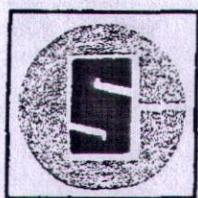
GHAZIABAD



<i>Vinash Singh</i>	<i>Vinash Singh</i>	<i>Vinash Singh</i>
Prepared By	Quality Incharge	Checked By

Address: C-205 & 206 Bulandshahr Road, Industrial Area, Ghaziabad-201009 (U.P.)

E mail ID: udit\_0023@hotmail.com & chaudhry\_steeels@rediffmail.com



M/s. CHAUDHRY STEELS (P) LTD.  
C - 205, B.S.R.INDL.AREA, GHAZIABAD  
Phone No.: 0120 4548839- 42  
Mob. No.: 9818176461 & 8851644771  
CIN : U27104UP1972PTC003615



### MATERIAL TEST CERTIFICATE

DATE : 12.01.2021

BILL NO.: 1078

CUSTOMER: C.D ENGINEERING C.O

INGOT SIZE: 15"X18"

MATERIAL SPECIFICATION: SA-105

QTY: 4 PCS

HEAT NO.: CHP 17989

P.O.N.O:- RM/20-21/7

#### CHEMICAL COMPOSITION:

TC AS PER : EN-10204:3.1

ELEMENT	% Required	% Achieved	ELEMENT	% Required	% Achieved
Carbon	.17/.24	0.20	Aluminium		0.042
Silicon	.15/.35	0.26	Nb / Cb		0.003
Manganese	.90 MIN	0.94	Vanadium		0.003
Sulphur	.025 MAX	0.016	Copper		0.020
Phosphorous	.025 MAX	0.021	Titanium		0.002
Chromium		0.13	Tin		0.001
Nickel		0.035	Boron		0.00
Molybdenum		0.012	Calcium		0.00

#### REMARKS

- (1) STEEL MELTING PROCESS- INDUCTION FURNACE.
- (2) STEEL IS ARGON PURGED AND FULLY KILLED WITH AI / SI ALLOYS.
- (3) STEEL IS BOTTOM Poured.
- (4) STEEL IS MADE BY FINE GRAIN PRACTICE.
- (5) SURFACE QUALITY OF INGOTS IS ACCEPTABLE AND FREE OF HARMFUL DEFECTS.
- (6) NO MERCURY / LEAD ADDED DURING STEEL MELTING PROCESS.
- (7) WELD REPAIRING IS NOT DONE ON THE RAW MATERIAL.
- (8) MATERIAL IS RADIOACTIVE CONTAMINATION FREE.

*Manufactured for Gujrat Alkalies & Chemicals Ltd*

*Po. 3160014666 dt 12/1/20*

*No. 1768*

*1st, 2nd, 3rd, 11, 12 to 5*



<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
<b>Prepared By</b>	<b>Quality Incharge</b>	<b>Checked By</b>

Address: C-205 & 206 Bulandshahr Road, Industrial Area, Ghaziabad-201009 (U.P.)  
E mail ID: uidit\_0023@hotmail.com & chaudhry\_steeels@rediffmail.com

SC-615

NORMALIZING  
CYCLE

Temp = 900°C

Scale : 1 Small Div = 24°C

Soaking time 3 Hrs

Cooling : Air

01/02/2021



04/02/2021

FORT THE SYSTEMS OF  
RCCLASS SYSTEMS SOLUTIONS PVT. LTD.

- Running  
Setup

Gurgaon Office

Lloyd's Register Management  
Inspection Services India Ltd.

Lloyd's  
Register

REVIEWED/NOTED

WITNESSED

A. K. SINGH



C615

17668 | IMTEX | CDE

2 1, 2, 7, 11, 10, 13 - A105 - CHP 18007 - A  
2 9, 11, 10 - ..  
2 8, 11, .. - ..

17639 | MULTITEX | CDE

2 1 - SA105 - CHP 18007 - A  
2 2, 3, 11, 12 - " - .. - B  
2 4, 6, 18, 9, 11 - " - .. - BB  
2 5, 7, 10 - .. - .. - C

17719 | LFT | UPA - FBR

2 1, 2, 4, 6 - A105 - CHP - P8007 - D  
2 3, 8, 9 - .. - .. - DD

17657 | IOCL | UPA ISR | IR CLASS

2 1, 2 - A105 - CHP 18007 - D

2 10 - A105 - FBR & PIA FPIA

2 4, 9, 11, 15 - " - .. - D

2 1, 2 - .. - .. - C

2 3, 16, 17 - U-2 - CHP 12, 989 - CC

17620 | MULTITEX | CDE

2 7, 8 - SA105 - CHP 18007 - A

2 3, 4, 5, 9 - .. - .. - B

2 1, 8, 6 - .. - .. - BB

2 2, 7, 10, 11 - .. - .. - C

17650 | IOCL | IR CLASS & FBR

2 1, 5, 9, 11, 12, 14, 15 - CHP 17616(A) - G

2 13, 14, 18, 20 - UF241 - " - GG

2 1, 8, 4 - A105 - CHP 18007 - G

17659 | IOCL | IR CLASS & FBR

2 3, 0, 8, 0, 4, 0 - A105 - CHP 18007 - D

17698 | FLASH POINT | CDE

2 2, 8, 3 - UF244 - CHP 18007 - FF

2 2, 2, 4 - SA105 - CHP 18007 - 20F02070V

2 7, 22, 30, 26 - SA105 - CHP 18007 - CD

2 1, 3, 4, 8, 18, 12, 25, 33 - " - CHP 17616(A) - G

2 5, 6, 1, 9, 10, 13, 1, 32 - " - CHP 17616(A) - HH

PP. 117

**MINI-CAR RACING**

C D Engineering Company.

C-199, Bulandshahr Road, Industrial Area,  
GHAZIABAD-201 001- (U.P.)  
Phone : 0120-2866315-17 Fax : 0120- 2866319  
E-mail: cdec@vsnl.com

FINAL INSPECTION SHEET

FORMAT NO-F-QAC:12

<b>C D Engineering Company</b>	Ref. No. : 17638/01 Client : GUJARAT ALKALIES AND CHEMICALS LIMITED P.O. No : 3100014666 DT.02.01.2021 W.O. No. : 17638 Dimension Std. : AS PER ASME B16.5.	Date : 09/02/2021. P.O. Dt.: 09/12/2020. Inspn. : TPIA (LRA-IBR) Order Status P / C
C-199, Bulandshahr Road, Industrial Area, GHAZIABAD-201 001-(U.P.) Phone : 0120-2866315-17 Fax : 0120- 2866319 E-mail: cdec@vsnl.com		

We hereby offer that the following items are ready for FINAL INSPECTION & ACCEPTANCE.

QTY = 2



For C D Engineering Company

Manager Quality Control



Inspection Authority

**FORM-IIIC**

**CERTIFICATE OF MANUFACTURING AND TEST OF BOILER MOUNTING AND FITTINGS**  
{REGULATION – 4(g)}

Certificate No	:	17638/01	Dated 08/02/2021.
LR Control No	:	NWD2100151/01	Dated 08/02/2021.
Name of Part	:	C.S .Forged Flanges / Component	
Maker's Name and Address	:	M/s C D Engineering Company. C-199 Bulandshahr Road, Industrial Estate, Ghaziabad.	
Client Name	:	M/S GUJARAT ALKALIES AND CHEMICALS LIMITED, BHARUCH, GUJARAT.	
P.O .NO	:	3100014666 Date 02.01.2021 .	
Design Pressure	:	N.A: Kg./mm	
Design Temperature	:	N.A.: °C	
Hydraulic Pressure	:	N.A: Kg./mm	

Description: CS Forged, Flanges as per ASME B16.5, Ed-2017 to PO material ASTM A105, Ed 2017. ( IBR Items )

PO S.No	Description	Forging Specn.	Qty. (Nos)	Group No.
10/110	3 " NB 150# WN RF SCH 40 (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PFY2ACRN03ZZU84H / 1399081894	A-105	2	C615D
			Qty	2

Dimensional Std : ASME B 16.5, Ed-2017.

H T Condition : Normalised at 900 °C Soaking Time – 3Hrs, Air = Cooled .

**Identification Marks:**

1- 2	10/110	T No	C615D	3" - 150 - SCH 40 - A-105 - N - B 16 IC- PFY2ACRN03ZZU84H

**Inspecting Authority Identification Marks :**

Certificate No : Form III – G : 17638/01 IBR Dated 02/02/2021

LA=Laddle analysis, PA= Product analysis

**Chemical Composition%:-**

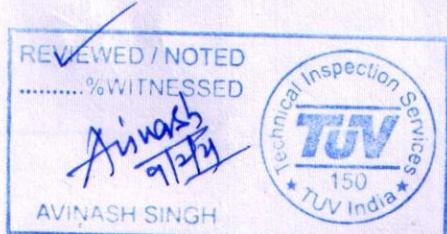
Group No	C	Si	Mn	P	S	Ni	Cr	Mo	V	Cu	Cb	Al	Sn	N	Cast No.	CE%
C615D (LA)	.20	.27	.97	.022	.014	.036	.15	.012	.003	.036	.002	.036	-	-	CHP-18007	.40
C615D (PA)	.20	.25	.96	.020	.013	.022	.14	.010	.002	.032	.003	.034	-	-	-do-	.39

**Physical Test Result(s):**

Group No.	YS MPa (0.2% off set method)	Tensile Strength (MPA)	E.L.% on (4D)-(5D)	Red. in Area %	Hardness (BHN)	Bend Test	Charpy V Notch 10X10X55MM (2mm V Notch)				
							1	2	3	Avg	Temp. °C
C615D	332	560	30.00 25.16	56.97	148,150	OK	-	-	-	-	-

Supplementary Testing	Test/Acceptance Standard	Remarks
-	-	-

*Manu G*



**Raw Material :--**

Process of Manufacturing : Electric Induction Furnace  
Fully Killed / rimmed : Material used fully killed steel,  
Matl Specification : ASTM A105  
HEAT NO : CHP-18007  
SIZE : 15"X 18"

Test Certificate No & date : 1075 DTD 05.01.2021.

Name of the Maker: M/S Chaudhary Steels Pvt Ltd.,( Well Known Steel Maker )

Name of Inspection Authority :M/S Chaudhary Steels Pvt Ltd. ( Well Known Steel Maker )

It is certified that No Welding Carried out on forging.

Certified that the particulars entered herein by us are correct.

The Part / Forgings has been designed and constructed to comply with the INDIAN BOILER REGULATIONS 1950 and its amendments applicable for a Maximum working pressure of ..... kg/cm<sup>2</sup> and maximum temperature of -- °C and satisfactorily stood a hydraulic test using water or kerosene or any other suitable liquid to a pressure of..... on the ..... day of \_\_\_\_ in the presence of our responsible representative whose signature is appended here under :-

We Are Well Known Forge Certified by Central Boiler Board Vide Approval Certificate No- 249  
dtd 11/09/2020 and CBB Certificate Valid Up to dtd 27/02/2025

Date of Inspection : 08/02/2021

Order Status : Complete.

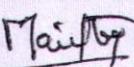
  
**C.D. ENGINEERING CO.**  
Maker's Representative  
(Rajesh Goel) 199, INDUSTRIAL AREA,  
JALANDSHAHAR  
GHAZIABAD

  
**C.D. ENGINEERING CO.**  
MAKER  
(R.B. Yadav)  
199, INDUSTRIAL AREA,  
BULANDSHAHAR ROAD,  
GHAZIABAD

We have satisfied ourselves and the Part /fitting has been constructed and tested in accordance with the requirement of the Indian Boiler Regulations 1950 and its amendments applicable. We further certify that the particulars entered herein are correct.

Place : Ghaziabad..  
Date : 08/02/2021.

Name and signature of the  
Inspecting Authority



Manish Kumar Jha  
Competent Person  
CBB Authorisation No. 119/2019.  
Date: 08/02/2021  
Control No: HHD21001514-1  
Gurugram Office  
Lloyd's Register Marine and Inspection Services India LLP





C.D.ENGINEERING COMPANY

(DIMENSIONAL / VISUAL REPORT)

OFF.: 01202866315, 2866316  
FAX : 0120-2866319

CLIENT.M/S.GUJARAT ALKALIES AND CHEMICALS LIMITED

Order No. 3100014666 DT 03 01 2021

Dimensional STD : B 16.5

Date 9/21/2021 Inspection Agency TEN-WORD  
Mat'l Specification A105



IDENTIFICATION : 110-710 C615EE 19 " Y-14

IDNIFICATION:-  
Inspection By .....



Checked By.....



C.D.ENGINEERING COMPANY

(DIMENSIONAL / VISUAL REPORT)

Ref. No. 17638

CLIENT.M/S.GUJARAT ALKALIES AND CHEMICALS LIMITED

Order No.3100014666 DT:02-01-2021

Dimensional STD : B 165



IDENTIFICATION: 3/30 TRIO C 615F LC 3-1

IDNETIFICATION:-  
Inspection By .....











"FINAL INSPECTION"

C.D. ENGINEERING COMPANY

(DIMENSIONAL / VISUAL REPORT)

Ref. No. 17638

CLIENT.M/S.GUJARAT ALKALIES AND CHEMICALS LIMITED

Order No.3100014666 DT.02-01-2021

Dimensional STD : B 16.5

ALL DIMENSION ARE IN MM/INCHES

OFF.: 01202866315,2866316  
FAX : 0120-2866319



"FINAL INSPECTION"

C.D. ENGINEERING COMPANY

(DIMENSIONAL / VISUAL REPORT)

Ref. No.17638

CLIENT.M/S.GUJARAT ALKALIES AND CHEMICALS LIMITED

Order No.3100014666 DT.02.01.2021

Dimensional STD : B 16.5

OFF.: 01202866315,2866319  
FAX : 0120-2866319

Date ... 9/2/2021  
Inspection Agency ..... TUV-NORD  
Mat'l Specification..... A105

ALL DIMENSION ARE IN MM/INCHES

(Note-\* is Measured with RF depth)

Order No.	DESCRIPTION IDENTIFICATION	QTY.	S.NO.	O (O.D.)	R/K (R.F.)	ID (Bore) or W.T.	*Y/L (LENGTH)	Total C (Thick)	R.F. DEPTH	PCD	Hole Size	No. of Holes	B2/Ah	HUB(X)	U	W	D
					±1.5MM	±1.0MM	±1.0MM	+1.5MM, -0.0MM	3.0MM	±1.5MM			+4.0MM				
8/90.	10 " NB 300# WIN LT SCH 40 (125-250AARH) ASME B 16.5 , LARGE TONGUE, ITEM CODE / SAP- PLC2ACGN10ZZZUR4H T / 1399081890	2	Reqd.	445.0	323.8	254.50	116.0	46.1	7.0	387.4	28.6	16	273.0			-1.0MM	
		1		445	324	254	124.0	48.2	7.0	387.4	28.6	16	275.0			285.8	
		2		446	324	254	124.5	49.0	7.0	387.4	28.6	16	275.0			285.8	



8/90 TUVOC615E LG 10"-300 SCH-10 A105N-B16

Inspection By .....

TC- PLC2 AC6 N10 ZZZ UR4H



"FINAL INSPECTION"



C.D. ENGINEERING COMPANY

(DIMENSIONAL / VISUAL REPORT)

Ref. No.17638

Order No.3100014666 DT.02.01.202

Dimensional STD : B 16.5

S:100014666 D:02.01.2021

S:100014666 D:02.01.2021

ALL DIMENSION ARE IN MM/INCHES

OFF.: 01202866315,2866316  
FAX : 0120-2866319

Date ... 9/21/2021      Inspection Agency ... TUV-NORD  
Mat'l Specification ... AHS05

(Note-\*y is Measured with RF device)

(Note-\*γ is Measured with RE done)



"FINAL INSPECTION"

C.D. ENGINEERING COMPANY

(DIMENSIONAL / VISUAL REPORT)

OFF.: 01202866315, 2866316  
FAX : 0120-2866319

Ref. No.17638

CLIENT: M/S.GUJARAT ALKALIES AND CHEMICALS LIMITED

Order No.3100014666 DT.02.01.2021

Dimensional STD : B 16.5

Date ... 9/2/2021  
Inspection Agency TUV-NORD  
Mat'l Specification A105

ALL DIMENSION ARE IN MM/INCHES

(Note:- \*y is Measured with RF depth)

Order No.	DESCRIPTION IDENTIFICATION	QTY.	S.NO.	O (O.D.)	R/K (R.F.)	ID (Bore) or W.T.	*Y/L Total (Length)	C (Thick)	R.F. DEPTH	PCD	Hole size	No. of Holes	B2/Ah	HUB(X)	U	W	D
						±1.5MM	±1.0MM	±1.0MM	±1.5MM	+3.0MM, -0.0MM			±1.5MM		+2.0MM	-1.0MM	
12/130	4" NB 300# WN RF SCH 40 (125-250AARH) ASME B 16.5 , ITEM CODE / SAP- PFY2ACGN04ZZZUR4H / 1399081897	12 Rqd.	255.0	157.2	102.30	84.0	30.2	2.0	200.0	22.2	8	114.3					
		1	256	157.2	102.0	87.0	31.0	2	200	22	8	116.0					
		2	256	157.3	102.0	86.6	32.4	2	200.0	22	8	116.0					
		3	255	157.3	102.0	87.0	33.0	2	200.3	22	8	115.6					
		4	256	157.4	102.0	87.0	32.6	2	200.0	22	8	116.0					
		5	256	157.4	102.0	86.9	33.0	2	200.0	22	8	116.0					
		6	255	157.4	102.0	86.7	32.6	2	200.6	22	8	116.0					
		7	256	157.4	102.0	86.7	33.0	2	200.3	22	8	116.0					
		8	256	157.3	102.0	86.8	32.4	2	200.4	22	8	115.6					
		9	255	157.4	102.3	87.0	33.0	2	200.6	22	8	116.0					
		10	256	157.6	102.0	87.0	32.6	2	200.3	22	8	116.0					
		11	256	157.4	102.0	86.9	33.0	2	200.4	22	8	115.6					
		12	255	157.4	102.1	87.0	32.4	2	200.3	22	8	116.0					

IDENTIFICATION:-

Inspection By .....



SCIENCE ENGINEERING CO.  
Quality Control Department  
Checked By .....

12/130 TRIO C615E LG 4"-300 SCH-40 A105N-B16

T.C-PFY2 ACC NOY ZZ ZUR4H /

'FINAL INSPECTION'

C.D. ENGINEERING COMPANY

(DIMENSIONAL / VISUAL REPORT)

Ref. No. 17638

CLIENT.M/S.GUJARAT ALKALIES AND CHEMICALS LIMITED

Order No. 3100014666 DT 03 01 2021

Dimensional STD : B 16.5

ALL DIMENSION ARE IN MM/INCHES

OFF.: 01202866315,2866316  
FAX: 0120-2866319

Date ... 9/2/2021

TOV-NORD  
Inspection Agency ANOGN  
Mat'l Specification

Order No.3100014666 DT:02-01-2021



CN:

13/140 πνΩ C615 E (L) 6"-150 SCH-40 A105 N-B16  
Checked By: ...

"FINAL INSPECTION"

C.D. ENGINEERING COMPANY

(DIMENSIONAL / VISUAL REPORT)

Ref. No. 17638

CLIENT.M/S.GUJARAT ALKALIES AND CHEMICALS LIMITED

Order No.3100014666 DT.02.01.2021

Dimensional STD : B 16.5

OFF.: 01202866315,2866316  
FAX : 0120-2866319

Date ... 9/2/2021

Inspection Agency TUV-NORD  
Mat'l Specification A105

ALL DIMENSION ARE IN MM/INCHES

(Note-\*y is Measured with RF depth)





"FINAL INSPECTION"



C.D. ENGINEERING COMPANY

OFF.: 01202866315, 2866316  
FAX: 0120-2866319

(DIMENSIONAL / VISUAL REPORT)

ref. No.17638  
CLIENT.M/S.GUJARAT ALKALIES AND CHEMICALS LIMITED

Order No. 3100014666 DT 03/01/2021

3-dimensional STD : B 16-5

ALL DIMENSION ARE IN MM/INCHES

Date ... 9/2/2024

Inspection Agency HOV-NORD  
Mat'l Specification A350192-001

(Note-\* v is Measured with BF don't)

Material Specification 4...1...1...1...1...1...1											
Order No.	DESCRIPTION IDENTIFICATION	QTY.	S.NO.	O (O.D.)	R/K (R.F.)	ID (Bore) or W.T. (LENGTH)	*Y/L Total LENGTH)	C (Thick)	R.F. DEPTH	PCD	Hole Size
17/180	3" NB 300# WN RF SCH 40 (125-250AARH) ASME B16.5, LTCS, ITEM CODE / SAP-PFY3FGN03ZZZUR4H / 1399081910	2 Req'd.	210.0	127.0	77.90	78.0	27.0	2.0	168.3	22.2	8
		1	210	127	77.0	81.0	28.0	2	168.3	22	8
		2	211.0	127.0	77.4	81.0	29.4	2	168.3	22	8

(Note-\*y is Measured with RF depth)

QC Department Quality Control Department

Check By.....

17/180 11/10/2015

REVIEWED / NOTED  
AVINASH SINGH

TECHNICAL INSPECTION SERVICES INDIA  
150

Inspection By .....

ID IDENTIFICATION:-

GATE ENGINEERING CO.

## **IDENTIFICATION:-**

Inspection By .....

17/180 TR00615FLQ3<sup>11</sup>-300 SCH-10 A350 LF2 CL1-N-B16 LTCS,  
TC "PFY3F9GN03ZZZUR4H / -