



ITEM NO.	DESCRIPTION	MATERIAL	QTY.	REMARKS
1A	SHELL 1050 I.D. x 200 L.S. x 18 THK	A240 TYPF 304 L	1	FOR TS, TS2 & TS3
1B	SHELL 1050 I.D. x 200 L.S. x 12 THK	A240 TYPF 304 L	1	FOR TS4 TO TS14
2	TOP HEAD 1050 I.D. x 200 L.S. x 18 THK	A240 TYPF 304 L	2	TO BE SUPPLIED BY CUSTOMER
3A	MAIN FLANGE 1280 O.D. x 1050 I.D. x 14 THK	ASTM A584 CL 2	2	FOR TS, TS2 & TS3
3B	MAIN FLANGE 1280 O.D. x 1050 I.D. x 12 THK	ASTM A584 CL 2	2	FOR TS 4 TO TS14
4	NOZZLE N-1 120 O.D. x 200 L.S. x 12 THK	A240 TYPF 304 L	1	
5	NOZZLE N-2 120 O.D. x 100 L.S. x 12 THK	A167 F 304 L	1	
6	NOZZLE N-3 120 O.D. x 100 L.S. x 12 THK	A167 F 304 L	1	
7	COVER FLANGE 150 O.D. x 100 I.D. x 14 THK	A167 F 304 L	1	
8	MAIN FLANGE DOVEL PIN Ø 25 x 284 Lg.	A105	2	
9	PIPE 120 O.D. x 10 THK BEAMLESS	A312 TP 304 L	1	
10	N-2 FLANGE 150 O.D. x 100 L.S. x 14 THK	A167 F 304 L	1	
11	N-3 FLANGE 150 O.D. x 100 L.S. x 14 THK	A167 F 304 L	1	
12	SOFT SOFTLY BEAMLESS	A312 TP 304 L	1	
13	10 NB SCRF FLANGE 100.3x (N-3)	A167 F 304 L	1	
14	10 NB SCRF BEAMLESS	A312 TP 304 L	1	
15	FLANGE Ø 100 SCRF 100.3x (N-4)	A167 F 304 L	1	
16	10 NB SCRF BEAMLESS	A312 TP 304 L	1	
17	Ø 100 SCRF BEAMLESS	ELUMIN	1	
18	GASKET 443 O.D. x 306 I.D. x 3 THK	ELUMIN	2	
19	COLUMN STUDS M33 x 3.5 PITCH x 380 Lg.	A10 G 2 H	36	SALVANISED (SEE NOTE 16)
20	NUT FOR COLUMN STUD M33 x 3.5 PITCH	A10 G 2 H	36	SALVANISED
21	WASHER FOR M33 STUD	A105	36	SALVANISED
22	N-1 STUD M33 x 3.5 PITCH	A10 G 2 H	36	SALVANISED
23	NUT FOR N1 STUD M33	A10 G 2 H	36	SALVANISED
24	WASHER FOR M33 STUD	A105	36	SALVANISED
25	1 NB NPT 1/2" PLUG	A105	3	
26	1/4 SOCKET SCREW M10 x 20 Lg.	A10 G 2 H	12	
27	N-2 SOCKET SCREW M10 x 20 Lg.	A10 G 2 H	8	
28	10 NB DIA/FRAM VALVE SCRF ENDS	DETAIL A, B, C	1	
29	SIGHT GLASS FOR N-2 Ø 12 x 136 Lx 2 THK	TOUGHENED GLASS	2	
30	N-1 CORRESP. PIN Ø 20 x 200 Lg.	A167 F 304 L	2	
31	CLAMP Ø 20 x 200 Lg. SCRF	A167 F 304 L	2	
32	GASKET 128 O.D. x 100 I.D. x 3 THK	E.P.R.	2	
33	15 NB ADAPTOR	A167 F 304 L	1	
34	FACE 300 x 300 x 6 THK	A240 TYPF 304 L	4	
35	GASGE FOR PASSING THROUGH SECTION	SS	1	
36	FACE 300 x 300 x 6 THK	ASBESTOS IS BANNED	1	
37	1/2" NPT - 4 O.D. x 70 L.G.	A167 F 304 L	2	
38	1/2" NPT PLUG	A105	2	
39	Ø 100 SCRF FLANGE	AME F 304 L	2	REFER NOTE 17 (REFER DRAWING NO. 12345678)

MARK	SIZE	END CONNECTION	SERVICE
N-1	420 O.D. x 12 THK		MAINHOLE
N-2	120 NB SCRF 4N		VIEWPORT
N-3	10 NB SCRF 4N	100 SCRF	VIEWPORT
N-4	10 NB SCRF 4N	100 SCRF	FEED
N-5	15 NB SCRF 4N	100 SCRF	SAMPLE

REFER DRG. NO. GHVP-182-34330201 FOR NOZZLE DETAIL OF N-1 TO N-5 AND NO. GHVP-182-34330202 FOR NOZZLE DETAIL OF N-1 AND N-2.

- DESIGN DATA**
1. CODE/CLASSIFICATION: UG-27 (LATEST EDITION OF ASME BOILER & PRESSURE VESSEL CODE SECTION VIII DIVISION-1, SECTION (A) AND SECTION (B))
 2. DESIGN PRESSURE: 15 kg/cm² (G) EXTERNAL, 1.8 kg/cm² (G) INTERNAL
 3. DESIGN TEMPERATURE: 100° C
 4. OPERATING PRESSURE: 12000 kg/cm² (TO 24000 kg/cm²)
 5. OPERATING TEMPERATURE: 50° C TO 40° C
 6. CORROSION ALLOWANCE: 1.5 MM ON CE PARTS & 1.0 MM ON SS PARTS
 7. FLUID HANDLED: HEAVY WATER

- NOTES:**
1. ALL DIMENSIONS ARE IN MM UNLESS SPECIFIED OTHERWISE
 2. BILL OF MATERIALS SHOWS QTY. FOR ONE SECTION ONLY
 3. ALL LIQUID COLLECTORS, DISTRIBUTORS AND TOP & BOTTOM SUPPORT RINGS ALONG WITH FITTINGS SHOULD BE ASSEMBLED IN THE SECTIONS MATCH MARKED & IDENTIFIED FOR EACH COLUMN SECTION AS TS-1, TS-2 TO 30 OR BEFORE OPTICAL CHECK
 4. ORIENTATION VIEW SHOWS THE CORRECT POSITION OF ALL THE NOZZLE CONNECTIONS & FITTINGS
 5. EMPTY HEIGHT OF SECTIONS: TS1 TO TS-3: 2700 MM; TS4 TO TS-14 AND N-1: 2400 MM
 6. FOR ALL COLUMN SECTIONS AT ANY CROSS SECTION OF THE SHELL INCLUDING THROUGH NOZZLES, ID MEASUREMENTS SHOULD BE 100 ± 0.25 MM
 7. EACH MATCHED UP FLAT SURFACE SHOULD BE PARALLEL TO EACH OTHER & PERPENDICULAR TO THE AXIS OF THE SECTION WITHIN 0.10 DIRECTLY SECTIONS
 8. THE ENTIRE DISTILLATION COLUMN ASSEMBLY CONSISTING OF DUMP, 14 COLUMN SECTIONS AND VAPOUR REFORMER CONDENSER ASSEMBLY SHALL BE SO FABRICATED THAT WHEN ALIGNED IN ITS FINAL AND FREE ERRECTED CONDITION, THE VERTICALITY SHALL BE WITHIN 10 MM AS MEASURED IN ANY ORIENTATION. THE OUT OF STRAIGHTNESS & SECTION LENGTH TOLERANCE SHOULD NOT BE MORE THAN 2.5 MM AND SHOULD NOT EXCEED 10 MM MEASURED BETWEEN ANY TWO POINTS ONE METRE APART.
 9. THE DIA. OF GAUGE FOR PASSING THROUGH THE COLUMN SECTION SHALL BE 200 ± 0.25 MM
 10. PNEUMATIC AND VACUUM TESTS SHALL BE PERFORMED ON SEVERAL SECTIONS USING 1.5 MM THICK RUBBER GASKET AND BUTYLENE TESTING FLUIDS
 11. ALIGNMENT TEST SHALL BE PERFORMED IN THE SHOP, IN SEVEN SUB ASSEMBLIES, CONSISTING OF THE DUMP AND THREE COLUMN SECTIONS WITH LIQUID COLLECTOR ASSEMBLY IN VERTICAL CONDITION. ONE OF THE 3 COLUMN SECTIONS IS TO BE INCLUDED IN EACH SUB ASSEMBLY IN ITS PROPER SEQUENCE. REFER SPEC. N-1 & N-2
 12. THE STEP ON THE TOP OF EACH COLUMN SECTION SHALL BE PARALLEL TO THE AXIS OF THE COLUMN SECTION.
 13. THE STEP ON THE TOP OF EACH COLUMN SECTION SHALL BE PARALLEL TO THE AXIS OF THE COLUMN SECTION.
 14. THE STEP ON THE TOP OF EACH COLUMN SECTION SHALL BE PARALLEL TO THE AXIS OF THE COLUMN SECTION.
 15. SOUP BUBBLE TEST TO BE CARRIED OUT ON WELDING MARKER # 4 AT 4 kg/cm² (G)
 16. NOZZLE N-1 & N-2 SHALL BE 1" SPACED FROM THE HORIZONTAL AND THE FLANGE FACES SHALL BE PARALLEL TO THE AXIS OF THE COLUMN SECTION.
 17. REFER DRG. NO. GHVP-182-34330202 FOR GENERAL NOTES.
 18. DESIGN FOR CORROSION RESISTANCE

EQUIPMENT TAG NOS. FOR DISTILLATION COLUMN ASSEMBLY

DESCRIPTION	ASSEMBLY #1	ASSEMBLY #2	ASSEMBLY #3	ASSEMBLY #4
COLUMN FLUMP	1-780	2-780	3-780	4-780
COLUMN SECTIONS	1-120 TO 1-214	2-120 TO 2-124	3-120 TO 3-124	4-120 TO 4-124
LIQUID COLLECTOR	1-100	2-100	3-100	4-100
NOZZLE CONNECTION	1-100	2-100	3-100	4-100

NUCLEAR POWER CORPORATION OF INDIA LTD.
(A GOVERNMENT OF INDIA ENTERPRISE)

GENERAL ASSEMBLY OF DISTILLATION COLUMN
DRAWING NO. GHVP-182-34330201

PROJECT: GHVP-182

DATE: 12/01/2010

SCALE: 1:1

DESIGNER: [Signature]

CHECKER: [Signature]

APPROVED: [Signature]

PROJECT ENGINEER: [Signature]

PROJECT MANAGER: [Signature]

PROJECT SUPERVISOR: [Signature]

PROJECT ASSISTANT: [Signature]

PROJECT CLERK: [Signature]

PROJECT OFFICE: [Signature]

PROJECT ADDRESS: [Signature]

PROJECT PHONE: [Signature]

PROJECT FAX: [Signature]

PROJECT E-MAIL: [Signature]

PROJECT WEBSITE: [Signature]

PROJECT URL: [Signature]

PROJECT IP: [Signature]

PROJECT PORT: [Signature]

PROJECT PROXY: [Signature]

PROJECT USER: [Signature]

PROJECT PASSWORD: [Signature]

PROJECT CERTIFICATE: [Signature]

PROJECT KEY: [Signature]

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PROJECT BBOX: [Signature]

PROJECT ZINDEX: [Signature]

PROJECT OPAQUE: [Signature]

PROJECT LOCKED: [Signature]

PROJECT FROZEN: [Signature]

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PROJECT MAINTENANCE: [Signature]

PROJECT UPGRADE: [Signature]

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PROJECT RESILIENCE: [Signature]

PROJECT ADAPTABILITY: [Signature]

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PROJECT SCALABILITY: [Signature]

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PROJECT PRIVACY: [Signature]

PROJECT ACCESSIBILITY: [Signature]

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