

Telephone: 25594549, 25596015  
Fax No.: +91 22 25505151/25519613

Trombay  
Mumbai- 400085



Government of India  
Bhabha Atomic Research Centre  
Uranium Extraction Division

Ref. No: UED/PI.13/21/20156

December 17, 2021

Tender No. = BARC/UED/SS/21124  
Due Date = 03.01.2022

**Sub: Designing, fabrication, testing and Supply of FRP-PVDF agitated tanks.**

Quotations are invited in two parts (**Part A: Technical Bid and Part B: Price Bid**) on behalf of President of India in sealed envelope for **Designing, fabrication, testing and Supply of FRP-PVDF agitated tanks** as per following specific terms and conditions.

**1. Scope of work:**

**Designing, fabrication, testing and Supply of FRP-PVDF agitated tanks** as per the following technical details:

**1. DISSOLUTION TANK:**

Quantity	:	02 Nos
MOC	:	FRP-PVDF
Identification number	:	T-1 & T-3
Type	:	Agitated Vessel with 6 PBT (45°) Agitator
PV/GV	:	165/330L
Heads	:	Elliptical Head (top), conical (bottom)
Cyl. Shell H/D	:	1.2:1
Design Pressure	:	2.0 bar
Inside Dia	:	650 mm
Straight Length	:	780.00 mm
Total Thickness	:	8 mm (PVDF + FRP)
PVDF thickness	:	3 mm (minimum)
FRP thickness	:	5 mm (minimum) <b>Isothallic type</b>
Baffles	:	4 Nos with 65mm width
Agitator	:	Impeller Diameter = 215 mm, No of Impellers = 1 No
Motor	:	1.0 kW, AC induction with Speed Control
Distance (Z) from Bottom:	:	185 mm
Inside Dish Depth	:	162.5 mm (Top)
Volume at Level (552.5 mm, 50% level)	:	= 165 L

Each vessel should have 04 lugs for placement/installation.  
Please refer Drawing No. = BARC/UED/Tank/01 & BARC/UED/Tank/03

## 2. PRECIPITATION TANK:

<b>Quantity</b>	:	<b>02 Nos</b>
<b>MOC</b>	:	<b>FRP-PVDF</b>
<b>Identification number</b>	:	<b>T-2 &amp; T-4</b>
Type	:	Agitated Pressure Vessel with 6 PBT (45°) agitator, Impeller Dia = 265 mm
PV/GV	:	360/500L
Heads	:	Elliptical Head (top), conical (bottom)
Cyl. Shell H/D	:	1:1
Design Pressure	:	2.0 bar
Gas Distributer	:	10 NB pipe
Inside Diameter	:	780 mm
Straight Length	:	780 mm
Inside Dish Depth	:	195 mm (Top)
Total Thickness	:	8 mm (PVDF + FRP)
PVDF thickness	:	3 mm (minimum)
FRP thickness	:	5 mm (minimum) <b>Isothallic type</b>
Identification number	:	T-2 & T-4
<b>Baffles</b>	:	4 Nos with 78 mm width
Motor	:	1 kW, AC induction with Speed Control
Gas Distribution	:	Pipe Dia = 25 NB, Distributor dia = (OD) 600mm, ID ( 565 mm) Holes 3mm dia , downward 45° inner side facing
Volume at Level (820 mm):	:	360 L
Distance (Z) from Bottom:	:	275 mm

Each vessel should have 04 lugs for placement/installation.  
Please refer Drawing No. = BARC/UED/Tank/02 & BARC/UED/Tank/04

## 3. PRECIPITATION TANK:

<b>Quantity</b>	:	<b>01 No</b>
<b>MOC</b>	:	<b>FRP-PVDF</b>
<b>Identification number</b>	:	<b>T-9 (ADUC precipitation tank)</b>
Design Pressure	:	2.0 bar
Agitator Type	:	Radial agitator (Non standard)
Number of agitators	:	02
Impeller diameter	:	240 mm
PV/GV	:	450L/625 L
Heads	:	Elliptical Head (top), conical (bottom)
Cyl. Shell H/D	:	1:1.5
Gas Distributer	:	40 NB pipe
Inside Diameter	:	757 mm
Straight Length	:	1135 mm
Inside Dish Depth	:	190 mm (top)
Total Thickness	:	8 mm (PVDF + FRP)
PVDF thickness	:	3 mm (minimum)
FRP thickness	:	5 mm (minimum) <b>Isothallic type</b>
<b>Baffles</b>	:	4 Nos with 95 mm width
Motor	:	1.5 kW, FLP motor
Gas Distribution	:	Pipe Dia = 40 NB, Distributor dia = (OD) 810mm, ID ( 756.6 mm) Holes 3mm dia , downward 45° inner side facing
Volume at Level (1065 mm):	:	450 L

Distance (Z) from Bottom: Z1 = 302 mm, Z2 = 604 mm

Vessel should have 04 lugs for placement/installation.

Please refer Drawing No. = BARC/UED/Tank/09

- All Gear Boxes should be Heavy Duty, High efficiency, Helical type with dry well arrangements either from Paras make or equivalent.
- For transportation and storage, each vessel should be placed on a MS stand.

#### **Quality Assurance plan:**

Following inspection or tests will be conducted for quality control purpose.

- Visual/physical testing will be conducted for all raw materials as well as for finished products.
- Pressure testing for pressure vessels will be carried out at 2.0 Kg/cm<sup>2</sup> (g).
- Spark test = 100%
- Manufacturer test report for motors should be provided.
- Material test report for all the materials used should be provided.
- Performance test for agitator fitted vessel (in water filled condition) will be carried out.

#### **Special Note:**

- **Party should provide their company profile and infrastructure along with the details of previous executed orders of similar types.**
- Prior intimation must be given to department about testing to be carried out at the vendor's premises. Provision of all facilities required for testing and quality assurance shall be the vendor's responsibility.
- The detailed design and drawing is in vendor's scope. The drawing shall be sent for approval before starting the fabrication job as per process requirement.
- Before starting the work, vendor has to prepare the final drawing and send it for approval.
- The vendor shall submit Quality Assurance Plan (QAP) and time schedule for the fabrication work for approval. The Supplier shall indicate in detail the standards adopted for the materials, processes and the quality control procedures followed by them.
- The supplier shall incorporate minor changes in the design as required at the time of execution of work at no extra cost.
- Material being used shall be new, genuine quality and pas per the relevant ASTM standard. The fabrication work will start only after obtaining due approval from BARC on the raw material / components procured by the vendor/fabricator.
- 3 copies of final as build drawing, technical datasheet for mechanical and electrical items, all reports, test certificates and other necessary quality control documents to be submitted before delivery.
- The fabrication is under the scope of the vendor with all the materials. No free issue material will be provided by BARC.

- The unit shall be packed and transported properly and shall be handled carefully to avoid damage during transit.
- The transportation of entire unit from the works of the party shall be sent to BARC, Trombay, Mumbai 400085 as per the address provided in the work order.
- Party may have to submit original transport bill along with bill.

### **Tendering Procedure**

#### **Two Part Tender:**

The tender will be opened in two parts

- 1) Part A – Technical bid (should not include the quoted price),
- 2) Part B – Price bid.

Hence, the vendor has to submit the quotations against this tender in two separate sealed envelopes clearly mentioning Tender No, Part A and Part B on the envelope. Both the envelopes should be posted in single bigger envelope and Tender No., and due date should be written on top of the main envelope.

Part A will be opened as per due date, Part B will be opened only after scrutinizing the technical part by the appropriate committee or authority. Only the Part B of technically suitable offer will be opened for further processing.

**Note: The offer with the single bid (either Part A or Part B) will be considered as invalid offer.**

### **TERMS AND CONDITIONS:**

***Note: [Reference: (2/Misc-9/Lgl/2001/92 dated April 30, 2001, BARC]***

- I. **Confidentiality:** No party shall disclose any information to any third party concerning the matters under this contract generally. In particular, any information identified as “**Propriety**” in nature by the disclosing party shall be kept strictly confidential by the receiving party and shall not be disclosed to any third party without the prior written consent of the original disclosing party. This clause shall apply to the sub-contractors, consultants, advisers or the employees engaged by a party with equal force.
- II. “Restricted information” categories under Section 18 of the Atomic Energy Act, 1962 and “Official Secrets” under Section 5 of the Official Secrets Act, 1923:-

**Any contravention of the above –mentioned provisions by any contractor, sub-contractor, consultant, adviser or the employees of a contractor will invite penal consequences under the aforesaid legislation.**

- III. Prohibition against use of BARC’s name without permission for publicity purposes:

**The contractor or sub-contractor, consultant, adviser or the employees engaged by the contractor shall not use BARC's name for any publicity purpose through any public media like Press, Radio, T.V. or Internet without the prior written approval of BARC.**

- Price** : Inclusive of all taxes and will remain firm throughout the contract
- Guarantee** : The supplier shall guarantee against any workmanship defect and trouble free performance for a period of one year from the date of work completion.
- Delivery** : **Within 03 months** from the date of receipt of the order.
- INCOME TAX** : Income tax @ 2% and GST TDS @ 2% will be deducted from bill.
- GST** : GST will be considered @ 5.0%. So GST exemption certificate will be issued by BARC.
- Payment** : 100% after satisfactory completion of work and submission of the following documents.
- (a) Challan and Original bill each in triplicate
  - (b) Advance stamped receipt, copy of cancelled cheque, Bank details and ECS mandate form
  - (c) Guarantee certificate
  - (d) Undertaking that GST has been promptly deposited with authorities
  - (e) Declaration confirming filing of Income Tax return from immediate two preceding years

**Any delay, which is attributable to the contractor, is liable for penalty @ 0.5% per week (max. 10%) and shall be imposed on contractor.**

**Quotations should reach by speed post/registered post only on or before the stipulated date to**

The Head,  
UED, BARC,  
Trombay, Mumbai - 400085

**in sealed envelope clearly mentioning the tender number and due date.**

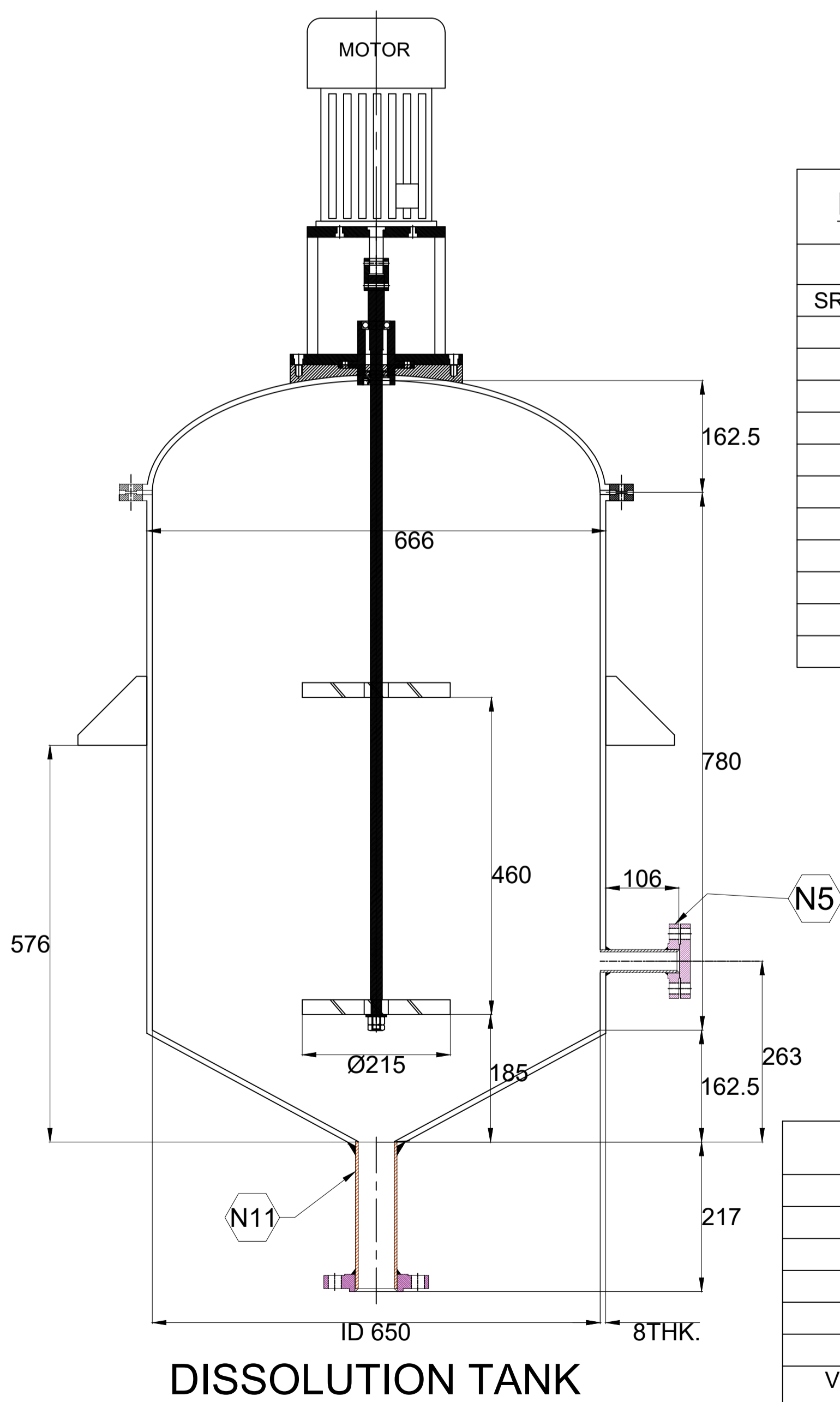
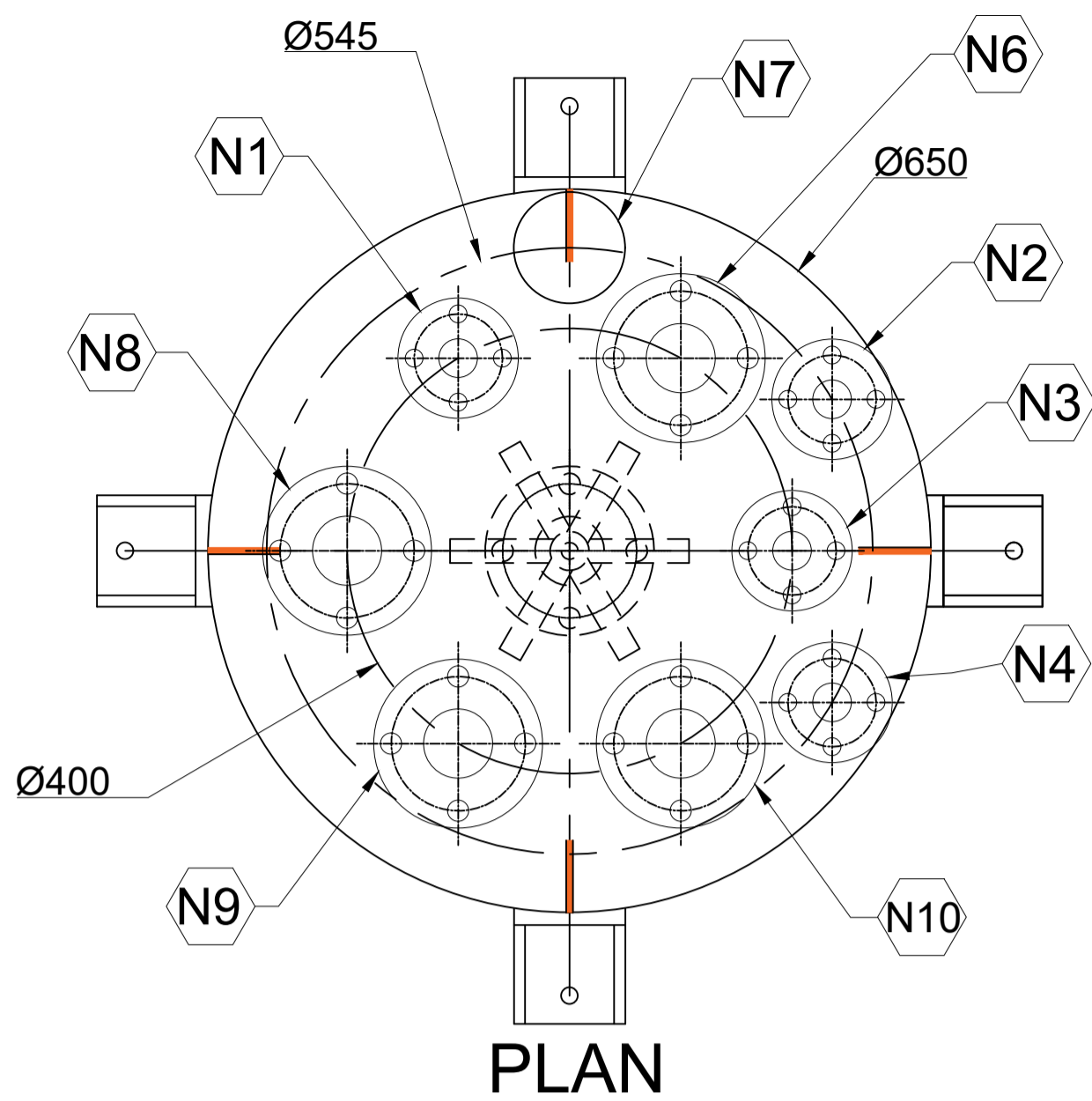
Thanking you

-Sd-

Sandeep Sharma (SO/G)

Encl: Drawing No = BARC/UED/Tank/01,02,03,04 & 09

SCALE- 1:1  
T-1



Motor=1kw, AC Induction with speed control

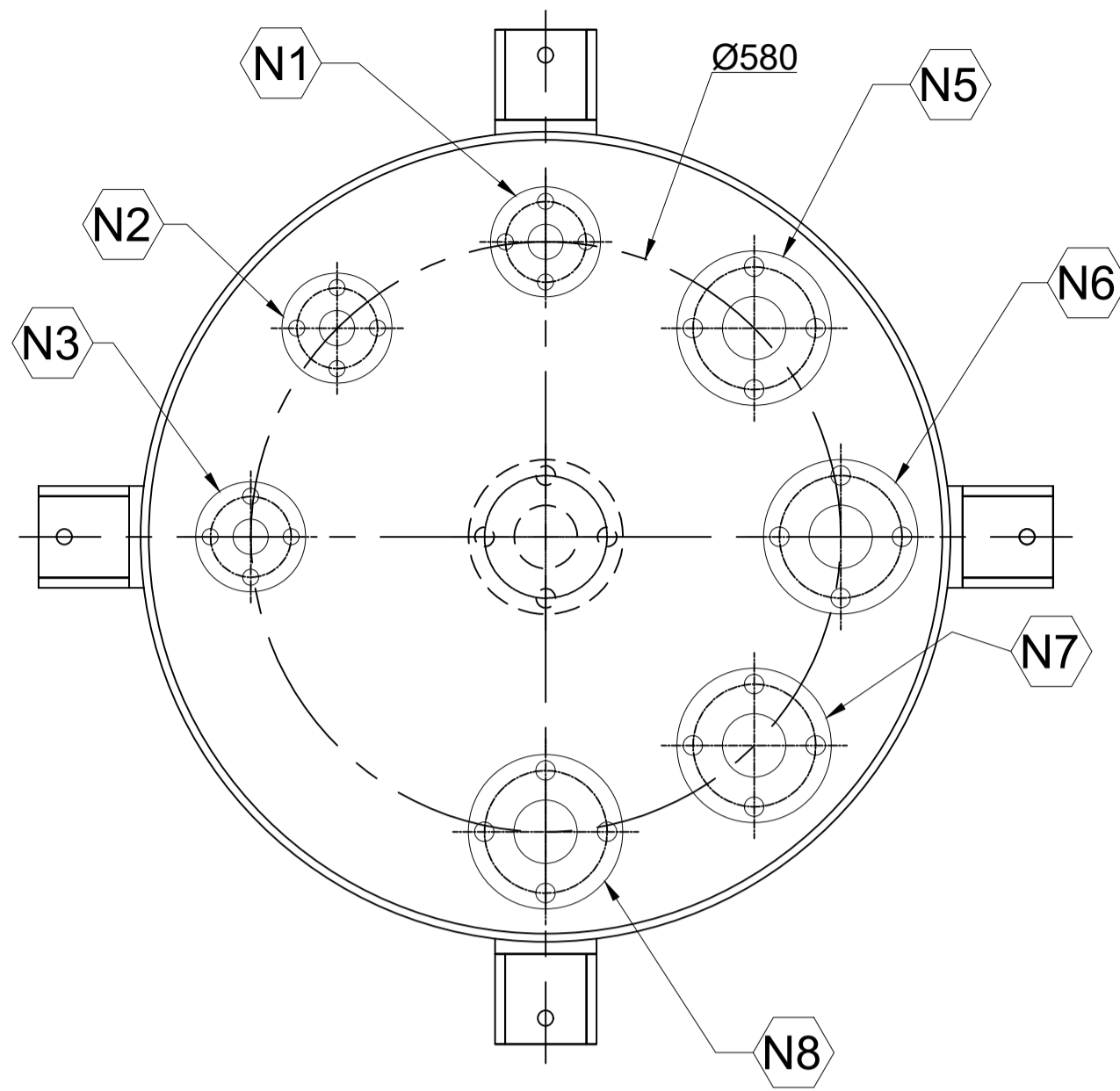
**NOZZLE DETAILS**

SR.NO.	NOZZLE	SIZE	Description
1	N1	25NB	Temp Indicator (TI)
2	N2	25NB	Level Indicator
3	N3	25NB	Sulphamic Acid (SA)
4	N4	25NB	Water
5	N5	25NB	Outlet/Extra (O/L)
6	N6	50NB	Powder Addition (PA)
7	N7	100mm	VP (View Port)
8	N8	50NB	Exhaust
9	N9	50NB	Heater
10	N10	50NB	Heater
11	N11	50NB	Bottom Drain

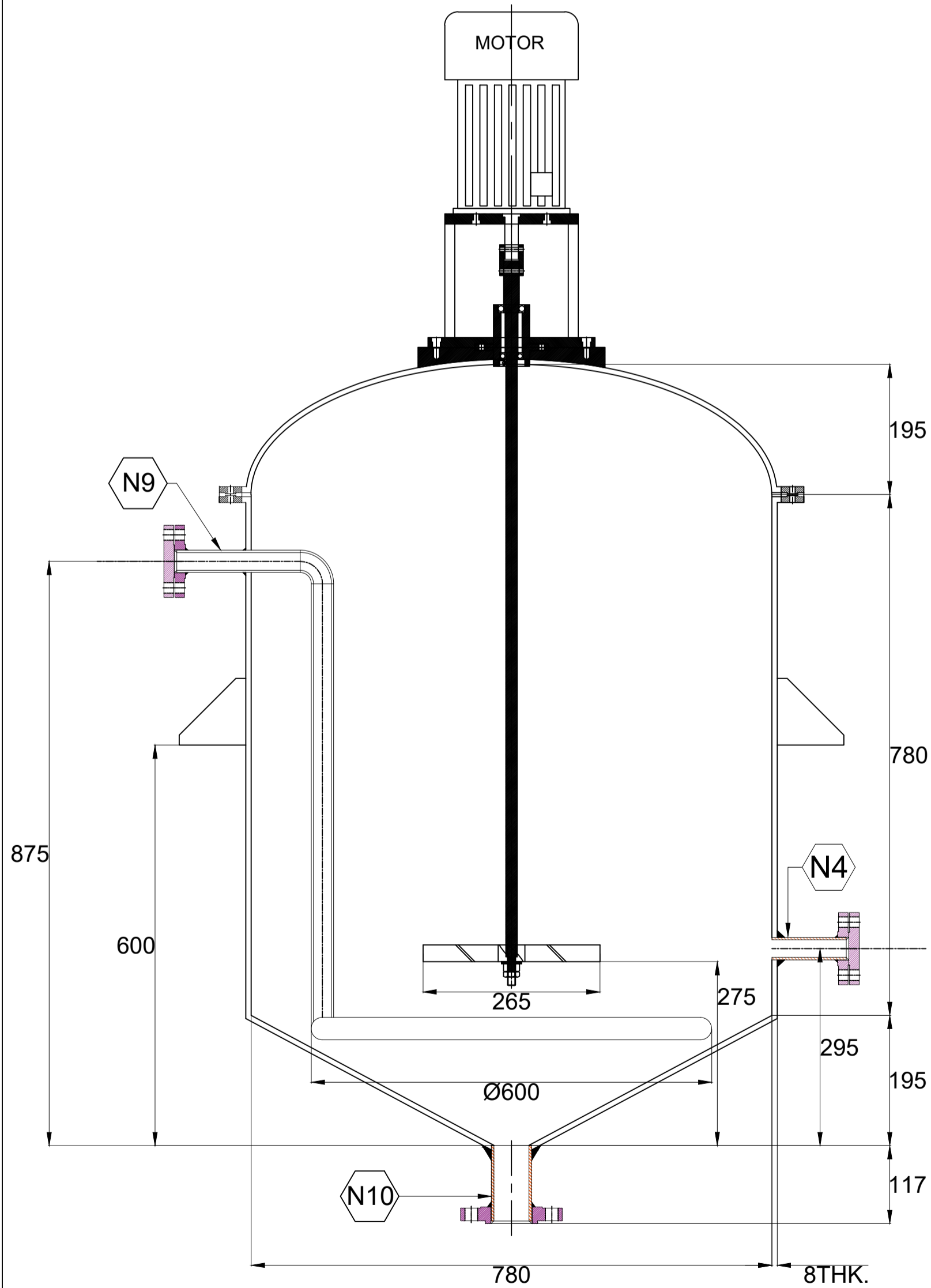
TANK TITLE	DISSOLUTION TANK
Identification No	T-1
Drawing Ref No	BARC/UED/TANK/01
MOC	FRP-PVDF
Thickness	FRP=5mm, PVDF=3mm
Capacity	PV/GV:165/330L
Design Pressure	2 Bar
Volume from bottom level	(552.5mm,50%LVL)=165L

SCALE- 1:1

T-2



PLAN



ELEVATION  
PRECIPITATION TANK

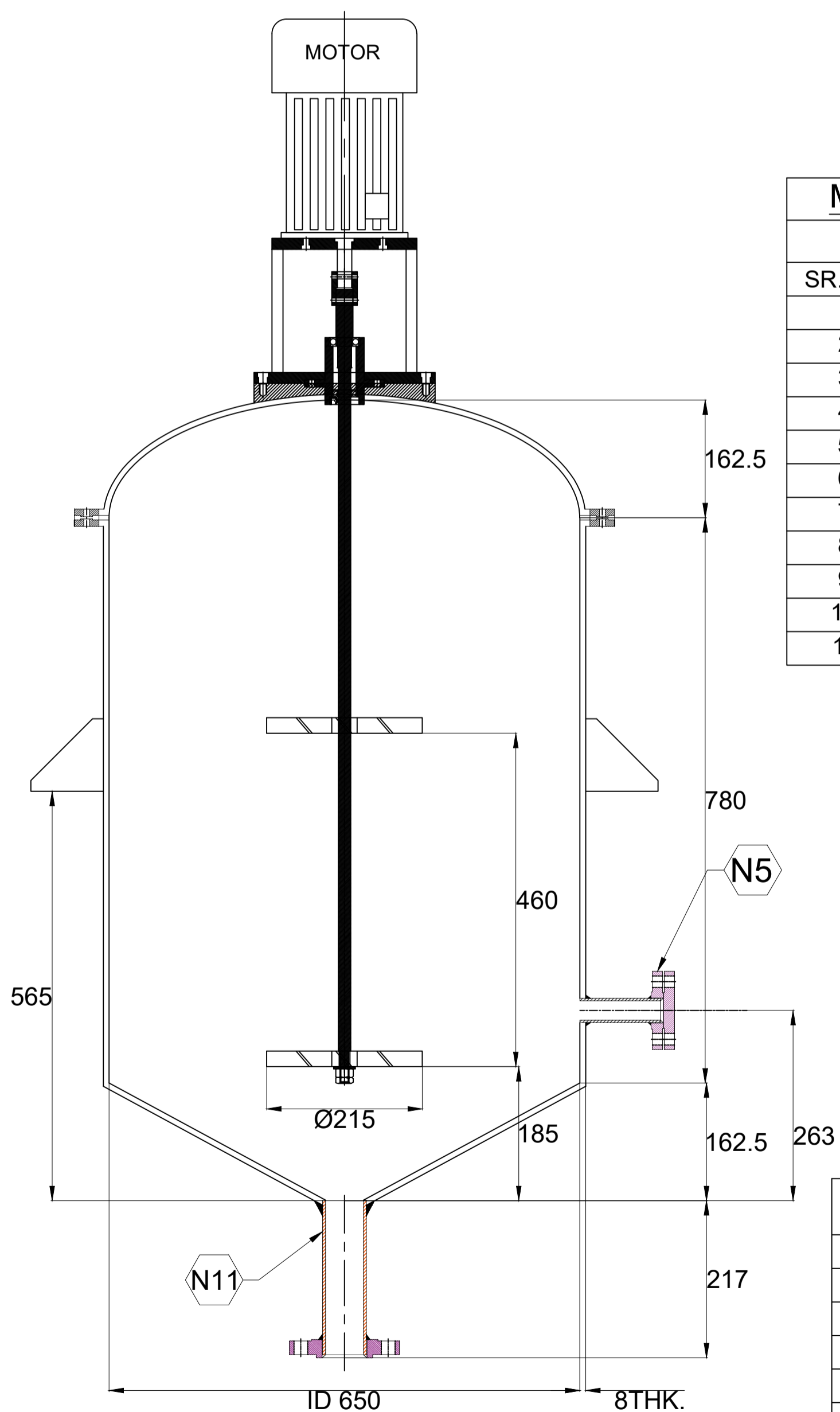
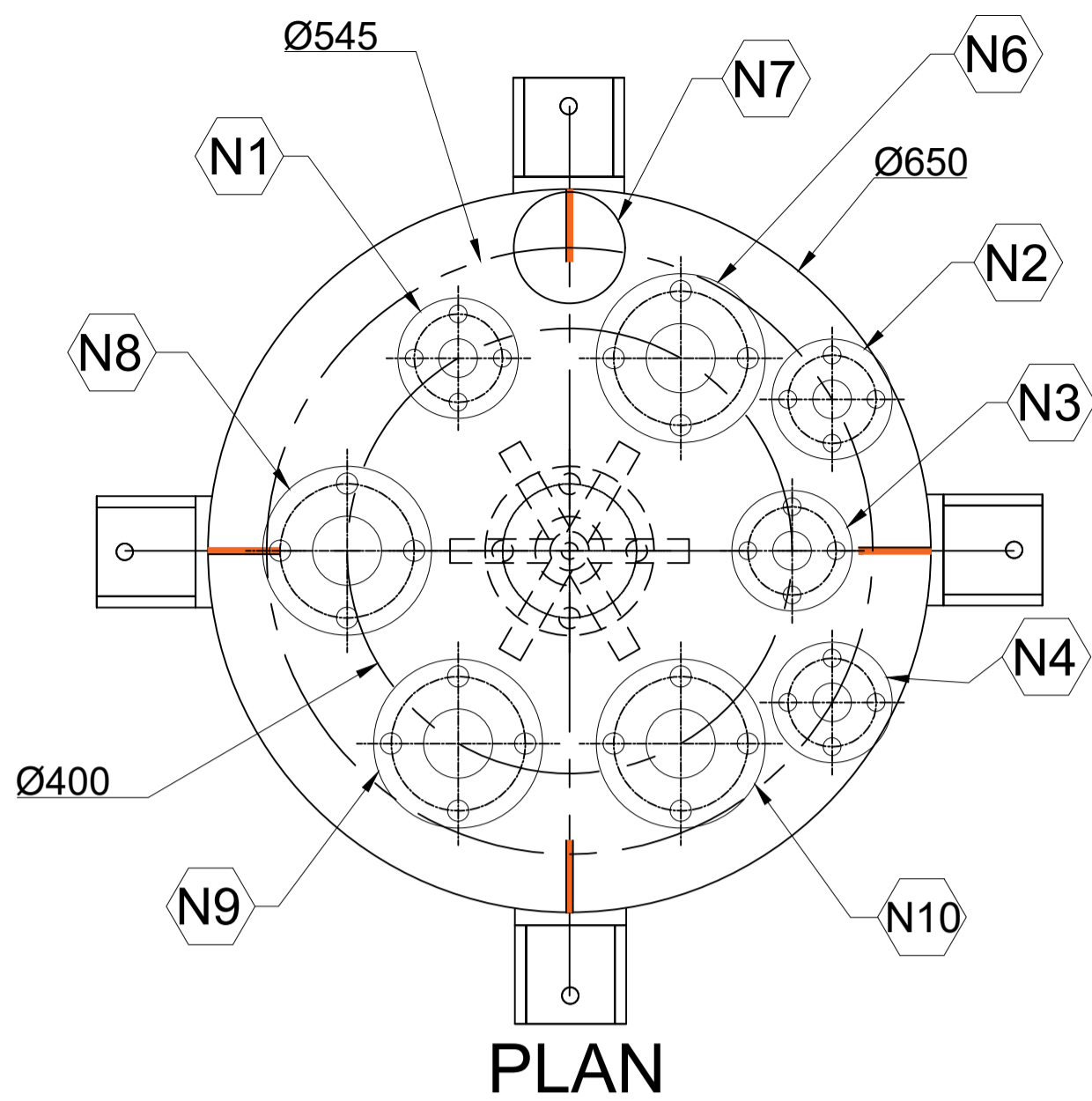
Motor=1kw, AC Induction with speed control

**NOZZLE DETAILS**

SR.NO.	NOZZLE	SIZE	Description
1	N1	25NB	Temp Indicator (TI)
2	N2	25NB	Sulphamic Acid (SA)
3	N3	25NB	I/L (Inlet)
4	N4	25NB	Extra (O/L)
5	N5	50NB	Heater
6	N6	50NB	Heater
7	N7	50NB	VP (View Port)
8	N8	50NB	Exhaust
9	N9	25NB	NH3/Air Inlet
10	N10	50NB	Bottom Drain

TANK TITLE	PRECIPITATION TANK
Identification No	T-2
Drawing Ref No	BARC/UED/TANK/02
MOC	FRP-PVDF
Thickness	FRP=5mm, PVDF=3mm
Capacity	PV/GV: 360/500L
Design Pressure	2 Bar
Volume from bottom level	(820mm)=360L

SCALE- 1:1  
T-3



Motor=1kw, AC Induction with speed control

**NOZZLE DETAILS**

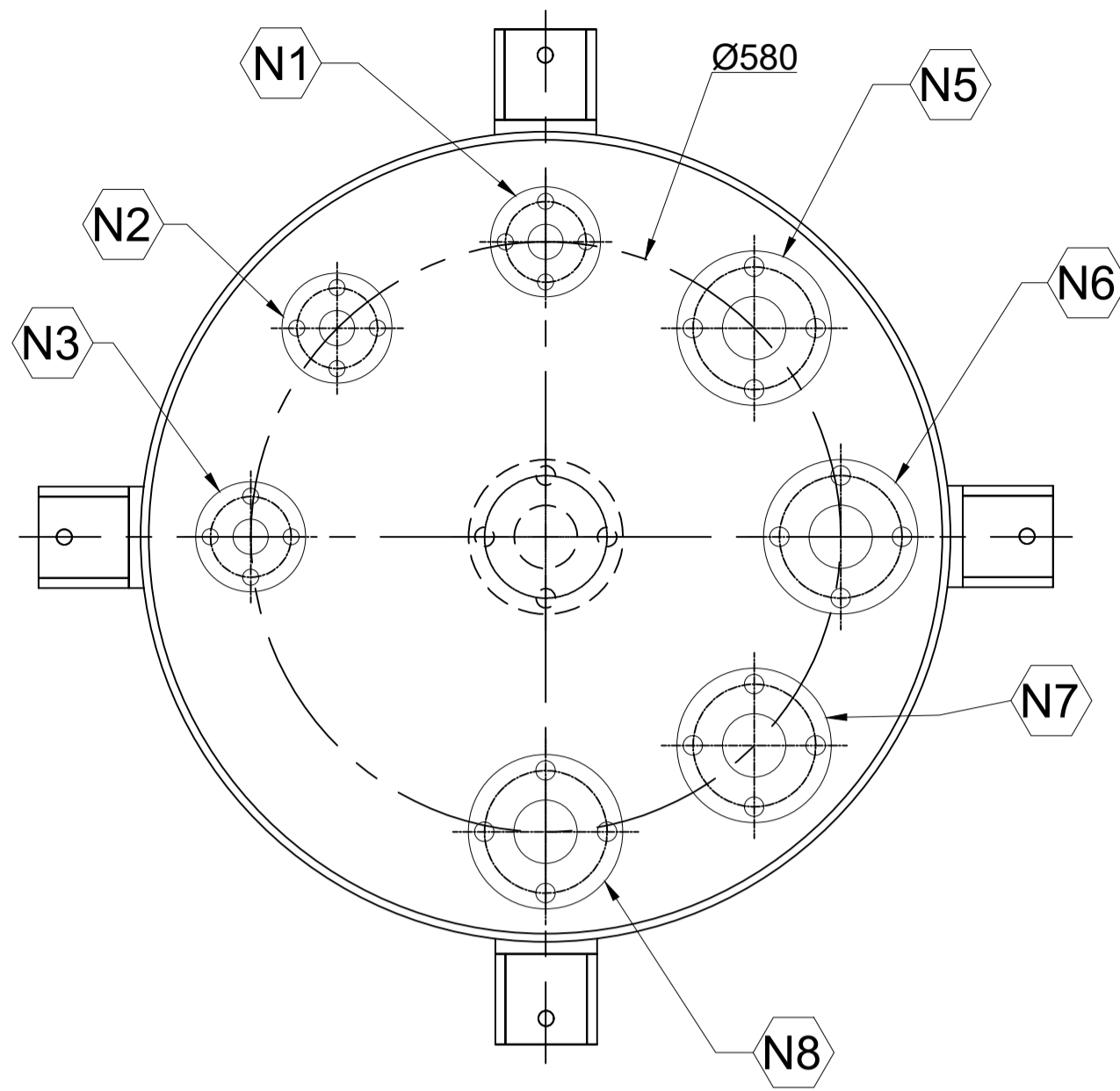
SR.NO.	NOZZLE	SIZE	Description
1	N1	25NB	Temp Indicator (TI)
2	N2	25NB	Level Indicator
3	N3	25NB	Sulphamic Acid (SA)
4	N4	25NB	Water
5	N5	25NB	Outlet/Extra (O/L)
6	N6	50NB	Powder Addition (PA)
7	N7	100mm	VP (View Port)
8	N8	50NB	Exhaust
9	N9	50NB	Heater
10	N10	50NB	Heater
11	N11	50NB	Bottom Drain

TANK TITLE	DISSOLUTION TANK
Identification No	T-3
Drawing Ref No	BARC/UED/TANK/03
MOC	FRP-PVDF
Thickness	FRP=5mm, PVDF=3mm
Capacity	PV/GV: 165/330L
Design Pressure	2 Bar
Volume from bottom level	(552.5mm,50%LVL)=165L

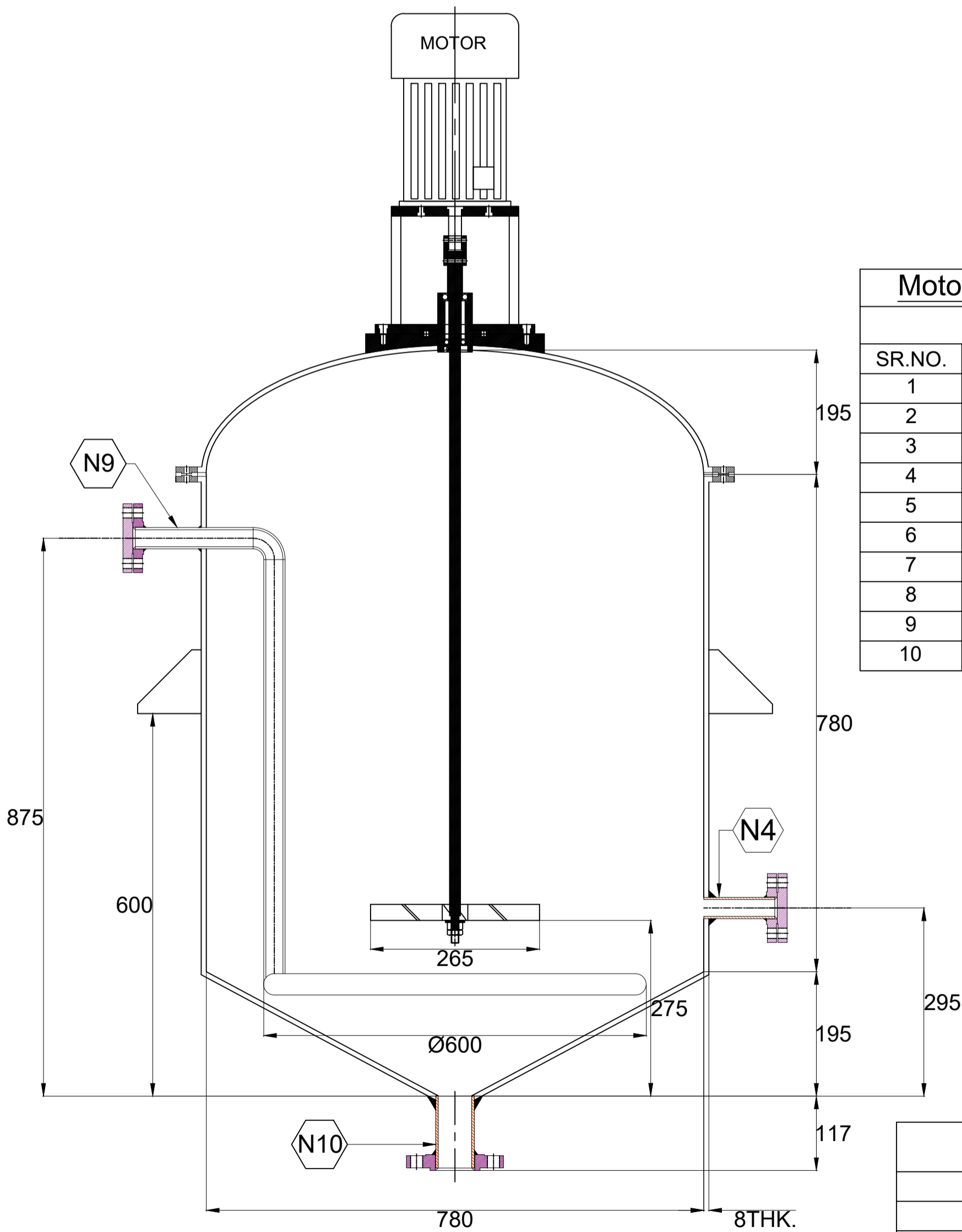


SCALE- 1:1

T-4



**PLAN**



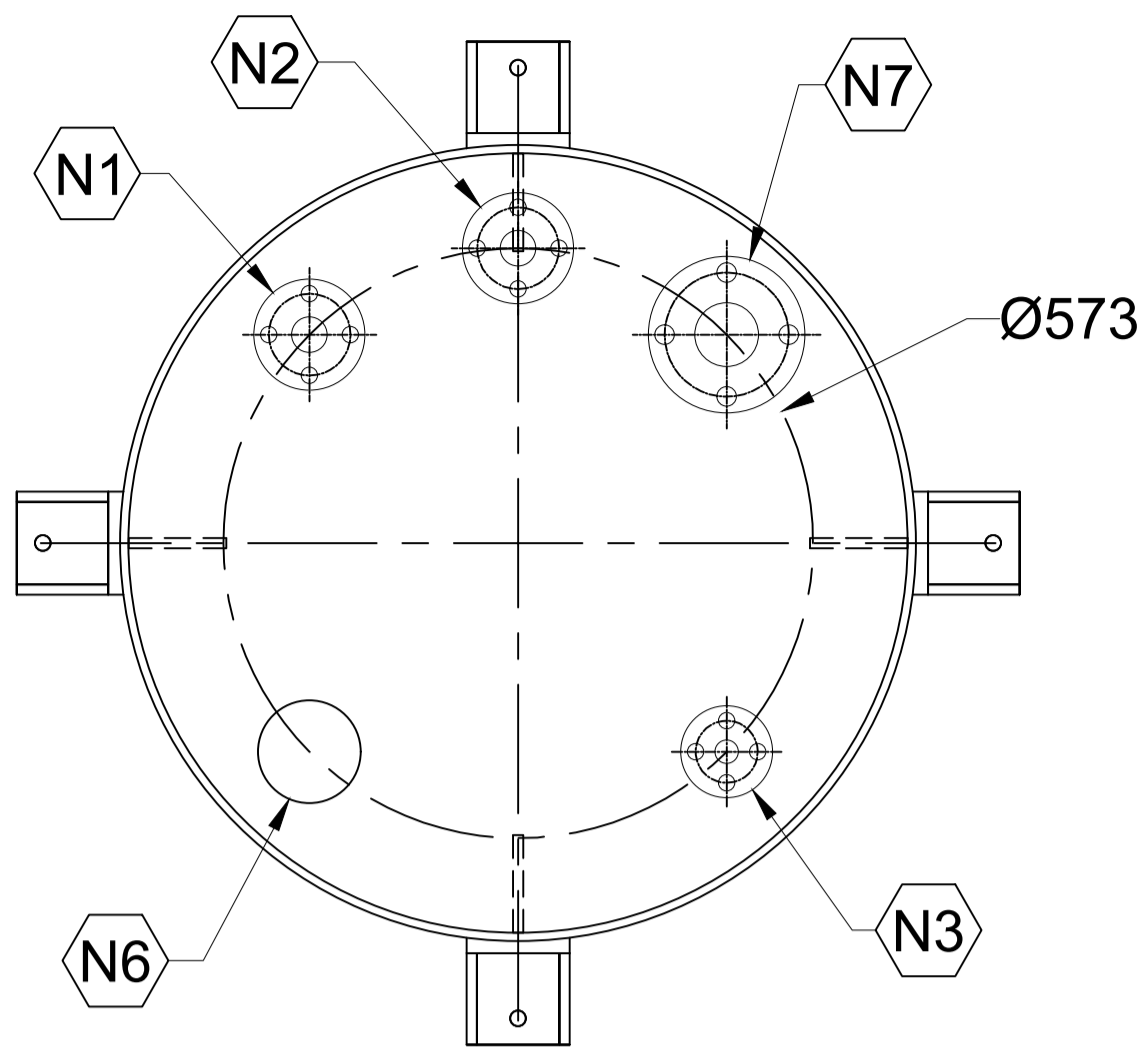
**ELEVATION  
PRECIPITATION TANK**

Motor=1kw, AC Induction with speed control

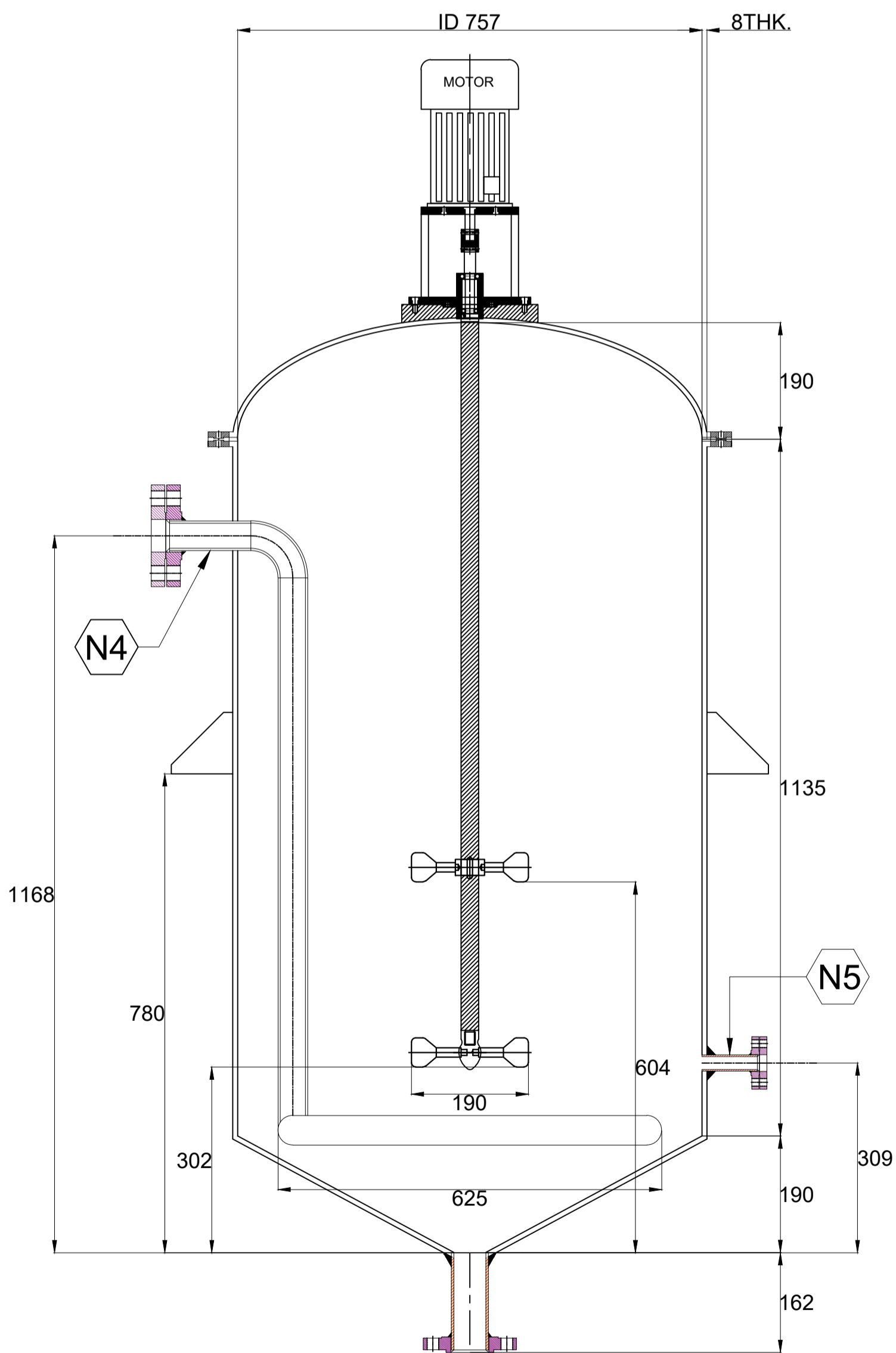
**NOZZLE DETAILS**

SR.NO.	NOZZLE	SIZE	Description
1	N1	25NB	Temp Indicator (TI)
2	N2	25NB	Sulphamic Acid (SA)
3	N3	25NB	I/L (Inlet)
4	N4	25NB	Extra (O/L)
5	N5	50NB	Heater
6	N6	50NB	Heater
7	N7	50NB	VP (View Port)
8	N8	50NB	Exhaust
9	N9	25NB	NH3/Air Inlet
10	N10	50NB	Bottom Drain

TANK TITLE	PRECIPITATION TANK
Identification No	T-4
Drawing Ref No	BARC/UED/TANK/04
MOC	FRP-PVDF
Thickness	FRP=5mm, PVDF=3mm
Capacity	PV/GV: 360/500L
Design Pressure	2 Bar
Volume from bottom level	(820mm)=360L



**PLAN**



**ADUC PRECIPITATION TANK**  
**(STD ADUC PRECIPITATION VESSEL)**

Motor=1.5kW, FLP Motor			
NOZZLE DETAILS			
SR.NO.	NOZZLE	SIZE	Description
1	N1	25NB	Temperature Indicator
2	N2	25NB	UNPS Inlet
3	N3	15NB	Inlet (Conical Open)
4	N4	40NB	Gas Distribution Pipe (Side Entry)
5	N5	25NB	Outlet/Extra (O/L)
6	N6	100mm	VP (View Port)
7	N7	50NB	Exhaust
8	N8	50NB	Bottom Drain

TANK TITLE	ADUC PRECIPITATION TANK
Identification No	T-9
Drawing Ref No	BARC/UED/TANK/9
MOC	FRP-PVDF
Thickness	FRP=5mm, PVDF=3mm
Capacity	PV/GV: 450/625L
Design Pressure	2 Atm
Volume from bottom level	(1065mm)=450L